

Food, Agriculture, and the Environment Discussion Paper 24

Food from Peace

Breaking the Links between Conflict and Hunger

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Foreword

At the close of the 20th century, greatly enhanced capacity to anticipate and address natural disasters means that serious food emergencies are almost always due to violent conflict and other human actions. Conflict prevention, conflict resolution, and postconflict reconstruction efforts are crucial to positive scenarios for food, agriculture, and the environment in 2020.

The end of the Cold War has, paradoxically, led to a proliferation of internal conflicts and civil wars, from the landmine-filled valleys of Afghanistan to teeming camps of uprooted people in the former Zaire. As a direct result, tens of millions of people face hunger, malnutrition, and disrupted livelihoods, including refugees, internally displaced people, and those trapped within battle zones.

In this paper, Ellen Messer, Marc J. Cohen, and Jashinta D'Costa show how hunger is often a direct result of violence, as warring parties lay siege to cities, destroy food supplies, devastate productive capacities, and demolish social structures in order to subjugate their opponents. Too often, food itself becomes a weapon of war. Hunger is also an inevitable or incidental outcome of the ways wars are waged.

In addition, the authors show how hunger can reciprocally cause conflict. Violent struggles often result from real or perceived resource scarcities, combined with a broad sense of injustice. Racial, ethnic, religious, and ideological differences are frequently implicated, as in the ongoing civil war in Sudan that has left one of every three children in that country malnourished.

The spread of conflicts in the 1990s means that an increasing share of food and development assistance must go to meet immediate humanitarian needs at a time of overall decline in aid. Resources are ever scarcer for the investments in equitable and sustainable development that could prevent violence.

The paper recommends new thinking to break the hunger-conflict-hunger chain. The authors call for including conflict prevention in food security and development efforts, as well as new linkages between food security and development on the one hand, and emergency relief on the other. Aid must foster cooperation rather than contributing to the negative competition that can cause conflict. Such new thinking is absolutely essential if the world is to succeed in turning the 2020 vision of universal food security and sustainably managed natural resources into a reality.

Per Pinstруп-Andersen
Director General

Preface

The project “Food from Peace,” sponsored by IFPRI’s 2020 Vision for Food, Agriculture, and the Environment initiative, originated as a session and workshop consultation at the Annual Hunger Research Briefing and Exchange, held at the World Hunger Program, Watson Institute for International Studies, Brown University, April 5–7, 1995. Ellen Messer, then director of the World Hunger Program took principal responsibility for the project conceptualization and writing. She was assisted by Thomas Marchione, then visiting associate professor (research) at the World Hunger Program, who took principal responsibility for modeling, data analysis, and writing the sections entitled “Food Production Forgone,” and “Quantifying the Links between Conflict and Food Production.” Marchione also supervised Z. Fesshaie and M. Yohannes, who contributed Eritrean and Ethiopian case studies on postconflict interventions. Marc J. Cohen, then of Bread for the World Institute, provided the conceptualization and figures on food and development aid and also hosted a consultation at Bread for the World Institute. He was assisted by Jashinta D’Costa, then of Bread for the World Institute. IFPRI provided funding for the workshop as part of the activities of the 2020 Vision initiative. The authors acknowledge the assistance of David Nygaard and Annu Ratta then of IFPRI over the course of finalizing this paper. Yassir Islam of IFPRI and Richard Longhurst of the Commonwealth Secretariat provided helpful comments on the first draft.

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1. Introduction

After 20 years of optimism, international food and nutrition experts are presenting a more cautious world food outlook (see, for example, Pinstrip-Andersen, Pandya-Lorch, and Rosegrant 1997). Although the world as a whole now enjoys a food surplus, over the next two decades, annual growth rates of yields of major cereal crops are expected to slow, while global population is expected to grow by 2 billion people. Cultivated land areas are diminishing, and environmental and biological resources are being degraded and destroyed. Developing countries also face economic threats to their food security because multilateral trade agreements will likely reduce food surpluses in the developed countries, raise grain prices, and shrink food aid. Future food security in developing countries is also menaced by cutbacks in foreign assistance, an increasing proportion of which is now allocated to disaster situations, reducing the amount available for agricultural research investment.

These factors suggest that developing countries will face growing food deficits, food insecurity, and nutritional insecurity. They may also face environmental degradation and natural resource scarcities that will end in greater competition and conflict (Brown and Kane 1994; Kaplan 1994). Several recent studies have proposed a significant link between environmental resource scarcity and violence (Homer-Dixon 1991, 1994). This paper expands this proposition to consider significant linkages among environmental resource scarcities, conflict, food, and hunger.

The paper argues that armed conflicts (armed struggles involving more than 1,000 deaths) or “food wars” constitute a significant cause of deteriorating food scenarios in developing countries. “Food wars” are defined to include the use of hunger as a weapon or hunger vulnerability that accompanies or follows from destructive conflict (Messer 1990). They have already been shown to be a salient factor in the

famines of the 1980s and 1990s (for example, Bohle 1993; Messer 1994; Macrae and Zwi 1993, 1994; Messer 1996a). Although geographic information and famine early warning systems and international food reserves established after the famines of the mid-1970s provide both timely early warning and a capacity for emergency response, active conflict or social disorganization accompanying or following conflict prevent food distribution.

Food wars are also a growing cause of chronic underproduction and food insecurity, where prolonged conflicts prevent farming and marketing and where land, waterworks, markets, infrastructure, and human communities have been destroyed. The data suggest that most countries and regions that are currently food insecure are not hopeless underproducers but are still experiencing the aftermath of conflicts, political instability, and poor governance. Their food production capacities are higher, and medium- to longer-term food outlooks brighter, than current projections predict.

Reciprocally, food security can help prevent conflict and is essential for sustained and peaceful recovery after wars have ended. A principal source of conflict lies in lack of food security, as experienced by different households and communities; religious, ethnic, and political groups; and states. Yet both peace and food security remain elusive for many war-ravaged countries where decimation or flight of material and human resources make a return to normal food and livelihood security difficult to achieve.

To many analysts, this pernicious cycle of hunger, followed by conflict, followed by hunger, seems unbreakable. Neo-Malthusians, concerned about population growth and economic stagnation, especially in Africa, insist population-resource imbalances lead inevitably to hunger, accompanied by illness, warfare, and excess deaths. They view the developing world as either a powder keg of civil

disorder and violence or a basket case of environmental deterioration and destitution (for example, Kaplan 1988, 1994). But case studies so far have been unable to identify the exact thresholds of environmental deterioration or perceived scarcities that push populations over the line into nonresilient decay or violence (for example, Homer-Dixon 1991).

Anti-Malthusians counter that population pressure–led cycles of scarcity, crisis, and destruction can be averted and that scarcity is always relative to human ingenuity, technological innovation, social restructuring, and political and economic policy (Boserup 1965). Technological optimists argue that population, far from being an inevitable time bomb, actually triggers technological and infrastructural improvements. This perspective appears in the early literature of the Green Revolution (S. Sen 1975), in the writings of certain African technologists (Juma 1989), and in the encouraging food outlooks of certain economists (Mitchell and Ingco 1993) and other analysts such as Simon (in Myers

and Simon 1994). These optimists argue that evidence for deteriorating resources is faulty and that technological innovation and application can meet the challenges. Unfortunately, none has been able to demonstrate how in contemporary war-ravaged settings, human populations might serve as a resource and stimulus to restore hope, rebuild food security, and remove despair.

This paper explores in detail the multiple connections between food insecurity and armed conflict by reviewing the extent of “food wars,” estimating agricultural and other costs of conflict, and extracting policy lessons from case studies of Rwanda and Eritrea that suggest ways to reduce linkages between conflict and food insecurity through more careful aid programs before, during, and after conflicts. The discussion brings together “world food and hunger outlook” and “armed conflict—food crisis” perspectives to create a more comprehensive food, agriculture, and environment vision for 2020 (IFPRI 1995).

2. Armed Conflict and Hunger

The Extent of Armed Conflict in the Contemporary World

In 1996 armed conflicts, mainly in the form of civil wars and their aftermath, put at least 80 million people at risk for hunger and malnutrition (Hansch 1996). Humanitarian assistance sources located some 30 million people in zones of active conflict, including those in eight developing countries where internal conflicts left more than 11 million people dependent on humanitarian assistance (Table 1). In another 13 countries, more than 14 million people continued to require humanitarian assistance in the aftermath of war (Table 2). A higher estimate would include additional populations in the 47 countries that have experienced wars since the 1970s. Many of these people are still suffering, to varying degrees, from malnutrition and loss of access to food, although not acute food shortages (famine),

Table 1—Need for humanitarian assistance in areas of active conflict, December 1996

Country	Number of people in need of humanitarian assistance (millions)
Afghanistan	2.0 ^a
Burundi	0.4
Iraq	4.0
Somalia	0.8
Sri Lanka	0.9
Sudan	2.0
Tajikistan	0.6
Zaire	0.5

Sources: FAO 1996; U.S. Mission to the United Nations 1996; ACC/SCN 1996; U.N. Office for the Coordination of Humanitarian Affairs.

^a Authors' estimate, based on ambiguous reports from the United Nations Department of Humanitarian Affairs.

as a result of the conflicts (Messer 1996a). Box 1 displays these countries by region.

Conflicts in the 1970s and 1980s were fueled in large part by Cold War policies that encouraged spending on arms and used food as a political tool. In 1989 hunger was being used as a weapon or existed as a consequence of earlier wars in 20 areas (excluding the Eastern Bloc) (Messer 1990). These were Afghanistan, Angola, Burma, Cambodia, Chad, El Salvador, Ethiopia, Guatemala, Indonesia–East Timor, Iraq, Iran, Mozambique, Nicaragua, Peru, the Philippines, South Africa, Sri Lanka, Sudan, Uganda, and Viet Nam. Largely as a result of the

Table 2—Need for humanitarian assistance in postconflict countries, December 1996

Country	Number of people in need of humanitarian assistance (millions)
Angola	1.4
Armenia	0.4
Azerbaijan	0.9
Bosnia ^a	2.3
Cambodia	1.6
Eritrea	0.8
Ethiopia	1.9
Georgia	0.7
Liberia	1.1
Mozambique	0.2
Russia (Northern Caucasus)	0.4
Rwanda	1.4 ^b
Sierra Leone	1.3

Sources: FAO 1996; U.S. Mission to the United Nations 1996; ACC/SCN 1996; Nahro 1996; and web sites of the Food and Agriculture Organization of the United Nations, the U.N. Office for the Coordination of Humanitarian Affairs, and the World Food Programme.

^a Includes other parts of former Yugoslavia.

^b Situation undergoing rapid change in December 1996.

Box 1—Countries affected by food wars, by region, in 1998

Africa	Asia	Latin America	Eastern Europe and Former Soviet Union
West	West	Caribbean	Eastern Europe
Central African Republic	Iraq	Haiti	Albania
Ghana	Turkey	Central America	Bosnia-Herzegovina
Liberia	South	El Salvador	Croatia
Niger	Afghanistan	Guatemala	Serbia
Nigeria	India (Kashmir)	Mexico	Former Soviet Union
Sierra Leone	Sri Lanka	Nicaragua	Armenia
Togo	Southeast	South America	Azerbaijan
East and Central	Burma	Colombia	Russia (Chechnya)
Burundi	Cambodia	Peru	Georgia
Congo	Indonesia		Moldova
Congo, Democratic Republic of (Zaire)	(East Timor/ West Irian)		Tajikistan
Eritrea	Philippines		
Ethiopia			
Kenya			
Rwanda			
Somalia			
Sudan			
Tanzania			
Uganda			
Southern			
Angola			
Mozambique			
North			
Algeria			

Source: Messer 1996a; ; U.N. Office for the Coordination of Humanitarian Affairs.

winding down of the Cold War after 1989, peace and progress toward free elections have been formally pursued in Angola, Cambodia, El Salvador, Eritrea, Ethiopia, Guatemala, Mozambique, Nicaragua, and South Africa. In all these cases, however, hunger endures as a legacy that contributes to lingering conflicts (Messer 1996a, 19–20). More positively, a return to food security has accompanied greater political stability in Uganda and Viet Nam. But offsetting these gains are

renewed hostilities in Burundi, Haiti, Iraq, Mexico, Rwanda, Somalia, Turkey, and Zaire and a possible major new cultural conflict and humanitarian emergency in Nigeria.

These conflicts also underlie the increase in the number of people who cross international borders as refugees. The number of refugees rose to 23 million in 1996, up from 2.5 million in 1974,¹ and the number of internally displaced persons who remained within their original state's borders was

¹Not all of these people received official recognition as refugees from the U.N. High Commissioner for Refugees.

estimated at 27 million (Hansch 1996). Refugees highlight the truism that conflicts have an important regional dimension; they affect the livelihoods and food security of households and individuals located far from the original fighting. People in neighboring countries suffer losses in entitlements and access to food when fighting spills across borders, disrupts regional commerce, or introduces refugee streams who must be fed. Refugees appropriate environmental resources and commandeer food, thereby creating scarcities of water, fuel, and food for local populations. Their sales of cattle and valuables, and sometimes of labor, distort regional and local exchange economies, again placing livelihood and subsistence at risk for residents.

Additional economic disruptions accompany conflict-related sanctions. In the aftermath of the Persian Gulf War, Jordan, which had sided with Iraq, faced sanction-related bans on customary commerce plus political penalties that reduced income from trade, foreign aid, and remittances by US\$1.5 billion.² Countries as far away as Pakistan and the Philippines suffered losses in income that reduced food security when foreign workers in Iraq were asked to leave and not return.

Regional conflicts distort most national economies in a region, whether or not their governments are directly involved in the fighting. From 1994 through 1996, Rwandan Hutu refugees destabilized and deforested refuge areas in Zaire. Rwandan and Burundian Tutsi intervention, aimed at eliminating these Hutu refugees and preventing their repatriation, is credited with finally toppling Zairian dictator Mobutu Sese Seko from power (McKinley 1997). The Thai border region has been destabilized politically and economically by refugees from the Cambodian civil war, who, self-settled or maintained in refugee camps, transformed the political economy of the region and added a burdensome military presence. Arguably, the flood of indigenous Guatemalans fleeing military brutalities in the early 1980s challenged the economic and political stability of the southern Mexican state of Chiapas, even as

the Mexican government sought to resettle refugees away from potentially volatile political areas.

Contributing to meeting the food needs of refugees places a particular burden on recipient communities where food security is already marginal. Additional demands by newcomers for food, water, land, and fuel can reduce households that were only marginally food secure to acute food shortage. In bad years, when households are forced to sell assets to buy food, they often find markets disrupted, forage areas stripped, and buffers such as livestock reduced in value because refugees are also unloading their animals. Such conditions can turn seasonal or chronic food insecurity into acute famine and cause deaths far from the fighting. Refugees fleeing the fighting in northern Chad, for example, upset markets in western Darfur, Sudan, during the drought years 1983–85, transforming that food shortage into a “famine that kills” (DeWaal 1989b). Although in certain refugee-recipient regions, relief agencies such as the International Federation of Red Cross and Red Crescent Societies (IFRC) provided assistance to resident villagers as well as refugees in an effort to prevent short-term suffering or resentment leading to conflict, over the longer term these efforts also contribute to economic distortions and may leave local and regional economies in disarray when refugees uproot and return home, as in Malawi (Walker 1994). Returning refugees, who can introduce to their home communities diseases such as AIDS, which have short-, medium-, and longer-term consequences for health and food security, also add to the burden of resident communities (Torres-Anjel 1992).

