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Addressing the “In” in Food Insecurity

Patrick Webb and Beatrice Rogers

Executive Summary

“To put it bluntly, the state of food insecurity in the world is not good.” So begins the 2002 United Nations Food and Agriculture’s Organization’s (FAO) review of global food security status and trends. At the same time, there has been some success in reducing poverty and malnutrition during the 1990s, and the importance of such progress should not be underestimated. The United States Agency for International Development (USAID), through programmatic improvements based on the 1995 Food Aid and Food Security Policy, played an important role in these relative successes. These programmatic improvements included: an emphasis on targeting the most food insecure countries; a focus on enhancing agricultural productivity and improving household nutrition; and collaboration with local and international research institutions to expand technical capacity.

However, progress in reducing food insecurity has been very uneven across the developing world, with some countries in all regions losing ground. And, there is evidence that the momentum for change initiated in the 1990s has stalled and progress will likely be harder to achieve in the future.

This paper, commissioned to support the development of the Office of Food for Peace’s new Strategic Plan, analyzes the implications of these trends in poverty and malnutrition for USAID food security programming. The paper argues for a conceptual shift that explicitly acknowledges the risks that constrain progress towards enhanced food security, and addresses directly the vulnerability of food insecure households and communities. Enhancing peoples’ resiliency to overcome shocks, building people’s capacity to transcend food insecurity with a more durable and diverse livelihood base, and increasing human capital will result in long-term sustainable improvements in food security.

A number of preliminary conclusions are proposed:

- USAID should continue to focus attention and investments in the most food insecure countries.
- Food insecurity analyses at the local level will facilitate the identification of the most appropriate combinations of interventions.
- Greater attention is needed to the issues raised by rapid urbanization and to the degree to which AIDS morbidity, possibly more than mortality, becomes a primary cause of food insecurity.
- There should be an increased focus on capacity-strengthening with Title II partners and local institutions.
- The secular decline in food aid availability and its annual volatility should be addressed through financing mechanisms that allow for programming food in more predictable quantities over a relatively longer time horizon.



The Office of Food for Peace, Bureau for Democracy, Conflict and Humanitarian Assistance of the U.S. Agency for International Development is pleased to present the first issue of the new Occasional Papers Series. The Office will use the Occasional Papers Series to disseminate state-of-the-art information to strengthen the impact of food aid programs on the food security and well being of vulnerable populations around the world.

Occasional Paper Series Issue 1 “Addressing the ‘In’ in Food Insecurity” was commissioned by the Office to form part of the analytic underpinning of the new five-year Strategic Plan. The paper explores food security trends and their implications for Title II programming. The paper advocates for refocusing attention on the ‘in’ that defines ‘food insecurity’ by making explicit the risks that constrain progress towards enhanced food availability, access and utilization and by addressing more directly the vulnerability of food insecure households and communities.

We hope that you find the ideas in this paper as stimulating and thought provoking as we have.

A handwritten signature in black ink that reads "Lauren R. Landis".

Lauren Landis
Director, Office of Food for Peace

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Introduction

“To put it bluntly, the state of food insecurity in the world is not good.” So begins the 2002 review of global food security status and trends (FAO 2002).¹ In search of a silver lining, the report also points out the continuing success in reducing poverty and undernutrition. For example, global poverty was reduced during the 1990s by around 20 percent (Chen and Ravallion 2000; UNDP 2002). This downward trend has fueled optimism that the goal of halving the number of people living on less than US\$1 a day by 2015 could, perhaps, be met, at least in aggregate terms.² Similarly, the number of chronically undernourished people (a measure of national-level food adequacy) fell in developing countries from 816 million to 777 million during the 1990s. The number of stunted and underweight pre-school children also fell from around 220 million in 1990 to 184 million in 2000 for stunting, and from 177 million to 149 million for children underweight (ACC/SCN 2000a).

The importance of such progress should not be underestimated. It demonstrates that positive change was brought about even in the face of continued population growth, increasingly costly natural disasters, and a decade of far-reaching structural changes that affected much of the globe: such as the collapse of the Soviet Union; devastating armed conflicts; and the creation of the WTO trade liberalization regime. USAID played an important role in these relative successes. Programmatic improvements during the first few years of USAID’s Food Aid and Food Security policy (USAID 1995) were a result of a) its emphasis on targeting the most food insecure countries, b) a programmatic focus on enhancing agricultural productivity while integrating nutrition and other concerns, and c) collaboration with local and international research institutions to expand technical capacity (Bonnard et al. 2002).

Programmatic improvements during the first few years of USAID’s Food Aid and Food Security policy were a result of a) its emphasis on targeting the most food insecure countries, b) a programmatic focus on enhancing agricultural productivity while integrating nutrition and other concerns, and c) its commitment to enhancing collaborative and technical capacity to demonstrate results on the ground.

That said, any USAID strategy for food aid in the first decades of the 21st Century faces many challenges. Despite recent gains in reducing poverty and undernutrition, a number of problem areas remain. First, progress has been uneven across geographic regions and countries. Excluding China, poverty reduction has been less than half the rate needed to meet global targets (UNDP 2002). Indeed, the number of people living on US\$1/day in sub-Saharan Africa, South Asia and Latin America combined increased by some 10 million each year of the 1990s. Similarly, although the number of chronically undernourished people in developing countries fell by some 39 million during the 1990s, the net decline hides two important counter-currents. First, most of the progress (66 percent of the gain) was again made by a single country— China. Second, more than a dozen countries registered increases in undernourishment (the FAO measure of aggregate food supply inadequacy) over the same period totaling more than 77 million (FAO 2001).³

The second caveat is that the momentum for change initiated in the 1990s has stalled. Progress in accelerating the pace of change has virtually ground to a halt. Given realistic scenarios for food supply and growth in effective demand, the goal of halving the number of undernourished people by 2015 will not be met until 2050 at the earliest (McCalla and Revoredo 2001; USDA 2002; FAO 2002). Similarly, a 50 percent reduction in income-poverty or child malnutrition in most, let alone all, parts of the world continues to appear optimistic (Rosegrant et al. 2001). Part of the problem relates to the difficulty of shifting endemic chronic poverty.

¹ The report was prepared through close collaboration between the Food and Agriculture Organization (FAO) of the United Nations and members of the Inter-Agency Food Insecurity and Vulnerability Information and Mapping System initiative (FIVIMS).

² According to the World Bank’s 2002 World Development Indicators report, “brisk economic growth in China and India will enable the world to reach the overall goal of halving global poverty by 2015.”

³ Where child malnutrition is concerned, Sub-Saharan Africa and Central America recorded increases in the prevalence of both stunting and underweight during the 1990s (ACC/SCN 2000b).

While average poverty rates have declined during the 1990s, there has also been a widening gap between the extreme poor and the less poor. In other words, aggregate poverty has declined but the number of people living in extreme poverty (averaging US\$ 0.64 per day or less) in least developed countries more than doubled since the late 1960s to reach 307 million by 2000 (UNCTAD 2002). While raising aggregate (national) income is relatively straightforward, pulling the extreme poor and food insecure (often living in marginal locations of poor countries) out of conditions of long-term deprivation has shown itself less amenable to quick solutions.

Third, national progress in reaching one development goal does not in itself guarantee progress in reaching other goals. Gains from rapid economic growth in those developing countries that have sought to improve governance, market efficiency and trade have not always been matched by equivalent progress in reducing malnutrition (Marek 1992; Allen and Gillespie 2001). While there are strong links among poverty (low absolute