How Conflict Causes Hunger

Food Shortage

The most obvious way armed conflict affects hunger is through the deliberate use of hunger as a weapon. Food shortages and famine deaths occur where adversaries starve opponents into submission. Acts of siege warfare include seizing or

²Trade was lost owing to the embargo against Iraq as well as to Jordan’s decision to support Iraq. In addition to losses from the cross-border trade with Iraq, Jordan suffered losses when Saudi Arabia banned Jordanian trucks from carrying fruits and vegetables through its country to Gulf states. In a single year, US\$300 million in remittances from Jordanian workers in Gulf states were lost. These same workers returned to swell the ranks of the underemployed in Jordan (Brittain 1991; Feuilherade 1992).

destroying food stocks, livestock, and other assets in food-producing regions; cutting off marketed supplies of food in these and other regions; and diverting food relief from intended beneficiaries to the military and their supporters. Farming populations are also reduced by direct attacks, terror, enslavement, or forced recruitment and by malnutrition, illness, and death. As farming populations flee, decline, or stop farming out of fear, production falls, spreading food deficits over wider areas. Land-mining and poisoning wells are additional hostile acts that turn temporary acute food shortages into longer-term insufficiencies; these acts force people to leave and not return and thus interrupt food production and economic activities permanently. Conflict-linked food shortages thus set the stage for years of food emergencies, even after fighting has officially ceased.

To counteract food shortages and prevent famine deaths, the international community has maintained geographic information/famine early warning systems and food reserves since the 1970s. Where information systems identify impending or actual acute food shortages, the United Nations and bilateral donors, with the IFRC, the World Food Programme (WFP), and nongovernmental organizations (NGOs), ordinarily move food and other emergency care into affected zones to prevent starvation and suffering. Such interventions also are meant to forestall involuntary migrations by would-be victims. By the 1980s, early warning and response had been largely successful in preventing famine except in war zones.

Moving food into zones of armed conflict to prevent famine deaths, therefore, became a major goal of humanitarian assistance and famine relief (Minear et al. 1990; ICN 1992). Unfortunately, much of the food aid intended for noncombatants is hijacked by warring parties, who use control of food aid to reward would-be supporters, starve out opponents, and keep conflict alive. In Ethiopia the Mengistu government, after starving the opposition, used food aid strategically to remove and forcibly resettle opposition populations (Clay 1988). In southern Sudan both government and opposition forces have used famine as a weapon to control territories and populations since the late 1980s. Government and resistance forces commandeer emergency food, which enables both sides to fight on and also to use food as an

instrument of selective ethnic and religious oppression (African Rights 1994a; Keen 1994; Minear 1997). In both situations selective food shortages were first created and then maintained by those who controlled and diverted food aid. Among Rwandan Hutu refugees, control of food distribution in refugee camps has been a chief source of political power. Donated food intended for the most vulnerable women and children found its way first to powerful male interests, enabling them to keep invasionary hopes alive.

Transporting and guarding emergency food supplies in conflict situations also becomes a chief source of livelihood, vehicles, and arms for would-be combatants. Such distortions have led some analysts (African Rights 1994a; Minear 1997) to argue that food aid prolongs conflicts and should be stopped unless it can be delivered with more oversight. A continuing challenge for donors is how to deliver food and other essential aid in ways that can relieve food shortages and renew productive capacities without refreshing the fighters.

Food shortages related to conflicts also can be characterized as entitlement failures where political powerlessness or economic destitution—usually both—prevent communities, households, or individuals from getting access to food even where it is available. After being stripped of essential assets including tools, livestock, and jewelry, or parlaying them into food to meet immediate nutritional needs, people find themselves without further resources. Conflict-related destitution thus creates conditions of chronic food insecurity and shortage for households that otherwise may have been temporarily or seasonally short of food.

Food Poverty or Food Insecurity

Less dramatic but more pervasive is the chronic food insecurity created by conflict that usually lingers long after active fighting has ceased. Food insecurity, or poverty-related hunger, follows from armed violence that disrupts markets and livelihoods and leaves households without sufficient resources to access food.

Armed violence destroys assets of civilians and removes whole communities or selected households and individuals from customary sources of income. Where manufacturing and market areas are

bombed, or transport disrupted, livelihoods are destroyed over wide areas. In addition, conflicts disrupt migratory labor and remittance patterns over broad regions, as has been shown in the recent conflicts in the Horn of Africa and Iraq.

Multiple years of warfare remove entire age cohorts from formal schooling and ordinary socialization and cause longer-term multigenerational underemployment and underdeveloped peacetime work skills. Poverty-related hunger is likely to persist well after the armed struggles have ceased in Southern and West Africa and Central America because more than 20 years of armed violence has underprepared the younger generation for any vocation other than fighting. After wars have destroyed natural and social resource bases, people must reform and rebuild communities, regain land titles, reconstruct waterworks, replant trees, and recruit seeds, animals, and tools to restore livelihoods. They must also reconcile hostilities and distrust that in some cases predate active fighting. None of these are quick turnarounds, and all contribute to continuing underproduction, poverty, malnutrition, and risk of renewed violence.

To overcome food insecurity and break cycles of conflict, donors such as CARE have focused on restoring livelihood security through programs that attempt to use food relief for development, and create new employment or entrepreneurial skills through training or microcredit programs. Food is not simply given away but serves as payment when people rebuild bunds, reconstruct roads, or reseed forests. Tools, seeds, and small loans are additional instruments (CARE-USA 1995). But such food-for-work (FFW) or income-generation projects in active- or postconflict situations often suffer from insufficient country-level infrastructure to plan, implement, and monitor them. They may also lack the community-level organizations needed to negotiate labor contracts and food distributions because after wars, communities are still regrouping. FFW programs additionally are criticized on humanitarian grounds because women and children or others most in need of food may be too weak to work. The case of postwar Ethiopia illustrates all these constraints. In 1994 it appeared that Ethiopia would have to import the bulk of its food for years to come (Davies 1994; Maxwell and Lirensu 1994). Good harvests in 1995 and 1996 reduced the food gap

but could not create concomitant infrastructure or entitlements to reach all those who were malnourished and too poor to access the additional food. Rebuilding entitlements to food may entail trade-offs between meeting the immediate food needs of the most food-deprived and malnourished and building food-security capacities over the longer term.

Food Deprivation or Nutritional Insecurity

Individual food deprivation, or nutritional insecurity, refers to protein-energy or micronutrient malnutrition, which may afflict individuals even in situations where communities and households appear to be food secure. Women, children, the elderly, or socioeconomically marginal members of households such as servants or those of other ethnic identity may be deprived of adequate food or suffer malnutrition even where household food supplies are adequate or plentiful. In situations of active conflict, women and children or others who are left behind may have less access to food after men mobilize into armed forces or migrate in search of additional food or employment. They also face elevated risks of illness and malnutrition when health care services and social service institutions are destroyed. Emergency food rations may be nutritionally unbalanced and insufficient to meet their micronutrient and protein-energy needs. In the absence of additional markets and sources of food and income, their food, supplies, health, and care are jeopardized.

Displaced and refugee populations are particularly vulnerable to nutritional deprivation, related respiratory and gastrointestinal disorders, and violence in the crowded and unhygienic conditions of emergency camps. Men with guns can out-compete civilians, the intended beneficiaries, for humanitarian food aid. Women everywhere are the special targets of violent physical and sexual abuse, and such terrifying experiences interfere with their postwar recovery and return to normal social and economic behavior (el Bushra and Piza-Lopez 1994). Children are also special victims of violence. The United Nations Children's Fund (UNICEF) (1994, 1996) estimates that more than 1.5 million children have been killed, more than 4 million physically disabled, and more than 12 million rendered

homeless in conflicts over a decade. Elevated levels of children's clinical malnutrition and malnutrition-related disease and deaths persist in war zones even after conflicts have ceased because children have been traumatized and physically and psychologically disabled and because health services have been destroyed. In addition, war-torn countries are less able to plan and implement nutrition programs to overcome childhood malnutrition. The United Nations Administrative Committee for Coordination–Sub-Committee on Nutrition (ACC/SCN) and UNICEF found progress in eliminating childhood malnutrition to be least evident in 11 countries that were recently war torn. These countries were also classified as least likely to meet World Summit for Children nutrition goals (Mason, Jonsson, and Csete 1996, 171–172).

Donors have tried to respond to the special needs of the food deprived by targeting food for refugee areas and by trying to address the special food, health, and psychological needs of women and children. Some critics recommend that emergency aid be delivered directly to women, who are more likely than men to feed children (African Rights 1994a,b, 1995). Aid analysts have also emphasized the need to address the health and care dimensions of nutrition, in addition to food issues.

Deliberate, Inevitable, and Incidental Impacts of Conflict

Siege is a war tactic used deliberately to destroy food supplies and productive capacities and to bring besieged populations to submission. Recent siege tactics include prevention or diversion of food aid, economic sanctions, and donor policies that selectively withhold food aid and ban commerce. In this last case the goal is the removal of a leader or regime, not the submission of an opposing population.

Asset stripping that enriches and empowers aggressors over victims is another deliberate tactic with long-term and devastating consequences (Keen 1994). The seizure of Dinka resources by government-supported militias in south-central Sudan systematically put Dinka land, livestock, and newly discovered oil in the hands of northern Sudanese government interests. It reduced the Dinka to penury and removed them as a political threat.

Deliberate destruction of health and education services, community leadership, and social structures are intended to deprive younger folk of customary socialization, access to food and medicine, cultural knowledge, and intergenerational nurturance. These tactics were used in conflicts in Liberia, Mozambique, and Sierra Leone. In Mozambique, Renamo insurgents deliberately targeted health infrastructure in acts of violence that afflicted communities as well as government (Green 1994). They isolated youth from their communities to disrupt intergenerational trust and transfer youths' loyalties to them. Like other insurgents, Renamo also disrupted customary culture and civility by perpetrating violence against women, who would ordinarily have been protected by intact kinship structures. Such acts destroy human dignity and social capacity, as well as materials and infrastructure, creating immediate food shortages that also set the stage for chronic food insecurity for some time to come.

Other losses are the inevitable or incidental outcomes of the ways wars are waged. Rural cropping patterns and units of food production inevitably change as national markets become inaccessible. Rural food insecurity usually increases because local food production cannot rise to a level sufficient to replace market food sources plus feed populations swollen by refugees from urban and other rural areas who also need to live off the land. More people are usually hungry, although aggregate statistics do not reveal the extent or distribution of shortfalls.

Rural pastoralists tend to be at higher risk because their mobility is circumscribed, traditional pasturage ranges can become inaccessible, and remaining pasturage zones are undermined by overgrazing. Even where their assets have not been deliberately stripped or their livestock commandeered by the military, pastoralists suffer elevated losses in income when fighting or refugee movements distort livestock markets. For mixed pastoralists-agriculturalists, depletion of herds and precipitous drops in the price of livestock remove household buffers against shortfalls and eliminate assets available to invest in their future food supply. The elimination of animals incurs additional costs for agriculturalists, who lose manure for their crops as well as animal traction, without which crop yields deteriorate and food supplies fall. Without being able to "bank" on livestock, herding-farming

households must assume additional risk-averse behaviors. Households that in more stable times held crops as well as livestock as insurance against seasonal shortage, instead sell them immediately to gain mobile assets that are less easily seized or destroyed. Removing such buffers sets the stage for acute food shortage in years of crop failure, as shown during Angola's and other civil wars (Sogge 1994).

The food insecurity that accompanies market disruptions also may be an incidental rather than a deliberate outcome of hostilities. For example, the diversion of trucks to the military in the Nigerian civil war of the 1960s incidentally wreaked havoc on markets and trade (Mabogunje 1995). Livelihoods inevitably suffer where migratory labor unrelated to a particular conflict is cut off from reaching sources of employment and income. Because of the Sudanese civil war, workers from southern Kordofan in Sudan could no longer migrate to their jobs in other regions. Bangladeshi and Filipino guest workers removed from Iraq were unintended victims of the Persian Gulf War, as were households dependent on their remittances.

Crops inevitably suffer in war zones. Annual crops may not be sown, tended, or harvested, and longer-term agricultural investments may be lost, particularly where perennial crops are destroyed. But wage and trade losses usually far exceed those of agriculture as rural households are cut off from urban markets and networks that ordinarily provide them with diversified livelihoods and buffers against scarcity. Poorer households also suffer because conflict encourages a kind of predator merchant class that benefits from the suffering of most others. As often stated, not everyone in situations of conflict or famine is food short, and some always profit. Profiteers deliberately take advantage of others, but the contexts allowing their prosperity are an inevitable part of the ways wars are waged.

Malnutrition and sickness also appear to be inevitable consequences of conflict, although much ill health is incidental rather than deliberately caused. Where hunger is used as a weapon, women and children in particular are at risk for malnutrition because they have higher requirements for micronutrients and nutritionally dense foods, which are often unavailable. Displacement, migration, and concentration of refugees in "safe" areas increase

their contacts with and vulnerability to infectious respiratory and diarrheal diseases, which are chief killers in refugee situations (DeWaal 1989a). Population movements inadvertently carry diseases such as malaria across whole regions or introduce new killer diseases when refugees return home. Such nondeliberate health disturbances inevitably reduce food and nutritional security and jeopardize recovery from conflict stress. Also, 5 million children were displaced by wars in the 1980s (UNICEF 1993), leaving a generation of individuals who are socially, economically, psychologically, and physically disadvantaged.

Underlying Causes of Hunger and Conflict

Hunger and conflict usually have roots in structural violence; in colonial legacies and statist policies of racist or religious exclusion and political-economic discrimination (see, for example, Heggenhoughen 1995); and in struggles over control of strategic resources, conventionally land, water, and trade routes, but more recently, oil. Sources of discontent include skewed land distribution, excessive tax burdens, and wage and price policies that preclude decent standards of living. Unequal access to education and nutrition services, and unequal treatment before the law, enflame perceptions of unfairness and often violent desire for change. Denials of civil-political or economic-social-cultural rights based on race, religion, ethnicity, geographic location, political ideology, or occupation rouse animosities. Tensions ripen into violent conflict especially where economic conditions deteriorate and people face subsistence crises. Hunger causes conflict when people feel they have nothing more to lose and so are willing to fight for resources, political power, and cultural respect.

Environmental Resource Scarcities and Subsistence Crises

Armed uprisings have accompanied struggles for land, water, and other essential resources perceived to be inadequate overall or unfairly distributed in many developing countries. A key factor triggering "peasant wars" of the twentieth century was subsis-

tence desperation, the perception by revolutionaries that they had nothing more to lose and nowhere else to go. In Algeria, China, Mexico, Russia, and Viet Nam subsistence crises and struggle for land by peasant cultivators followed years of deprivation, marginalization, and abuse by dominant political interests. According to Wolf (1969), political education and consciousness-raising have also played a role by affording individuals in oppressed groups an opportunity to ally with urban interests, to question their circumstances, and to perceive possible political openings to overturn unjust regimes. The wars of the early twentieth century also depended on some cosmopolitanization, plus improved access to outside sources of information and material resources, including arms.

The civil wars of the late twentieth century also can be viewed as responses to lingering colonial legacies of racism and political-economic discrimination. Again, trigger causes are often subsistence crises. In Ethiopia, Rwanda, and Sudan, government regimes were finally toppled when they responded inadequately to famine situations they had helped create. Unfortunately, none of these wars immediately improved subsistence conditions; instead, all magnified suffering and food shortages. In El Salvador, Guatemala, and Nicaragua, protracted civil wars followed protracted food crises and human rights abuses. Ordinarily, such wars would have been limited by the need for leaders on both sides to assure a subsistence base for their supporters. Unfortunately, civil wars during the Cold War and post-Cold War era have persisted for decades because political and humanitarian regimes have provided both food and military aid that keep conflicts alive.

Whereas simple models of environmental determinism (such as those articulated by neo-Malthusians) interpret population pressure and environmental resource scarcities to lead inevitably to warfare, illness, starvation, and death, more nuanced models such as those of Wolf (1969) and Homer-Dixon (1991, 1995) suggest that there must be present additional forces, such as abuses of human rights and social inequalities, plus cultural values that insist that such goings-on are unjust and intolerable and best addressed by violent action. According to these models, violent struggles arise as much from perceptions of unfairness as from absolute shortages. High population densities in regions of low natural re-

source availability do not automatically or naturally engender violent conflict.

Homer-Dixon (1991, 1994, 1995, 1995–96) suggests that before World War II, many violent conflicts were the result of relatively simple interstate competitions for key resources, such as land and water. Conflicts over the last 50 years, however, have tended to be what Homer-Dixon calls group-identity conflicts, which arise where newly arrived migrant groups compete with an original resident group for existing resources, especially in emergent multinational states. Opposing groups rarely act alone, but enlist outside political actors, either neighboring states or international forces, to perpetuate the violence. Violence also occurs when a dominant group denies resources and causes scarcities for persons who are economically or culturally marginalized. The marginalized group, in frustration, views those who visibly control greater wealth and power as the source of their destitution and oppression. When their demands for greater political power and control over resources go unmet, they are ripe for violence.

The trigger condition for violent conflict may be natural, such as a prolonged drought that reduces their status from bad to worse, or political, such as a reduction in social welfare programs or an increase in the tax burden on the marginalized group. Homer-Dixon's case histories also suggest that food insecurity usually accompanies the movement from conditions of perceived environmental scarcities to conflict. By devastating land and water resources, demolishing social institutions and markets, and creating shortages of capital and trained manpower, violent conflicts exacerbate conditions of environmental scarcity and competition for resources, creating the potential for additional or unending conflict. Armed violence usually destroys social infrastructure that otherwise might allow political reforms and economic growth as solutions to natural resource scarcities (Homer-Dixon 1991).

Religious, Ethnic, and Ideological Differences

Violent conflict in the late twentieth century has been as much ideologically as economically motivated and usually framed and fought in religious or political terms. In Iran the successful overthrow of

the Shah by Shi'ite Muslims was a protest against economic and civil-political human rights abuses by peasants and poor urban workers who were deprived and hungry. But the revolution was framed as a religious movement that joined the disadvantaged with economically better-off elements advocating a fundamentalist Islamic state over and against corrupting Western and secular influences. In Sudan coups and countercoups since the 1950s usually have been responses to the government's inability to respond effectively to famine. But conflict lines are drawn racially, ethnically, and religiously, pitting northern Arab Islamic interests against southern Sudanese African Christian or animist interests, in a drawn-out struggle for control over land, water, and oil, in addition to the hearts and minds of people.

Famine was an initial trigger of the multidecade Ethiopian civil war that originated in the 1974 overthrow of Haile Selassie's corrupt regime by the Dergue, a socialist junta. But the worst famine followed rather than precipitated the initial violence, as the Dergue leadership forcibly resettled whole ethnic populations and denied them emergency food when they could not produce food for themselves. Civil war along regional and ethnic lines continued, with outside assistance, for another 20 years as Eritrean interests sought independence from Ethiopian rule and Tigrayan forces struggled for leadership within the Ethiopian polity that remained. Hardship and food insecurity were always part of the picture, but ethnic and political factors were probably more influential on the particular form the conflict took.

In Latin American and other African conflicts, underlying structural violence is generally framed more in political-economic than in religious terms. Central American revolutionary struggles are for land and social justice. They pit ruling elites, struggling to maintain power, against the indigenous and mestizo poor, who seek environmental resources, fair wages, an end to state terror, and a political regime without racism that protects human rights. Significantly, Latin American elite attitudes of social superiority have proved so ingrained that leftist revolutionary leadership has proved as incapable as the forces they overthrew of reversing social injustice and improving indigenous and lower-class

access to land, social services, and opportunities (MacDonald 1988; Barraclough 1989). Central American struggles also pitted Catholic reformers against entrenched ecclesiastical elites, and Protestants against Catholics in religious disputes that fractured communities but always had an underlying political-economic dimension.

Similarly, African and Middle Eastern struggles for control over water and related land resources have led to border wars between Mauritania and Senegal and Israel and Palestine, but these conflicts are anchored in ethnic, religious, and political ideological differences.

Southeast Asian conflicts in Cambodia and Myanmar (formerly Burma) involve a mix of material and ideological factors. Sri Lanka's Tamil-Sinhalese civil war is rooted in a struggle for land but fanned by ethnic-religious conflict. India's regional conflict in Kashmir is a struggle by the local population for religious autonomy as much as for land. Similarly, Indonesia's conflict in East Timor is motivated by the Indonesian government's desire to control not only Timorese material resources, but also the population's society and culture.

Warring states and factions of the former Soviet Union and Yugoslavia demonstrate seething ethnic and religious conflict underlying struggles for land and political control over resources perceived to be limited. Protracted conflicts in Armenia, Azerbaijan, Chechnya, Georgia, Tajikistan, and the former Yugoslavia illustrate combined cultural-religious and political-economic factors underlying conflict over who will control these territories in the post-Cold War period. As a result, formerly food self-sufficient or self-reliant areas are now entirely dependent on food aid.

Some of these conflicts—Armenia-Azerbaijan is a case in point—also involve oil. Control over oil development and revenues was a major factor in the Biafran-Nigerian civil war (1967–70), the Sudanese civil war, and the multiple wars in the Middle East, most recently the Persian Gulf War. Oil explains outside interests in these local conflicts but the wars themselves are framed in ethnic and political terms that usually include desire by local leadership for autonomy to profit from oil revenues.

Development Assistance: Cause or Cure of Conflict?

As the situations described illustrate, an important underlying cause of conflict is perceived resource scarcity. One important rationale of Western development and especially food and agricultural aid since World War II has been to improve the resource base of underprivileged populations and thereby thwart revolutionary potential. During the height of the Cold War (1960s–80s), Western donors financed a Green Revolution in staple food crops partly to assuage discontent and head off communist revolutions in politics. The U.S.-Latin American Alliance for Progress and P.L. 480 (Food for Peace) in the 1960s used food and economic assistance as a tool to prevent hunger and discontent. The U.S. government hoped programs would promote democratic and economic reforms and prevent armed (communist) uprisings. In the 1980s and 1990s, many analysts have argued that aid targeted at overcoming hunger can stymie potential for violence in war-prone African, Asian, and Latin American countries (IFPRI 1995, 1996). Geographic early warning systems for famine detection and response are another development assistance mechanism to prevent food insecurity, environmental resource depletion, competition, and conflict. Other development initiatives to promote economic growth, liberalize trade, manage population growth, and improve public health and environment aim to increase wealth and well-being, and thereby reduce conflict potential.

Unfortunately, much development aid is misguided and, even more than neglect, serves as a source of discontent and political-economic destabilization. From the perspective of “food first” advocates (Lappé and Collins 1978; FIAN 1997, 1998), Western development concepts and foreign aid are more problem than solution for food insecurity. They criticize agricultural development, particularly cash cropping and food assistance in developing countries, for thwarting community-led

development that would put food first. Providing for adequate food and optimum human development, they argue, are not questions of developing the right technologies or getting international grain and other agricultural commodity prices right, but questions of bringing about entitlements, social justice, and empowerment of the disadvantaged. If poor people had fairer access to resources, from land to education, there would be no food problems. They argue that liberalized trade policies leave poor people vulnerable to food import and crop export price fluctuations beyond their control. From a food-first perspective, “population” and “scarcity” are both development myths that good policies should be able to get beyond.³

Debt, a product of years of mismanaged government spending, adds to developing-country economic and financial burdens. Beginning in the 1980s, debt repayment schemes have been part of international financial institutions’ demands for governments to put foreign exchange earnings rather than “food first.” International Monetary Fund (IMF) and World Bank demands for structural adjustment of developing-country economies and governance, although they address needed reforms, can disadvantage needy citizens as governments cut social services and food subsidies, at least in the short run, to meet conditions for additional loans.⁴ Susan George, a critic of international development and financial policies, has labeled debt “a fate worse than death” and with others has argued for debt relief and government guarantees of the human right to food. She, with others, interprets the failure to achieve freedom from hunger for all as both a source of conflict and a failure of basic human rights (George 1990a,b, 1992; Messer 1996b).

Peace studies (such as Smith 1994) and food and economic studies (such as Stewart 1993) have documented that debt and structural adjustment burdens correlate with conflict. Structural adjustment loans are one indicator of high debt burden, in that they are conditional on economic reforms and

³Adapted from Messer with Uvin 1996.

⁴Structural adjustment reforms and debt repayment schemes require states to cut welfare programs, reduce public spending, and cut or privatize many public services; liberalize trade to force domestic agriculture and industry to compete more effectively in the international economy; structure economic policies more favorably for export and entrepreneurial activities that can help earn foreign exchange; and accelerate the process of drawing all economic and social sectors into the international and market economy (adapted from Smith 1994, 12).

predicated on the recipient's having experienced some difficulty with debt repayments. Evidence linking debt with conflict (based on 1993 conflict data) shows that of 71 developing countries that received adjustment loans, 50 were experiencing conflict (Smith 1994, 12–13). In addition, of the top 25 developing-country debtors, whether measured by gross external debt or debt service ratio, 22 were conflict countries. Imposing austerity measures where most people already have too little economic security has contributed to social unrest in Argentina, Honduras, Mexico, Peru, the Philippines, Venezuela, and many African countries (Smith 1994, 23–26).

Specific cases such as Rwanda (Uvin 1996a,d), Somalia (Maren 1997), and Zaire (now the Democratic Republic of Congo) show how foreign aid, particularly in Africa, sometimes props up abusive regimes and leaves unscrupulous leaders free to pursue predatory or neglectful policies. The case of Rwanda in particular shows how declining food self-sufficiency may reflect small farmers' declining entitlements to land and other resources and their increasing vulnerability to price fluctuations for their main cash crops, such as coffee (see Box 2 on p. 24). Examples of mismanaged development aid as a source of food insecurity and conflict are found also in Asia and Latin America (see, for example, Whiteford and Ferguson 1991).

Calculating the Costs of Conflict

Conflict wastes lives, livelihoods, environmental resources, and materials. Although in certain cases, as with the United States in World War II, war has been credited with reviving the economy, stimulating production, and reducing unemployment, in most cases, the products (and many of the people) are destroyed.

Costs in Lives, Livelihoods, and Military Spending

Warfare over the last 20 years has cost up to a million lives per year, and most of the casualties are civilians, not combatants. Estimates of deaths directly related to the fighting in wars run as low as

5 percent in the civil wars in Angola and Mozambique, although more than a million persons died in each of these conflicts. Lack of food and health care, plus the traumas of displacement, kill many more than actual combat (Green 1994).

The monetary costs of conflict are conventionally tallied in lost livelihoods, destroyed properties, and monetary needs for immediate relief and longer-term reconstruction. In addition, governments forgo investments in peacetime services and economic outputs and may suffer additional losses in high foreign exchange rates as they seek to contain bordering hostilities. Green (1994) and Green and Mavie (1994) suggest the large scale of output forgone, expenditures diverted, and foreign exchange burdens indirectly related to the conflicts of southern Africa, but they also show the difficulties of precise calculation. For Mozambique, the cumulative loss of output due to the struggle between the government and Renamo insurgents probably exceeded US\$20 billion from 1982 to 1992. Production losses were due to the deaths of some 1.5 million people and the removal of over half of the population from customary sources of livelihood (1.5 to 2 million were international refugees, 2 million were internally displaced into camps or resettlement schemes, 2 million were displaced but not into formal settlements, and more than 1 million were living in the vicinity of their ruined villages but were socio-economically or psychologically displaced) (Green and Mavie 1994, 78). The war also inflicted direct damage on markets, communications, public health services, and other infrastructure. Destruction of capital stock led to continuing losses of output with difficult-to-calculate impacts on income flow and multiplier effects. The conflict also drew enormous military investments from neighboring Tanzania and Zimbabwe. It is estimated that Tanzania invested \$5 billion in military spending over the 30-year period 1961–91, which included Mozambique's prior liberation war against Portugal. This expenditure imposed high costs on the Tanzanian populace in terms of lost food security and health care due to the diversion of potential government resources away from agricultural and medical facilities and training. Such losses pale in comparison with Mozambique's devastation but still point to considerable regional effects beyond the immediate conflict (Green 1994, 40).

Sivard (1996, 39) calculates world military versus social expenditures by considering investments in weapons as alternatives to health and nutrition expenditures. From 1960 to 1994, arms imports by developing countries totaled US\$775 billion (in 1987 dollars). The enormity of waste in human lives is shown most dramatically not in monetary terms, but in limbs lost to antipersonnel land mines. An estimated 100 million antipersonnel land mines litter 69 countries; more than 10 million mines lie in Afghanistan, Angola, Egypt, and Iran. Cambodia is estimated to have 1 mine for every person in a population of 10 million, and 1 of every 236 persons is an amputee (Sivard 1996, 15). Land mines that prevent farming and trade contribute to food insecurity following warfare and in turn to scarcities that contribute to continuing conflict potential. Clearing antipersonnel mines is both technically difficult and expensive—another cost of conflict.

Political analysts also speak of far-reaching political costs of conflict in developing countries. The most important of these is probably the undermining of the influence of the United Nations, which is seen as having failed to intervene effectively, and to a lesser extent, the International Federation of the Red Cross, which seems to have been powerless to deliver aid in the case of East Timor (Cranne 1994).

In 1986, Willi Brandt chastised NATO countries for placing military and space program spending over foreign development assistance (Brandt 1986). With the end of the Cold War, arms spending may finally be in decline, but emergency assistance for zones of armed conflict continues to hijack foreign assistance budgets that overall are shrinking in response to economic downturns and domestic pressures to cut budgets and “welfare” spending (Marchione 1996).

Declining Development Assistance and Escalating Emergency Needs

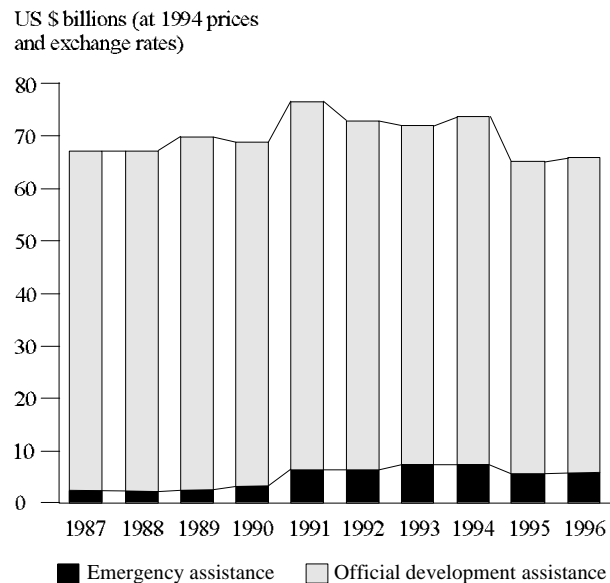
Despite the sometime misallocation, mismanagement, and politicization of development assistance, aid can support equitable and sustainable development. Foreign assistance has contributed to gains in child survival, life expectancy, and educational attainment in the developing world over the past several decades. For most of the poorer developing

countries, aid remains an essential tool for assuring that everyone has access to food, basic education, primary health care, family planning services, clean water, and safe sanitation. In 1996 official development assistance from all sources totaled only US\$58.2 billion, down 14.5 percent in real dollars terms from 1991 (OECD 1998). Within this diminishing aid budget, an increasing proportion of both total assistance and food aid was directed to emergencies. In 1996 emergency assistance came to \$5.5 billion, or 9.5 percent of all aid, compared with just 3.5 percent in 1987. In 1993 and 1994, emergency assistance peaked at 11 percent of all aid (Figure 1).

Assistance from the 21 members of the Organisation for Economic Co-operation and Development’s Development Assistance Committee (OECD/DAC) accounted for 95 percent of all aid in 1996 (OECD 1998). Although the total rose by 5 percent in real dollar terms from 1995 to 1996, it was still 9 percent lower than in 1992 in constant dollars.

The end of the Cold War deprived donors of a powerful political motive, and the share of the “peace dividend” devoted to development assistance was less than hoped (Lake 1990). Meanwhile,

Figure 1—Emergency assistance as a share of official development assistance, 1987–96



Source: Organisation for Economic Cooperation and Development, Development Cooperation Directorate, various years.

former communist states in Central and Eastern Europe and the former Soviet Union, many of them in or close to conflict, received more than US\$10 billion in aid in 1995 (the last year for which information is available), draining funds from poorer countries. Aid to Sub-Saharan Africa, where most of the poorest countries and several major conflict zones are located, fell from \$18.9 billion in 1994 to \$16.8 billion in 1996, a decline of 11 percent. Although the flow of private funds from DAC member countries to the developing world (\$234 billion) far exceeded aid and other concessional flows from DAC member governments and multilateral organizations (\$66 billion) in 1996, development assistance remains the most significant channel of funds for poor countries (OECD 1998).

Food aid is also dropping precipitously; total tonnage from all donors declined 23 percent in 1996 and fell 57 percent between 1993 and 1996. On average in the mid-1990s, 35 percent of this greatly reduced tonnage went to meet emergency needs; in the 1970s, emergency relief accounted for only about 10 percent of all food aid (USAID 1998). The WFP has seen an even more dramatic transformation of its activities: in 1996, emergency operations and protracted feeding of refugees and other displaced persons claimed 68 percent of WFP food aid tonnage, whereas a decade earlier, two-thirds of WFP assistance had gone into development efforts such as school feeding, maternal and child health projects, and food-for-work. Emergency operations in Rwanda and the former Yugoslavia and feeding of refugees and displaced persons in Afghanistan and Liberia alone claimed one of every three tons shipped by WFP in 1996 (WFP 1998).

Although aid officials try to make relief function as development assistance, the “relief-to-development continuum” they talk about appears to be more wishful thinking than fact. The bulk of emergency food assistance is devoted to meeting basic human welfare needs.

Since the end of the Second World War, the United States has tended to set global development assistance trends. In the 1990s, U.S. aid has led the pattern of growing slices of emergency aid coming out of a shrinking overall assistance pie. In fiscal year 1996, U.S. bilateral emergency assistance came to US\$1.35 billion (US\$449 million in food aid, US\$181 in cash disaster assistance, and

US\$721 million in refugee aid) or 39 percent of the US\$3.48 billion aid budget. Cash development assistance that same year totaled \$1.68 billion, and the United States provided \$445 million worth of development-oriented food aid. This represents almost a doubling of total U.S. emergency aid from US\$786 million in fiscal 1989, although a slight decline from the high figure of US\$2.2 billion in fiscal 1993. But overall aid resources fell 24 percent between fiscal 1985 and fiscal 1995. To meet emergency needs, U.S. policymakers diverted resources from global child survival initiatives and programs for sustainable development in Africa (Cohen 1995; USAID 1997).

Global aid from NGOs is similarly targeted more to disaster areas than to regions that are impoverished but peaceful. In the mid-1990s, such agencies as OXFAM United Kingdom and OXFAM Ireland, whose aim is long-term improvement of human conditions, were devoting 50 percent of their resources to areas of conflict, and in Africa, 70 percent (Cranne 1994).

This proliferation of emergency needs and squeeze on development assistance are likely to continue, although reductions in development aid cut programs that might help households and communities in resource-poor countries become more food secure and less prone to conflict. The U.S. Agency for International Development (USAID) recognizes that “sustainable development that creates chains of enterprise, respects the environment, and enlarges the range of freedom and opportunity over generations should be pursued as the principal antidote to social disarray” (Atwood 1994), but USAID also faces shrinking budgets.

Within shrinking budgets, international agricultural research is suffering cuts and is increasingly forced to compete with programs supporting the complementary goals of environmental protection, health and nutritional welfare, livelihood security, and infrastructure development. In 1993 the share of agriculture in OECD aid fell to less than 8 percent, down from 12 percent just four years earlier (Randel and German 1996). Cuts in agricultural research come at a time when all countries are facing relative scarcities of land and water, and problems of food insecurity and environmental degradation are growing. In many developing countries, the gap between “resource-poor” and “high-potential”

areas is growing, adding to perceptions by those left behind that they are unfairly deprived. Growing populations without access to technologies to intensify production or protect the environment ripen the potential for environmental destruction and conflict. Conflict and its aftermath thus contribute to shortfalls in food measurable in terms of costs in production forgone.

Food Production Forgone

Conflict accounts for downturns or lower than expected values in agriculture, gross domestic product, and trade. This is because conflict directly and indirectly reduces land and water, plant and animal breeding stocks, human resources, and financial capital to invest in agriculture, environmental protection, and human well-being. Food projections through the year 2000 and into the twenty-first century suggest anecdotally that Mozambique, in the absence of conflict, could make southern Africa self-sufficient in rice. Cambodia and Myanmar could brighten the outlook for Asian rice in the absence of conflict-related production and marketing disruptions. Beyond anecdotal evidence, it is possible to estimate roughly the extent of food production losses due to conflict by examining food production trends in war-torn countries. Of special interest are the extent of food production declines possibly due to war in southern Africa, where the aggregate trend in food production per capita is downward.

Quantifying the Links between Conflict and Food Production

For Sub-Saharan Africa, production scenarios are calculated with and without conflict as a historical factor from 1970 to 1993.⁵ *Two methods* have been used to compare actual and “peace-adjusted” food production in individual countries and in the region as a whole.⁶ The first method in Table 3 adjusts mean food production trends in war-torn Sub-Saharan

African countries. Columns 3 and 4 show annual mean food production per capita in war- and nonwar years for Sub-Saharan countries that have had conflicts, and column 5 shows the difference (3–4) as a percentage of nonwar production for each country. The annual impact of these differences on food production in the region as a whole (column 7) is calculated by weighting the contribution of each country’s population to the region as a whole.

The second method in Table 4 calculates the differences in mean growth in food production during war and nonwar years and their contribution to regional food production trends. Columns 3 and 4 show growth during years of war (beginning one year before war) and relative peace, and column 5 calculates the difference (3–4) for each country. Annual impact of these differences on food production in the region as a whole (column 7) is again calculated by weighting the contribution of each country’s population to the region as a whole.

Tables 5 and 6 show the total impact of internal wars on food production levels for Sub-Saharan Africa as a whole. Using the mean food production method, Table 5 subtracts the total impact on food production for the region (column 2, derived from the mean weighted country impacts in Table 3) from the actual food production level observed for each year (column 1) to reach a peace-adjusted level of food production (column 3). This is the level that shows what food production might have been in the absence of conflict in the region. The figure for food from peace (column 4) shows how much additional food the region might have produced in the absence of war as a percentage of its actual production.

Using the growth method, Table 6 “peace-adjusts” regional food production by recalculating food production each year using the adjusted annual growth figures shown in parentheses in column 3 (these figures are derived from the adjustments to annual growth for each country at war shown in column 7 of Table 4). Again, “food from peace” repre-

⁵The methodology for quantifying the links between conflict and food production was designed and conducted by Thomas Marchione of the U.S. Agency for International Development while serving as a visiting associate professor (research) at the Brown University World Hunger Program in 1995.

⁶Data on per capita food production are from FAO 1994, and the war chronology is from Sivard 1993. Although neither source provides perfectly reliable data, both offer sufficient information to begin to talk about trends and scale of impact.

Table 3—Estimated effects of internal wars on food production levels, 14 countries, Sub-Saharan Africa, 1970–93

Country	1993 Population (1)	Internal wars (2)	Index of annual food production per capita (1979–81 = 100)		Percent difference (5) = [(3 - 4)/(4)]	Weight ^b (6)	Regional impact (7) = (6 × 5)
			War years ^a (3)	Other years (4)			
	(thousands)						(annual percentage)
Angola	10,276	1975–93	94.96	171.16	-44.52	0.02	-0.85
Burundi	5,995	1972/1988–93	93.70	99.30	-5.64	0.01	-0.06
Chad	6,010	1980–87	98.13	96.00	2.21	0.01	0.02
Ethiopia	52,981	1974–92	91.65	102.90	-10.93	0.10	-1.08
Ghana	16,446	1981	98.60	109.00	-9.54	0.10	-0.94
Kenya	26,090	1991–92	100.50	104.00	-3.37	0.05	-0.18
Liberia	2,845	1985–88/1990–93	75.20	101.00	-25.54	0.01	-0.14
Mozambique	15,322	1981–92	108.30	114.00	-5.00	0.03	-0.14
Nigeria	113,901	1980–81/1984/1991–92	109.00	114.00	-4.39	0.21	-0.93
Somalia	9,517	1988–93	76.82	99.92	-23.12	0.02	-0.41
Sudan	27,407	1984–93	83.34	102.29	-18.53	0.05	-0.94
Uganda	19,248	1971–87	120.12	109.00	10.20	0.04	0.37
Zambia	8,885	1984	88.00	102.00	-13.73	0.02	-0.23
Zimbabwe	10,898	1983–84	85.00	106.00	-19.81	0.02	-0.40
Subtotal	326,092						
Total for Sub-Saharan Africa	537,542			Mean difference	-12.26		

Sources: Sivard 1993; FAO 1994.

Note: n.a. indicates not available.

^aRepresented by mean annual production in all war years. Production data in any one year, and especially in war years, can be quite inaccurate.

^bWeights are 1993 country population divided by 1993 Sub-Saharan African population.

Table 4—Estimated effects of internal wars on food production growth, 12 countries, Sub-Saharan Africa, 1970–93

Country	1993 Population (1)	Internal wars (2)	Annual per capita food production growth			Weight ^a (6)	Regional impact (7) = (6 × 5)
			War years (3)	Other years (4)	Difference (5) = (3 – 4)		
	(thousands)		(annual percentage growth)				(annual percentage)
Angola	10,276	1975–93	–4.33	0.63	–4.96	0.02	–0.09
Burundi	5,995	1988–93	–2.27	0.61	–2.88	0.01	–0.03
Chad	6,010	1980–87	–0.70	–0.44	–0.26	0.01	0.00
Ethiopia	52,981	1974–92	–0.99	–0.68	–0.31	0.10	–0.03
Kenya	26,090	1991–92	–4.22	0.20	–4.42	0.05	–0.21
Liberia	2,845	1985–88/1990–93	–7.53	0.52	–8.05	0.01	–0.04
Mozambique	15,322	1981–92	–2.87	–1.03	–1.84	0.03	–0.05
Nigeria	113,901	1980–81/1991–92	0.17	–0.31	0.48	0.21	0.10
Somalia	9,517	1988–93	–7.41	–0.08	–7.35	0.02	–0.13
Sudan	27,407	1984–93	–1.59	–0.90	–0.69	0.05	–0.04
Uganda	19,248	1971–87	–2.46	1.08	–3.54	0.04	–0.13
Zimbabwe	10,898	1983–84	–1.60	–0.52	–1.08	0.02	–0.02
Subtotal	300,751						
Total for Sub-Saharan Africa	537,542			Mean difference	–2.91		

Sources: Sivard 1993; FAO 1994.

Note: n.a. indicates not available.

^aWeights are 1993 country population divided by 1993 Sub-Saharan African population.

Table 5—Estimated regional impact of internal wars on food production levels (mean food production method), Sub-Saharan Africa, 1970–93

Year	Index of actual per capita food production (1979–81 = 100) (1)	Regional impact of internal wars on food production (2)	Index of peace-adjusted per capita food production (1979–81 = 100) (3)	Food from peace (4)
				(percentage of actual production)
1970	120.5	0	120.5	0.00
1971	117.2	0.40	116.8	-0.34
1972	111.8	0.34	111.5	-0.30
1973	110.5	0.40	110.1	-0.36
1974	113.5	-0.71	114.2	0.63
1975	112.6	-2.17	114.8	1.92
1976	108.1	-2.17	110.3	2.00
1977	105.8	-2.17	108.0	2.05
1978	104.3	-2.17	106.5	2.08
1979	101.2	-2.17	103.4	2.14
1980	99.1	-3.20	102.3	3.23
1981	99.8	-3.68	103.5	3.69
1982	98.3	-2.31	100.6	2.35
1983	94.7	-2.73	97.4	2.88
1984	92.1	-4.99	97.1	5.42
1985	96.3	-3.41	99.7	3.54
1986	98.1	-3.41	101.5	3.47
1987	93.7	-3.41	97.1	3.64
1988	98.5	-4.24	102.7	4.30
1989	97.6	-4.17	101.8	4.27
1990	95.7	-4.47	100.2	4.67
1991	95.7	-5.53	101.2	5.78
1992	92.8	-5.20	98.0	5.60
1993	92.9	-2.89	95.8	3.12

Source: Calculated by World Hunger Program, Brown University, Providence, R.I., U.S.A., from data in FAO 1994.

sents as a percentage of actual production the additional food the region might have produced had peace prevailed. The growth method, therefore, accumulates war's effects on food production because hypothetical gains in production in one year become the basis for calculating gains in the next year, and so forth. In contrast, the mean food production method treats the effects of war each year without regard to effects in previous years, allowing one to better compare the effects from year to year. Actual and peace-adjusted per capita food production by these two methods are plotted in Figures 2 and 3.

These methods, admittedly rough estimates of country and regional departures from historical food production trends, suggest the extent to which armed conflict has interfered with food production in Sub-Saharan Africa over the period 1970–93 and

the additional quantities of “food from peace” that might have been available had wars been absent.

As expected, in 13 of 14 countries food production was lower in war years. Drops were as low as 3.4 percent in Kenya and as high as 44.5 percent in Angola (Table 3). The mean decline in annual production was 12.3 percent. These decreases were paralleled by shortfalls in food production growth rates, which were observed in all countries except Nigeria (Table 4). Growth declined as little as 0.3 percent in Chad to as much as 8.1 percent in Liberia; the mean was 2.9 percent.

Such variation is expected given the widely differing scope and scale of the conflicts. The calculations also reflect expected differences in the scale of impacts within and across countries. The impact of Angola's war on the country and region is very

Table 6—Estimated regional impact of internal wars on food production (growth method), Sub-Saharan Africa, 1970–93

Year	Index of actual per capita food production (1979–81 = 100) ^a (1)	Regional impact of internal wars on food production (2)	Index of peace-adjusted per capita food production (1979–81 = 100) ^a (3)	Food from peace (4)
				(percentage of actual production)
1970	121		121	
1971	117 (-2.8)	-0.13	117 (-2.7)	0.1
1972	112 (-4.8)	-0.16	112 (-4.7)	0.0
1973	111 (-1.2)	-0.13	111 (-1.0)	0.1
1974	114 (2.6)	-0.16	114 (2.8)	0.2
1975	113 (-0.8)	-0.25	113 (-0.5)	0.4
1976	108 (-4.2)	-0.25	109 (-3.9)	0.5
1977	106 (-2.2)	-0.25	107 (-1.9)	0.7
1978	104 (-1.4)	-0.25	105 (-1.2)	1.0
1979	101 (-3.1)	-0.25	102 (-2.8)	1.1
1980	99.1 (-2.1)	-0.15	100 (-2.0)	1.3
1981	99.8 (0.7)	-0.21	101 (0.91)	1.5
1982	98.3 (-1.5)	-0.31	100 (-1.2)	1.8
1983	94.7 (-3.8)	-0.33	96.6 (-3.5)	2.0
1984	92.1 (-2.8)	-0.37	94.2 (-2.5)	2.3
1985	96.3 (4.4)	-0.39	98.6 (4.8)	2.4
1986	98.1 (1.8)	-0.39	101 (2.2)	2.8
1987	93.7 (-4.7)	-0.39	96.5 (-4.3)	3.0
1988	98.5 (4.9)	-0.42	102 (5.3)	3.1
1989	97.6 (-0.9)	-0.38	101 (-0.5)	3.5
1990	95.7 (-2.0)	-0.42	99.5 (-1.6)	3.9
1991	95.7 (0.0)	-0.53	100 (0.5)	4.5
1992	92.8 (-3.1)	-0.53	97.4 (-2.6)	4.9
1993	92.9 (0.1)	-0.33	97.8 (0.4)	5.3

Source: Calculated by World Hunger Program, Brown University, Providence, R.I., U.S.A., from data in FAO 1994.

^aFigures in parentheses are growth rates (annual percentage changes from the year before).

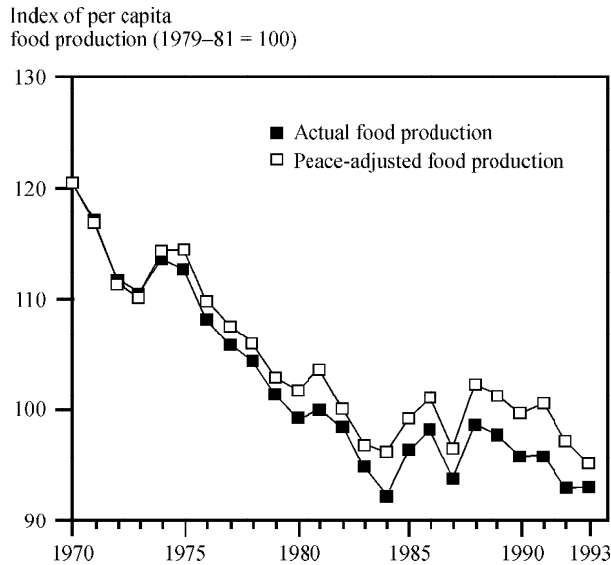
large, twice as great as that of Zimbabwe, which experienced less disruption in food production (Table 3). The Ethiopian war had a medium impact on the country's annual production compared with other countries in the region, but its regional impact is magnified to 1 percent for each year of war because of its size. The massive food assistance requirements of both Angola and Ethiopia during and immediately following their war years verify the large-scale disruptions. The calculations also show the aggregate effect of large numbers of wars on both food production and growth during and immediately following the Cold War years.

Adjusting regional food production for peace reverses neither the general downward production trends for the region nor the obvious effects of the major droughts of 1974, 1984, and 1992. But the

adjustment does dampen the effects. By the mean food production method the greatest gain would have been nearly 6 percent in 1991 (Figure 2). The costs of conflict are more graphically apparent by the growth method, which shows production gaps widening with each decade: from zero to 1 percent in the 1970s; 1.3 to 3.5 percent in the 1980s; and 3.9 to 5.3 percent in the 1990s (Figure 3).

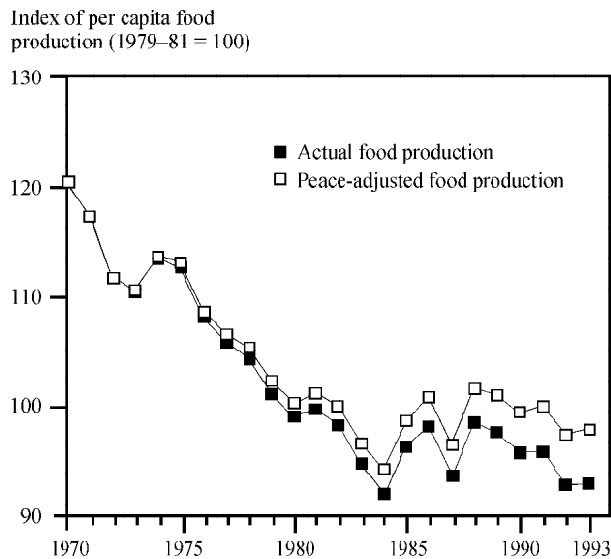
In interpreting these data certain caveats are in order. The FAO country-level data (like other statistical sources) are not very reliable. Even in ordinary times, but especially in times of crisis, data collection and reporting techniques lack accuracy, miss variations within countries, and often fail to take into account significant contributions of the informal economy, especially activity in parallel markets.

Figure 2—Actual and peace-adjusted food production in Sub-Saharan Africa, 1970–93, mean food production method



Source: World Hunger Program, Brown University, calculated from FAO 1994.

Figure 3—Actual and peace-adjusted food production in Sub-Saharan Africa, 1970–93, growth method



Source: World Hunger Program, Brown University, calculated from FAO 1994.

Moreover, the impact of conflict on food production is complex and hard to separate from other factors. The rough calculations presented here lump together synergisms of armed conflict, bad weather, human illness, or volatile commodity prices on food production, distribution, and consumption. In specific cases such as Ethiopia, Sudan, and most recently Rwanda, food crises due to drought and agricultural and relief mismanagement preceded and triggered violent overthrow of their governments, only to be followed by even greater food shortfalls in the years of conflict that followed.

The calculations also aggregate country-level data, so they do not identify within-country regional shortfalls and food insecurity that result from conflict or contribute to social discontent. The central issue in food crisis is not aggregate food production but who has food and who does not. In any food crisis situation, some benefit rather than suffer from selective regional downturns in food and income.

The ways in which governments or others intervene to prevent or redress food insecurity may be more important for peace than the original shortfall or impending crisis. During the 1992 drought, the Somalian government exhibited little capacity to respond, and people remained mired in famine and conflict. The Hutu government in Rwanda responded selectively, excluding many who subsequently joined the political opposition and participated in violent actions. By contrast, more stable governments in Botswana and Zimbabwe successfully weathered drought-related food shortfalls; their governments had early warning and timely response systems in place, and with donor assistance, managed to stave off crisis, famine, and civil unrest.

Finally, the data also raise questions that cannot be answered without additional year-by-year scrutiny of the food production data; for example, why does food production appear higher in Chad and Uganda during war years?

Such caveats notwithstanding, the data in these tables indicate that stagnating food production and declining growth are closely related to conflict, as either cause or effect. But quantitative data show only that they are closely linked. Attention to additional historical data by country and year can help separate out initial or sequential cause and effect and offer lessons for future conflict prevention.

3. De-linking Conflict and Hunger

Policies for Conflict Prevention

Many variables can prevent countries with low or declining levels of food security from moving into conflict. Lessons from cases such as Rwanda can help pinpoint the exact linkages between food insecurity and political crisis and point out where emergency or development aid might be creating or dissipating tensions (see Box 2). These country stories also can help the international community identify early warning signs of political-social-ethnic crisis, which, combined with geographic information systems, might generate more effective conflict prevention.

Anticipating Conflict: Early Warning Systems

To avoid future Rwandas, systems for early warning of and response to political crises need to be expanded and strengthened, using economic, “cultural” (ethnic), and other indicators. One approach is to monitor and respond to resource scarcities that can lead to conflict. In Rwanda, falling coffee prices signaled a potential crisis and should have triggered the protection or creation of entitlements to assure food security for the many affected individuals. In view of Rwanda’s ecological degradation, economic crisis, and history of violence, external donors should have acted earlier to renew economic momentum and avert a crisis.

Another monitoring approach involves consulting with different segments of the population affected by obvious declines in production or income. In Rwanda, NGOs and bilateral development agencies could have worked more closely with former coffee growers to find out how they were coping and help provide alternative economic opportunities to thwart frustration and hopelessness. Some international development specialists were training

community leaders whose mission was to improve conditions and prevent future scarcities, but these future leaders were targeted and removed in the initial violence of 1994. Another role for the international community then is to identify and protect this “middle ground” from the genocidal violence of those who have no interest in peaceful development (Kuper 1977, 1985).

A multifactoral method of livelihood monitoring combines food and nutrition with community and household monitoring. Save the Children UK (1977) has introduced “risk-mapping” to identify households and communities vulnerable to food crises. This method uses local “key informants” who report on a large number of livelihood variables, for, in addition to food production or consumption, livestock and other sources of income can also plummet in value in years with bad weather or political turmoil. Because food flows between households are an important form of protection at the village level, the project also aims to measure the degree of redistribution that takes place in an ordinary or a bad year. This measurement is another way to identify households vulnerable to hunger. This method could capture crisis factors such as the fall in coffee prices since it follows markets for key crops and sources of cash income in good and bad years.

Human rights or ethnopolitical crisis monitoring suggest additional avenues. Human rights advocates, such as Human Rights Watch, have assumed an obligation not only to report, but also to warn of impending violence (Neier 1991). The Minorities at Risk Project based at the University of Maryland has been analyzing the factors associated with ethnopolitical conflict in some 280 communal groups. Each group the project studies has at least 100,000 members or accounts for 1 percent of the country’s population and is the subject of political or social discrimination, the target of communal

Box 2— A case study of Rwanda

Rwanda in the 1990s showed how food insecurity can become a rallying point for political opposition and a trigger for violence. In the early 1990s Rwanda's ethnic composition was estimated to be 90 percent Hutu, 9 percent Tutsi, and 1 percent Twa. In precolonial times, ethnic identity had not been fixed but rather shifting, based on occupation and genealogy. In 1899 the German colonial authority imposed Tutsi chiefs in the north and west of the country. After World War I the Belgians defined everyone who owned more than 10 cows as Tutsi, kept the Tutsi in power, and defined everyone else as Hutu or Twa. Belgians then issued identity cards, freezing ethnic identity. Rwanda achieved independence in 1962, and around that time many Tutsi fled the country to avoid brutal massacre at the hands of Hutu militias.

Thirty years later the Rwandan government was controlled by Hutu political leaders who favored their own geographic and genealogical groups over other Hutu or Tutsi elements. Many Tutsi still were living in refugee camps awaiting the right opening to return.

In 1990, Rwanda was classified by development experts as resource poor, with 95 percent of the population in rural areas, the second highest population growth rate in Africa (3.4 percent to 3.7 percent per year), and one of the highest population densities in Africa (210 to 350 persons per square kilometer). Recipient of millions of dollars in foreign assistance each year, Rwanda was viewed differently by different observers. Some saw its impressive economic growth despite limited environmental resources and praised Rwanda's Hutu government for having "coped remarkably well with land pressures without major deterioration in the agroecological resource base" and for having kept agricultural production commensurate with population growth (Ford 1993). Others condemned the country's horrific social inequalities, human rights abuses, and political corruption and warned that there would be large-scale uprisings in response to growing poverty, hopelessness, and dissatisfaction among the masses (for example, Newbury 1992).

Setting the context for disaster were certain factors beyond the control of people or government. The price of coffee, the principal source of export crop earnings, began a precipitous decline in 1986, and that was followed in 1989 by the complete unraveling of the international coffee agreement that had heretofore guaranteed some measure of price stability and income. In addition, Rwanda was affected by ethnic and political strife in Burundi, Zaire, and to a lesser extent Tanzania and Uganda. The country was also subject to periodic droughts that cut local food production.

As a condition of continuing international aid, donors were demanding that Rwanda adopt structural adjustment measures. It acceded to these demands at the expense of its already limited social programs. People who were experiencing a deteriorating standard of living as a result of a combination of environmental, economic, and political factors tended to blame their hardships on the government. Demands by donors for decentralization were met by shifting some responsibility for achieving agricultural intensification and food self-reliance to local governments or NGOs but more local responsibility was not met with substantially more resources.

In investment and development programs, the president continued to favor the geographic center and northern regions of the country where his ethnic relations resided. Programs were not designed to improve the lot of small farmers, on whom increased production and income largely depended. Rural producers who faced seasonal food shortages were forced to sell advance crops to middlemen for a pittance to meet immediate needs for food and cash during the hungry season whereas emergency loan funds would have allowed them to retain their crops for higher prices. Consumers faced inflated prices for food during the hungry season and deflated prices for their produce during the postharvest season of glut, whereas government efforts to smooth out food prices could have removed the burden of high food prices, especially for producers who were acceding to government urgings to specialize in cash and export crops. Extension services offered to farmers were top down in nature and paid little attention to their needs, desires, and capabilities for implementing changes. More equal regional distribution and small-scale credit, food-price stabilization, and improved research-extension programs might have ameliorated resource scarcity and lessened conflict potential, but the government adopted none of these mechanisms.

Government agricultural and economic development programs also paid scant attention to the prevailing gender division of labor. Although in the 1980s the Rwandan government prided itself on attending to women's concerns, women continued to experience discrimination. They lacked full and equal civil rights before the law; they were denied a right to inheritance; they were marginalized from participation in decisionmaking at all social levels; and they lacked fair access to secondary and university education (Newbury 1992, 212). Men controlled land and most surpluses generated by women in agriculture or cottage industry. Although women were responsible for most daily subsistence and carried out most of the heavy labor in agriculture, men controlled cash agricultural income

and encountered no obligation to contribute agricultural or wage income toward household subsistence (Jefremovas 1991). Government agricultural programs targeted male farmers while women's programs focused on sewing and knitting, nutrition education, and vegetable gardening. Studies concluded that female income produced higher total household food (calorie) availability and better nutritional outcomes for children, especially in impoverished circumstances (Kennedy 1994, 92–93). But women still were marginalized in development planning. NGOs, which tripled in number between 1982, when there were 144, and 1992, when there were 384 (Maren 1997, 264), seem to have done little to improve gender balance in development initiatives.

In several ways, perceived resource scarcities were associated with food and nutritional insecurity. Uvin (1996a, d), in evaluating the relationships in Rwanda among hunger, scarcity, and violence, shows that over the period 1984–94 total food production per capita fell by 25 percent, and in certain years there were local or regional famines. The share of households in extreme poverty appeared to be higher than 50 percent, beyond which another proportion was classified as simply poor. Nutrition surveys in the early 1990s indicated the proportion of rural preschool children who were stunted hovered around 50 percent (Uvin 1996a, 19–20). By any measure, Rwandans on the eve of violence were food short, food insecure, and nutritionally insecure.

Explanations for these hungry conditions commonly highlight population pressure, land degradation, and environmental resource depletion. Parts of Rwanda indeed had high population densities and were experiencing intense competition for land, but resource scarcities should also be considered in light of the country's policy context. Food production deficits, food insecurity, and nutritional insecurity were also products of misguided development policies of the national government, which were funded by international donors. Government programs favored and enriched friends of the ruling regime, giving them land grants at a time when small farmers were already experiencing shrinkage in per capita land areas, food, and income, as well as overall life chances. Opportunities were available only to the well connected; the masses saw no future or present well-being in farming (Uvin 1996a, 27–28). In addition, major agricultural disruptions and sharp drops in food production were linked to government policies that displaced people from their land base.

Drought was a factor in food insecurity, but more salient was the government's failure to provide adequate emergency relief. In 1989–90 Rwanda experienced serious food shortfalls accompanied by famine in the center, west, and south. Male agricultural workers forced to leave in search of food and income became a disaffected population ripe for violence.

Contributing to the discontent was the specter of corrupt government officials living in luxury alongside Rwandans devastated by famine, an image that was widely publicized by Hutus opposed to the government. This Hutu opposition was rallying Hutu elements and threatening the incumbent Hutu regime in 1994 when Tutsi forces invaded. In the short term, the government saved itself by diverting blame for economic disarray from itself to the Tutsi.

According to Homer-Dixon (1991, 1995–96), the Rwandan genocide that erupted in 1994 also can be viewed as a convergence of conflict responses to scarcity. The first was perceived scarcity of land. In 1959–63, Rwandan Hutu forces routed more than half the Tutsi population and opened their lands to Hutu colonists. In 1990 descendants of Tutsi refugees returned as the rebel Rwandan Patriotic Front (RPF). As the Tutsi invader settlers and resident Hutus competed for land in particular regions, many Hutu joined militias or independently pillaged, plundered, and drove out resident Tutsi, now broadly identified with the invasionary force. Hutu were seeking additional lands in part because government appropriations had selectively reduced holdings.

The second factor was perceived scarcity of livelihood and life chances. The sharp downturn in the economy that resulted from plummeting coffee prices added to poverty, joblessness, and a sense of hopelessness among young people. Government assistance had always been short, but after 1990 it was further reduced because up to 40 percent of the budget was diverted to the military. In the capital city there were up to 1 million refugees who had fled the Tutsi invaders and were without work or prospects. They offered a prime breeding ground for violent action (African Rights 1995).

On top of these socioeconomic conditions, violence was also fueled by racism. Hutu elites accused all Tutsis of land grabbing. They reinforced "grass-roots" racism that had been ingrained by colonial and postcolonial political, economic, and educational institutions (Uvin 1996a).

Conflict then contributed to hunger. The flight of up to 2 million Hutus from prime agricultural land in 1994 meant annual crops were not sown. Agricultural assets such as tools and livestock, locally adapted seeds, antierosion measures, and trees were destroyed, setting in motion multiple years of underproduction. Conflict contributed to the unraveling of the social fabric and greater scarcities, making recovery and resilience difficult or impossible. Each political crisis further exacerbated the food crisis. The RPF invasion created thousands of refugees, who were then food insecure and unable to produce food on the best lands. Their lack of food production, combined with government domestic welfare cuts in favor of the war effort, rendered others food insecure. Political leaders used the food crisis to mobilize support that resulted in violence that made an already bad situation worse.

mobilization efforts, or both. The project attempts to measure grievances, in-group/out-group differences, other contextual characteristics, and extranational influences (Gurr and Haxton 1994).

These various early warning approaches suggest a checklist of indicators for the international community to monitor crisis potential in resource-poor or politically volatile areas:

1. the status of key livelihood factors (conditions of food production or the price of principal cash crops or minerals);
2. the status of key social or political groups, relative to their historical contexts, conflicts, and concerns; and
3. the preparedness of communal, country-level, or international organizations to prevent hunger and provide life support services, such as water, health care, and education, to resource-poor households or communities in both crisis and noncrisis situations.

Checklists of early warning indicators for particular locations might be designed by local communities in consultation with international organizations that would then assume responsibility for checking the results of monitoring efforts and helping appeal for resources when necessary.

Although this checklist is meant to monitor preconflict situations, similar checklists might be used to monitor postconflict situations. Indicators include the status of

1. material resources (land, water, waterworks, biological resources);
2. infrastructure (distribution mechanisms, markets, roads, communications);
3. social and human resources (community, regional, and government facilities); and
4. the combined material, infrastructural, and human resources necessary to build institutions such as agricultural research and extension capacities.

Rwanda is unusual in that most of the material resource base is intact. In many other cases, destruction and demoralization of communities and their human resource base make reconstruction and return to normalcy much more difficult. With or

without material damage, psychological damage may also have to be taken into consideration in reconstruction (Anderson and Woodrow 1989).

Replicating the Lessons of Peaceful Development in Other Resource-Poor Areas

A complementary approach to conflict prevention involves adapting and applying lessons about conflict-avoidance from resource-poor but peaceful areas that appear otherwise ripe for violence. Regional and community case studies in the Machakos district of Kenya, for example, suggest that high-population-growth, resource-poor areas can make economic transitions without bloodshed (Tiffen, Mortimore, and Gichuki 1994; Hazell 1995). Such cases often use indigenous mechanisms to regulate access to land, water, and other resources and traditional cultural mechanisms to resolve conflicts. Areas such as Machakos also appear to take advantage of new market and educational opportunities, which increase their human and economic resources even where the natural resource base appears to be stagnating. Education and access to new markets, crops, and technologies enable people to transform patterns of land use, crop mixes, and commerce into viable resources that ensure survival and improve quality of life.

Political resources are also important. Effective leaders both locate new opportunities and convince people to use them. They impress on their constituents the social and economic advantages of peace relative to the destructiveness of war and may have to negotiate with warring parties to avoid being drawn into the fighting. Some communities during Somalia's active conflict managed to stay out of the fighting, and investigators are trying to learn from the negotiation techniques their leaders used in the midst of these regional hostilities (Anderson 1995, 1996).

Good leadership drawing on traditional community mechanisms can also limit competition and conflict over scarce resources and convince people to withstand short-term deprivation in the interest of longer-term political-economic stability or gains. Successful community development efforts build on communities' internal capacities for subsistence and cash crop production in a context of mutual

trust and respect. In the Casamance region of Senegal, the grassroots organization COLUFIFA (Comité de Lutte pour la Fin de la Faim), drawing on local tradition, religion, and government, has helped member villages in a region of high population density to eliminate hunger and improve standards of living through food and cash crop diversification, careful marketing, and reliable food storage. Brown University's World Hunger Program has been analyzing how these peaceful development alternatives mobilize populations to redress perceived scarcities and "scale up" to improve living conditions (Uvin 1996b).

Successful cases of peaceful development involve changing the material (often biological) resource base from one of perceived scarcity to one of comparative advantage and changing household and community contexts of hunger vulnerability to realization of greater productive potential. Although such changes might be expected to engender additional competition and possible conflict, social and cultural mores in such success stories militate against violent outcomes and stress fairness, justice, and conflict prevention and resolution.

Questions remain, however, whether such mechanisms can be salvaged once active conflict is in progress or revived in postconflict situations where resource poverty is extreme and where human resources are scarce owing to displacements and destruction.

Conflict Intervention

External assistance usually is necessary to feed noncombatants during and after conflict, but emergency assistance remains problematic. Consensus is emerging that the international community has a right or duty to intervene and provide humanitarian assistance to endangered people, even over the objections of a sovereign state. But the challenge is to find ways to assist victims in situations where one or more parties to conflict is not open to outside

assistance, where emergencies are open-ended in time, and where there is no reliable authority to assume control over operations or infrastructure so that aid givers can easily or quickly withdraw. Coordinating the actions of intergovernmental, governmental, and NGO aid providers presents an additional challenge.⁷ Political or self-serving interests on the part of donors and NGOs, which are not bound by government legal obligations, add to the complexity. Lessons learned from drought and earthquake response and relief-with-development efforts cannot always be transferred to political emergencies, where food is more likely to be used as a weapon and there is less likely to be an effective government to take on and scale down operations after a short period (Walker 1994). So the international community is trying new principles and military approaches as it seeks to establish an effective global structure to coordinate food aid for conflict prevention, crisis response, conflict management, peace making, peace keeping, and post-conflict reconstruction.

Principles of Humanitarian Response

The individual right to food is based on the U.N. Universal Declaration of Human Rights (1948), additional supporting human rights covenants and conventions, refugee law, and humanitarian law. The Geneva Conventions of 1949 and Additional Protocols of 1966 specifically establish the right of noncombatants in intra- and interstate conflict zones not to starve. In addition, issues of humanitarian access to beleaguered populations caught without food in conflict zones have been raised by the U.N. General Assembly in proposals for a New International Humanitarian Order (1985), by UNICEF in the World Summit for Children (1990), by the International Conference on Nutrition *World Declaration and Plan of Action* (ICN 1992), and by various government, NGO, and intergovernment consortia. Legally, human rights constitute a set of interstate political obligations. But humanitarian

⁷In 1990 the U.N. established the Department of Humanitarian Affairs (now the U.N. Office for the Coordination of Humanitarian Affairs) to coordinate crisis assistance, but it is underfunded and underused, with inadequate staffing and a limited mandate that restricts efficient and timely interagency response.

assistance is supposed to be apolitical. Because state-administered aid is almost always political, a strong preference has emerged for NGO or multi-lateral actions that can bypass individual state political interests. As a corollary to the individual's right to food, NGOs insist on a "right to assist" victims of conflict. Seeking to maintain a "neutral" stance, they negotiate quantities and terms of food deliveries with whatever local, insurgent, state, or other authorities are present on a case-by-case basis.

Negotiated access has been achieved through safe-passage and cross-border operations that establish zones or corridors of "tranquillity" for food aid delivery. NGOs offer a variety of options for reaching vulnerable populations with food aid; donors interested in reaching hungry noncombatants select one or more organizations from the U.N. multilateral institutions, bilateral institutions, or NGOs operating in a given zone. How well NGOs function depends on their ability to deliver more aid when conditions make it possible and to cut back when conditions are dangerous. One disadvantage of such flexibility is that it discourages multilateral cooperation, because each NGO is operating on its own, when solidarity and cooperation are needed to use shrinking food aid resources optimally. Another is that delivering more food safely often involves concessions, ranging from political recognition in the case of southern Sudanese rebels to provision of artillery and vehicles to armed intermediaries who deliver the food in the cases of Bosnia, Rwanda, and Somalia.

Concessions, in addition to the food itself, arguably strengthen the conflicting parties and prolong their war efforts, while doing nothing to assure that food safely reaches intended beneficiaries rather than combatants. The very neutrality of NGOs makes them political tools of donors and recipients. They often find themselves in the position of buying intelligence and security from the very thugs the world community is seeking to control (Anderson 1994). Critics contend that NGOs, while assuming a political role usually reserved for government agencies, are responsible only to their donors and may distort or prevent local action and direct involvement in negotiations. NGOs may also face resistance from donor governments that have their own political agenda. Humanitarian intervention-

ists such as Médecins Sans Frontières, who seek to deliver essential food and medical aid without regard to political affiliation, have faced resistance not only from warring parties but sometimes also from external donors such as the United States and France that objected to external assistance in certain contexts (Jean 1992).

To rationalize their actions, a group of NGOs have devised the Providence Principles of Humanitarian Action in Armed Conflicts (Box 3) (Minear and Weiss 1993). Such promulgations summarize desires to remain impartial and neutral but cannot resolve the basic dilemma: aid never is truly apolitical, and unconditional food aid does not change the behaviors of combatants, move them closer to a negotiated settlement, or improve their respect for humanitarian law, human rights, or human life. As NGOs and relief agencies respond to protracted complex emergencies, they also are forced to assume higher levels of financial and administrative planning that make their actions political. Offering assistance in political and natural disaster situations over multiple years can turn aid agencies into permanent providers of international welfare, a role for which they are ill equipped (Walker 1994). Duffield (1994a, 1996), who has written on conflict and food insecurity in Eritrea, Ethiopia, Somalia, and Sudan, insists that food aid feeds violence and has become part of the problem rather than the solution. Local participation and empowerment are part of conflict-related food aid distributions, but in war zones the "grass roots" tend to be violent. WFP has instituted internal codes of conduct to guide partnerships for aid delivery; it seeks to maintain its "nonpolitical status through a policy and practice of impartiality, as opposed to the more passive concept of neutrality. Impartiality implies being fully aware of the political implications of food interventions, and seeking to keep food aid out of the political and military equation" (WFP 1995, 65). WFP expects communities to assume much of the burden for transforming relief into development after a conflict has passed. But finding individuals or institutions to assume representative leadership remains difficult (Davies 1994), which is one of the reasons proponents of military humanitarianism argue for more, not less, emergency assistance delivered through armed forces.

**Box 3—Providence Principles of Humanitarian
Action in Armed Conflicts**

1. *Relieving life-threatening suffering.* Humanitarian action should be directed toward the relief of immediate, life-threatening suffering.
2. *Proportionality to need.* Humanitarian action should correspond to the degree of suffering, wherever it occurs. It should affirm the view that life is as precious in one part of the globe as another.
3. *Nonpartisanship.* Humanitarian action should respond to human suffering because people are in need, not to advance political, sectarian, or other extraneous agendas. It should not take sides in conflicts.
4. *Independence.* In order to fulfill their mission, humanitarian organizations should be free of interference from home or host political authorities. Humanitarian space is essential for effective action.
5. *Accountability.* Humanitarian organizations should report fully on their activities to sponsors and beneficiaries. Humanitarianism should be transparent.
6. *Appropriateness.* Humanitarian action should be tailored to local circumstances and aim to enhance, not supplant, locally available resources.
7. *Contextualization.* Effective humanitarian action should encompass a comprehensive view of overall needs and of the impact of interventions. Encouraging respect for human rights and addressing the underlying causes of conflicts are essential elements.
8. *Subsidiarity of sovereignty.* Where humanitarianism and sovereignty clash, sovereignty should defer to the relief of life-threatening suffering.

Source: Minear and Weiss 1993.

Military Humanitarianism

With the end of the Cold War, use of U.N. military forces is expanding to facilitate larger-scale delivery of humanitarian and development aid during and after conflict. Military humanitarians also assist in the disarmament of former combatants and oversee the reconciliation, repatriation, and resettlement process; free elections; and the restoration of political stability. The United Nations authorized military intervention in 1991–92 to reverse Iraqi aggression in Kuwait and create safe havens for Iraqi Kurds in need of humanitarian assistance; in

1992 to deliver humanitarian aid to starving Somalis and to disarm Somali warlords; in 1993 and following years to protect U.N. agents in Bosnia-Herzegovina who were trying to deliver humanitarian assistance to besieged Moslems; and in 1994 to deliver relief in Rwanda. Military presence is multiplying also in arenas of large-scale former conflicts, where soldiers are supposed to observe and keep the peace and prevent conflict from reemerging.

Regional or national military forces have also been called into play at a smaller scale. A force organized by the Economic Community of West African States (ECOWAS) entered Liberia to create

corridors of tranquillity through which food might move. Instead of ending the conflict, however, ECOWAS was drawn into it. Such regional coalitions tend to lack the resources, infrastructure, or political will to intervene effectively and stop the conflict, as member governments fear that establishing a principle of armed intervention might be used against them sometime in the future. National military operations also occasionally have been labeled “humanitarian.” In Chiapas, Mexican army personnel were reported to be delivering food to villages ransacked by Zapatistas. In the Guatemalan highlands, local or U.S. military forces were reported to have helped dig latrines or install potable water systems. Where the military contributes to such rebuilding efforts, it may discourage local communities from self-reliance and increase dependence on external agencies, a disadvantage for longer-term rehabilitation of local political, democratic control (Messer 1996a).

Military interventions at all scales have been criticized for their ad hoc organization, ineffectiveness, poor coordination, lack of participation by local communities in planning and implementation, and failure to mitigate conflicts (Messer 1996a). Particularly in the former Yugoslavia, military humanitarianism has been reviled as an excuse for inaction that allowed aggressors to continue human rights abuses (Hermet 1992). Critics allege that like negotiated humanitarian access, military humanitarianism actually intensifies armed conflict by providing food, employment, arms, vehicles, and income for local armed units. Military operations encourage continued militarization in conflict zones by organizing relief as a military campaign. Large-scale and expensive operations tend to marginalize smaller-scale relief efforts even though smaller-scale wet-feeding programs, as in Somalia, are less likely to be vandalized and more likely to involve less-violent local participation and leadership (African Rights 1994a). The sizable quantities of dry foods and arms moved by the military are fungible and invite pilferage.

Human rights advocates additionally note that military humanitarianism and negotiated access distort the human rights picture. Whereas emphasis should be on the community’s right to survive, the individual’s right not to starve, and improving community and individual capacities for food

self-reliance and human development, aid donors have focused more on their own rights of access and have evaluated success in terms of tons of food moved rather than benefits to recipients (Danish Red Cross 1995).

The Role of Food Aid in Conflict

Food aid, used as a political tool, often has been criticized as an underlying condition of conflict. Especially during the Cold War, the United States and other donors used food aid to reward and strengthen friends and punish and destabilize enemies (Wallerstein 1979). After the Cold War, in conflict or potential conflict settings such as Rwanda in the early 1990s, food aid continued to be used as a political tool by which Western donor governments sought to assist political leaders in economic growth and political stabilization programs.

Food aid also has been criticized as a component of asymmetric food flows that lower domestic food prices, discourage local production, contribute to rural poverty and crisis, and delay livelihood recovery once emergencies subside (Lappé and Collins 1978). Economic evidence to support this argument is lacking in long-term conflict zones such as Eritrea, however, where local populations have few other options. Lack of draft animals, seeds, tools, and fungible assets means that food aid is the main food source keeping people alive. Destitute farmers and herders cannot restore independent livelihoods because conflict, not food aid, has left them impoverished.

Food-first critics tend to focus on food aid’s negative effects on local rural economies, but food aid also has significant positive national and regional effects. Food aid saves lives of many who might otherwise starve in conflict situations, particularly where hunger is being used as a weapon. Humanitarian food aid creates employment, gives impetus to transport infrastructure, supports commercial farming through local purchase in nonconflict areas, helps the treasury of the recipient country where exchange rates for relief operations are pegged at artificially high official levels, and supports flows to black market or parallel food economies where inefficient official monopolies exist (Duffield and Prendergast 1994, 134–35).

In recent decades, however, food aid has been used strategically to sustain conflict. During the Biafran-Nigerian civil war (1967–70), Biafrans were on the brink of starvation. Airlifted food allegedly targeted to the neediest women and children instead supported the Biafran ethnic Ibo (state) army and bureaucracy, for whom food was otherwise scarce and expensive, and night relief flights provided a cover for clandestine shipments of arms.⁸

During the Ethiopian civil war, emergency food aid meant to feed famine victims instead was hijacked by the Dergue government, which used it to feed their forces and to lure opposition groups into forced resettlement programs (Clay 1988). Food relief also sustained the Eritrean insurgency, especially in drought years that otherwise would have ended in famine. The Eritrean Emergency Relief Desk distributed food to civilian supporters through responsible local leadership. In contrast to those in power receiving food on both sides of the conflicts in Somalia and the Sudan, Eritrean leadership apparently did not prey on local populations (Duffield and Prendergast 1994).

African Rights (1994a) has criticized the way relief in these and other African cases was delivered essentially without accountability on the part of the donors, who were mostly NGOs, or the recipients, who were mostly parties to the conflict. Whereas food aid might have been used as a tool to negotiate an end to conflicts in Burundi, Ethiopia, Liberia, and Sudan, instead it handed militants livelihoods, transport, and an additional source of control over local populations that enabled them to continue the fighting. Even in exile, Rwandan Hutu militants managed to control distribution of food aid, a source of sustenance and power over others that kept their leadership and invasion hopes alive.

Moreover, although food aid prevents starvation, it rarely contributes effectively to food or nutritional security for civilian populations. Even

where rations reach the most nutritionally vulnerable—women of reproductive age, children, and the elderly—their impact is limited because the usual allotments of grain, sugar, and oil are inadequate. Women and children need additional micronutrients that are usually not part of the package. Diets therefore must be supplemented by home food production, foraging, or marketed foods.

In certain cases, such as Bosnia, food aid has allowed large populations to maintain relative food security in the midst of crisis. In others, such as Sudanese refugee areas in Uganda in the early 1980s, households were able to grow enough food to sell vegetables, seeds, and root crops and by specializing, recreate economies where tools, clothes, and services were readily available and traded. Where refugees engage in food production and marketing, they also enhance the supply of food-based sources of micronutrients ordinarily missing in food aid rations.

In most emergency feeding situations, however, populations dependent on food aid find it difficult to combine receipt of assistance with livelihood activities because they are hemmed in by conflict. Or they are refugees in countries where laws deny them access to land or employment and where host governments try to isolate them from local populations to try to avoid introducing additional political and economic stress and disease into an already fragmented or fragile social and environmental fabric. Where external agencies have launched massive relief operations, as in Malawi for Mozambican refugees and in Thailand for Cambodian refugees, they often try to address livelihood and health needs of already settled populations as a humanitarian and practical gesture. Aid otherwise might raise local perceptions of unfairness, relative deprivation, and conflict potential. Long-term food aid enterprises, such as the IFRC's in Malawi, raise an additional

⁸Both aspects allowed the Biafran secessionists to fight on. Without massive external food aid, including significant church-affiliated assistance that helped Biafrans produce more of their own food, Biafra's war of attrition would have been less protracted because Ojukwu, the Biafran commander, would have been unable to keep politically significant elements of Biafran society well fed and loyal (Stremlau 1977, 246–252). Arguably, prolonging the war helped bring about a less violent and retaliatory peace, however. In April 1969, the Nigerian leader Gowon revamped his military command. He replaced Colonel Benjamin Adekunle, who had outspoken antipathy for Ibos, with Colonel Olusegun Obasanjo, a military engineer whose fairness was respected. Obasanjo is credited with winning the war not only by military strategy but also by his reputation for fair treatment. This removed an element of continuing Ibo resistance, namely, fear of violent and vengeful reprisals (Stremlau 1977, 331–32).

dilemma: what happens once the refugees leave, and the aid on which the economy has grown dependent withdraws? Prolonged food aid distorts area economies, and regions accustomed to cobbling together food security in part from food aid face an uncertain future in an era of decreasing food aid tonnage and increasing emergency demands. These concerns highlight once again the unsustainability of food aid, which cannot provide long-term food security, and the regional contexts of conflict.

In postconflict situations, external food rations are supposed to provide temporary relief while local people reorganize and restore livelihood security. Unfortunately, in many contemporary postconflict situations aid is delivered without a plan for the aid giver to leave. After years of war, local and state governments lack resources and skills for disaster preparedness, effective response, or peacetime development.

Postconflict Response

Populations seeking food and livelihood security in postwar situations face many material and social obstacles. In rural areas, they must remove land mines; restore soil and water management infrastructure; locate tools, seeds, livestock, and fuel; and secure investment capital for future livelihood and food security. In town and countryside, they must form or renew communities; rebuild social infrastructure, especially labor organization; and secure cooperation among disparate political and ethnic elements with varying wartime experiences, so that local people—male and female, young and old—can work effectively with each other toward peacetime development (see, for example, Richards and Ruivenkamp 1997). When states are weak, as in many post-civil war settings, NGOs try to involve local communities in designing and implementing water, agriculture, and environmental protection projects. These activities have the added aim of pressing formerly or potentially feuding factions into cooperation. Effective planning for reconstruction requires regional and local social, environmental, technical, and political assessments, and a clear time frame and priorities for programs and follow-up evaluations.

Charting the Political Ecology

A social survey of significant political and cultural dimensions of human populations within specific regions is the first step. Populations can be classified as refugees, forcibly settled, self-settled, or long-term residents and characterized by religion and ethnicity. Regions can be subdivided into political-ecological zones, which have significant geographic and sociopolitical dimensions. Political-ecological assessments should note which populations are at particular risk for livelihood failure, such as pastoralists whose mobility might be reduced by new agricultural or private property boundaries, agriculturalists whose access to land or water might be diminished by demands of tourism or industry, or traders whose commerce might be curtailed by new regulations. Sociopolitical characterizations of populations within a region include each people's past, current, and potential roles in local, national, and regional political economies; their current or potential relationships with a central political authority and external aid organizations; and relationships between groups that portend cooperative or conflict potential. Additional characteristics useful for situating local populations within a regional economy are their livelihood patterns and customary or possible access to land, water, markets, and trade routes.

Institutional characterizations are the second step. Water may be a first priority for rural populations, followed by tools, seeds, and animals for food production. External funders interested in helping restore food security must communicate with local community voices before setting their own or accepting the government's agenda, but after years of war, local societies may have to reorganize before they can offer guidance on priority needs and local mechanisms or self-help groups for meeting them (Davies 1994). Identifying representative and accountable community leadership and organizations may be the most delicate step, and the most important for future conflict avoidance.

After priorities for action have been determined and local institutions identified as partners, priority needs and partnerships must be matched with governmental or nongovernmental agencies that can assist with funding, technical resources, and transitional support, including food security. Few coun-

tries emerging from decades of war will achieve food self-reliance quickly, so multiyear food aid is part of the picture, requiring careful planning, funding, and logistics. Strategic distribution of aid, a third step in charting political ecology, can make the difference between cooperation or competition and conflict.

Considered together, these steps to reconstruction focus on identifying, using, and enhancing local livelihood capacities in ways that can reduce conflict potential. The emphasis on political-ecological assessment contrasts with conventional needs-based assessment in which donors look at the way money is spent to address vulnerabilities but not at the effects of aid on local people and institutions. Agencies engaged in linking conflict reduction with relief-and-development have recommended that relief measures address sustainable livelihood along with delivery of basic services by involving local people in ways that build on their capacities. Evaluations would be based on enhanced local capacities, not just nutrients delivered (Danish Red Cross 1995).

Reconstructive capacities are more easily identified, however, where intact communities exist. They are harder to locate after prolonged conflicts that have destroyed local populations, infrastructure, and institutions. In civil wars in Africa, parties to conflict have deliberately chased out community residents and removed youth from their traditional institutional anchors. Most able-bodied youth who might have provided the nucleus for reconstruction have little practical peacetime experience and need schooling and employment skills. Demobilizing, training, and integrating these masses into a productive economy is perhaps the greatest challenge for countries emerging from generations of war, as well as for governments or donors seeking to assist them. Another challenge is reintegrating refugees who fled the conflict and might now wish to return. Avoiding selective development that favors some ethnic, religious, or geographic groups over others and thus sows the seeds of future resentment and conflict is a third challenge, particularly for leaders who wish to reward their supporters. All are challenges facing Eritrea during its postconflict reconstruction, as documented in Box 4.⁹

Lessons in Postwar Reconstruction

Current postwar reconstruction efforts chart new territory, for there are no prior lessons about what kinds of reconstruction might work best in the post-Cold War era. The lessons of post-World War II Europe and Asia are distant and different. The regions affected in these conflicts began with more highly developed infrastructure, more highly educated populations, and superior agricultural technological resources for rebuilding national economies and food systems. They also left their societies, however demoralized, intact.

Possible examples of institutions and programs for rebuilding postwar food systems might be gleaned from postindependence experiences following wars of independence in Africa and Asia. But in contrast to the wars of independence, where postindependence political leadership assumed governance, and all felt a bond because they had struggled for a common cause, to remove the colonial oppressors, in the modern wars, in most cases, no clear political leadership emerges to lead populations into nationhood. This was also the case in Pakistan and Bangladesh, where there were major leadership struggles following their wars of independence.

History suggests that food security can be achieved where massive and well-positioned aid completely rebuilds a totally destroyed infrastructure or refurbishes an intact one. Massive infusions of U.S. aid allowed Korean agriculture to be rebuilt where the traditional infrastructure had been totally destroyed. In post-World War II Western Europe, where agricultural infrastructure remained intact, countries resumed production once they received massive but temporary infusions of economic and food aid. More often in later twentieth-century civil wars, however, the destruction leaves countries somewhere in between. Infrastructure is severely damaged, but still-entrenched interests render it impossible to make a fresh start. Traditional ways may no longer be appropriate, but individuals cannot modernize because they are already fully occupied trying to cope in the old underproductive ways.

⁹This section was prepared from research materials and interpretations assembled by Zerai Fesshaie, Mizane Yohannes, and Thomas Marchione.

Box 4—Reconstructing food and nutritional security in postwar Eritrea

In 1991, after 30 years of civil war with Ethiopia, Eritrea gained its independence. Seven years later, the country is still struggling to restore food security in the wake of decades of conflict.

The precolonial history of Eritrea was characterized by intertribal feuding over territories and wars between Islamic Egyptian populations to the northwest and the Christian Abyssinian kingdom to the south. In the late nineteenth century, the fall of the Abyssinian kingdom left a political vacuum soon filled by Italy, which took over Eritrea as a colony.

From 1889 through 1941 Eritrea's society and economy were transformed by Italian occupation. The Italians confiscated "unoccupied" lands, constructed waterworks, and initiated plantation schemes. They encouraged small industries, trade, and service occupations in towns and cities and established a military bureaucracy. These alternatives to subsistence agriculture and pastoralism reduced Eritrean food self-sufficiency and increased dependence on imported food, a dependence that has persisted.

With the defeat of Italy in World War II, the United Kingdom assumed hegemony over Eritrea and neighboring Ethiopia. In 1952 a U.N. plan granted independence to an Ethiopian federation, with Eritrea as a relatively autonomous unit. Ethiopia's backward economic state, lack of investment in Eritrea, and repressive policies set the stage for Eritrea's struggle for independence. At the same time, Eritrean political factions carried out their own internal struggles for power, which had roots in precolonial intertribal conflicts. The internal civil war, combined with the war with Ethiopia, left agricultural and agropastoral lands in disarray and the inhabitants destitute, without long-term resources.

The food situation in Eritrea has been characterized by grain deficits since colonial times. The subsistence sector was neglected first by the Italians, then the British, and finally the federal Ethiopian authorities. Beginning in 1961, as fighting closed down the remaining plantations and transformed agricultural lands into battlefields, the food security situation deteriorated. Escalating conflict between the Eritrean Liberation Front (ELF) and the Eritrean People's Liberation Front (EPLF), plus successive droughts from 1978 onward, worsened food deficits.

Eritrean leaders exploited sources of food made available through humanitarian relief, so mounting deaths from famine during the Ethiopian droughts of the 1980s were not evident in Eritrea. In 1975, the Eritrean Relief Association (ERA), an affiliate of the EPLF, was founded to assist the growing number of refugees and internally displaced people. Between 1981 and 1991 it channeled an estimated 750,000 metric tons of food to insurgent-held regions of Eritrea and Tigray (Duffield and Prendergast 1994, 133). But the social collapse caused by the conflict

and the flight abroad of skilled and unskilled labor, plus the destruction of physical infrastructure, now make restoration of food security problematic.

Skilled workers such as mechanics, masons, and school teachers who fled the war have not yet returned. Overall illiteracy is estimated at 85 percent, with female illiteracy twice that of males, and most rural areas are without schools. The war is estimated to have produced 90,000 orphans, 56,000 disabled people, 500,000 refugees, and 100,000 displaced persons. Close to one-fourth of the potential population is estimated to be living abroad, with some half million in Sudan and the rest dispersed across the Middle East, Europe, and North America. Remittances from abroad were estimated to be US\$2 million in 1992.

Agriculture and industry must be renewed. Recovery must reverse years of neglect of soils and waterworks, replace worn agricultural and industrial equipment, clear land mines, replenish livestock, and rebuild dwellings. New subsistence patterns will have to be improvised where herding and market patterns shifted in response to conflict. Cash (export) crops and markets will have to be reconfigured to compete in a 21st century economy. Food and export crops need water, now in scarce supply, and the rural people need fuel.

Former soldiers, returning refugees, and intact populations all seek to rehabilitate their livelihoods. They need new market opportunities and sources of public and private investment, as well as livestock, tools, and locally adapted seed varieties.

Conflict is a continuing danger because of the legacy of Eritrea's own protracted civil war. Cross-border skirmishes with ELF refugees living in Sudan have been blamed on the meddling of outsiders but may be a symptom of festering ethnic conflicts. Conflicts could occur in pastoral-agropastoral lowland provinces over access to natural resources or in the highlands, where unresolved ethnic tensions persist (Cliffe 1994). In 1998, tensions flared with Ethiopia over a boundary dispute.

Steps in Eritrean Reconstruction. From a development planner's perspective, the first step in reconstruction should be a political-ecological assessment of the strengths and vulnerabilities of different regions and localities. In Eritrea, however, political-ecological assessment was not the first step taken. After independence, it embarked on land reform, training, and macroeconomic policy initiatives without reliable data and extended rather than demobilized the ranks of the volunteer army (Cliffe 1994). The government did not establish that the country had the human resources needed to implement the planned projects before it began to reconstruct its infrastructure. Nor did it demonstrate environmental sensitivity.

A nagging question is whether the Eritrean transition government, which came to power after protracted struggle, will be able to reorient its goals from revolution toward peace, whether it will be able to attract and solidify a following, or whether it will become the target of renewed guerrilla movements against it. Peacetime food needs, health demands, and employment requirements are very different from those of a wartime economy. Leaders dare not ignore ethnic, occupational, religious, and geographic divisions, which hold the seeds of future conflict.

Donors can take several roles in the reconstruction process. One role could be to help finance development projects in areas with high conflict potential that may be of low priority to the government. Another role could be to work more closely with local institutions and people in setting priorities and implementing programs and projects. A common suggestion for stretching food aid and agricultural investment capital is to make priorities more community based, especially where a strong central state is lacking. But first reliable and representative community institutions are needed (Davies 1994; Maxwell and Lirenzu 1994).

Aid givers also need to be sensitive to potential sources of dissension within and between groups. War-torn areas in Eritrea are resource poor and high in population density, especially once refugees return. Competition for resources and influence is likely to be extremely high. To put the rural economy and food security on a firm foundation, donors should help ensure that the country has mechanisms to process land and other claims, rebuild markets and communications, and supply capital for agricultural intensification and industrial development.

Funding Rehabilitation. Some potential sources of investment capital are local income from livestock, cash crops, or foreign remittances, but these are likely to be insufficient. Livestock and cash crops require initial investment and lead time before they can accumulate capital for investment, and earnings from abroad are disrupted when people return. Refugees living abroad are another potential source of human and investment capital. Refugees so far have been tapped for their remittances, but not for their expertise or potential direct investment in the reconstruction process. The international development banks, especially the World Bank, probably should be cultivated as the most important potential source of capital investment, but it is unclear at what scale and with what local partners.

Governments still appear to be the most likely partners for large-scale market, communications, and infrastructure projects as well as for macroeconomic planning. But development loans and spending must be structured so that they promote cooperation, not competition and conflict. One suggestion is to fund only joint projects, in which formerly hostile neighboring parties must cooperate to get resources (Anderson 1994). Programs could be

designed from the top down in view of the political-ecological background or from the bottom up by communities that had decided to pool resources. Another suggestion is to give priority to projects that address both food security and income generation concerns. Where markets are uncertain, communities are likely to make food a priority ahead of other revenue schemes and demand technical services related to food production. Reconstruction banks and international agencies must be willing to evaluate and respond to such requests, which in the past have been met mostly by NGOs, and local people, especially women, need to participate more in the design of projects.

NGO-assisted sustainable livelihood projects also will require infusions of external capital. In Eritrea close to 20 local or foreign NGOs are, for example, providing credit and training to demobilized army members and internally displaced people, facilitating the return of refugees from Sudan and rehabilitating irrigation schemes. So far the scale of these operations is small, but they are expected to expand.

Food Aid in Reconstruction. The majority of Eritreans remain dependent on food aid because domestic food production cannot meet the need, and income to import commercial food is lacking. Even in the good rainfall year of 1992, local grain production amounted to only about 60 percent of estimated consumption needs. In the poor rainfall year of 1993 that followed, it dropped to 30 percent. Food-for-work schemes are unlikely to be as useful as outright relief because of inadequate infrastructure.

In summary, Eritrea's postwar reconstruction of food security calls for the following actions:

- a political-ecological assessment of human and physical resources (especially water);
- a plan for refugee repatriation that can return refugees to areas of potential production actively involving them in planning this return process;
- a strategic water plan that can assure additional supplies for agriculture as well as adequate and safe potable water for urban and rural areas (this must be preliminary to any export-cropping scheme);
- additional sources of investment capital, especially for livestock, and credit to help reestablish farming in the short term; and
- a multiyear food aid plan that will reach the most vulnerable members of the population and use food strategically to encourage rehabilitation of potentially productive zones. The duration and extent of food aid will depend in part on how effectively communities, government, and external donors are able to implement production strategies that can reduce the need for food aid, while pursuing agropastoral, industrial, and service industry schemes that can generate income to purchase food.

In addition, violence has become a way of life in part supported by misdirected humanitarian aid.

To proceed from relief to development, donors will have to consider much more seriously the politics of local control in weak-state situations. They will need to be especially vigilant to keep food aid from being manipulated as a weapon and refuse to support local political leaders who prey on intended food-aid recipients. In Duffield's terms, both government and NGO givers of aid have a responsibility to thwart the "rationality" of violence at all social levels (Duffield 1996). At the local social and ecological levels, they must help introduce strategies of food and livelihood production that take into account social relations of production in addition to appropriate seeds, tools, and physical infrastructure (Richards and Ruivenkamp 1997). At the macroeconomic level, another lesson is that donors must promote economic policies that sustain peace. In her survey of structural adjustment in developing countries, including war zones, Stewart (1993) argues persuasively that demands for structural adjustment in certain cases pushed already tottering governments over the brink to instability. She urges

that political as well as economic dimensions of stability guide international economic policy and lending. An eye toward peace must also be part of macroeconomic policy in postconflict situations. Boyce (1996) and colleagues, in their exploration of economic policy after El Salvador's civil war, argue that unless the peace process reshapes economic policy that existed before war in countries such as El Salvador, both peace and economic performance are bound to falter. Macroeconomic policies need to be tied to the pledges of peace agreements, such as fairer redistribution of land to former combatants. They need to make sure growth is not again distorted or diverted disproportionately toward the upper classes and away from the have-nots, the original insurgents. These economists argue that aid can and should work toward greater income equality, without which there will be little chance of economic growth, much less of peace. Yet in the case of El Salvador, the new government is not making the land transfers that were part of the peace settlement. The political leaders are not lacking in capital but in political will. The international financial community is in a position to exert leverage.

4. Recommendations and Conclusions

More positive scenarios for food, agriculture, and the environment in 2020 are possible if peace can be protected where conflict is imminent, achieved where conflict is active, and sustained where conflict has ceased. The data assembled in this paper have presented several ways to trace the relationships between resource scarcities, hunger, and conflict. Historical, political-economic, food and agriculture, and nutritional data offer lessons on underlying and trigger causes of conflict in different cases.

Conflict Prevention

Conflict prevention will be crucial for food security and environmental protection through 2020. War is expensive, and the economic savings engendered through conflict avoidance need to be made part of the calculation of “returns” to agricultural, food aid, and economic development assistance.

- International (intergovernmental) agencies and NGO coalitions, in partnership with governments and communities, should organize conflict early-warning systems that incorporate political-economic and sociocultural factors that also underlie food crises.
- Development assistance should incorporate conflict prevention into policies, programs, and project planning, implementation, and evaluation.
- Zones of high conflict potential should receive high priority for peace-sensitive social and economic assistance.
- As a corollary, resources should be directed to those areas identified as conflict-prone even though this demands new calculations or thinking about “returns” to investments.

- Aid should be delivered in ways that foster or demand cooperation among communities or their component groups and that avoid negative competition leading to conflict.
- Where possible, programs should be structured so that they create openings for active participation by women and men from affected zones to participate in reporting, surveillance, and project planning, implementation, and evaluation.

Research in the following areas can help achieve these objectives:

- additional analyses of case studies that pinpoint trigger and underlying causes in countries where conflict erupted;
- additional analyses of case studies of resource poor but peaceful areas where conflict did not erupt to understand the social, cultural, political, and economic dynamics that fostered peaceful change; and
- construction and evaluation of possible checklists for use as early-warning indicators of food insecurity related to conflict.

Active Conflict Situations

- Emergency aid should incorporate conflict mitigation as an objective of emergency food distributions and as a measure of project evaluation.
- Emergency aid should be delivered in ways that demand accountability of those delivering assistance in active combat situations.
- Where possible, programs should be structured so that noncombatant women and men in combat-affected zones can participate in surveillance, distribution, reporting, and evaluation.

To help achieve these objectives, research should focus on creating typologies of conflict in relation to scarcity and hunger that

- trace intentional and indirect destructive effects of conflict,
- chart implications for reconstruction at regional, local, and country levels, and
- include land, water, and biological environmental resources, physical and social infrastructure, and people (communities) and their safety-net institutions.

Postconflict Situations

- From country to international levels, macro-economic planning and international financial and structural assistance should incorporate “peace” considerations and conditions, taking into account the ways in which government policies are likely to influence food security, equitable outcomes, and poverty alleviation.
- At local, subnational, and country levels, efforts should be made to work closely with emerging communities, especially in identification of appropriate seeds, tools, and labor organization for effective rehabilitation of agricultural production.

To help achieve these objectives, the following research agenda should be pursued: At the country level, typologies of emerging community and grassroots associations with which development planners might devise and monitor conflict prevention, conflict resolution, and reconstruction strategies should be developed. At country and regional levels, researchers should investigate activities for furthering “food from peace” that might be incorporated into agricultural and economic planning. And they should study agricultural and economic planning options that incorporate sustainable management of plant genetic resources to build more sustainable livelihoods and increase food security for conflict-prone populations.

Conclusions

The analysis presented here, albeit based on crude data, demonstrates the close relationship between conflict and agricultural underproduction in Sub-Saharan Africa. The review of the literature suggests that considerable food insecurity may be linked to conflict also in afflicted zones of Asia and Latin America. Taken together, they suggest that eliminating the devastating consequences of food wars would produce more optimistic world food and hunger outlooks. They emphasize the need to think “conflict prevention” in food security and economic development efforts and the need to link food security and economic development to postconflict relief.

Accomplishing these ties will demand some changes and cross-overs in food crisis and agricultural development activities. Every dimension of food security and development planning could and should include exercises that explore ways to avoid conflict, respond to conflict should it occur, and to rebuild after conflict has damaged natural and human resources. Rebuilding local capacities for food and livelihood production already is a priority in many postwar reconstruction efforts. But good intentions need to be tied more carefully to longer-term scenarios for sustainable livelihood security. “Relief to development” will become a reality more than a catchword only when relief programs have available additional agricultural expertise that can help guide them in efforts at efficient water management, biodiverse selection of seeds, appropriate participation by community members, and other factors necessary to build sustainable social and agricultural systems.

In the past, “food crisis response,” “relief to development,” “agricultural production,” and “sustainable development” have held separate portfolios, as if meeting separate challenges. The close connections between conflict and underproduction, however, indicate that to reach food security and optimal agricultural production, with environmental protection in 2020, conflict prevention and postwar reconstruction must become far more important factors in agricultural planning for the 1990s.

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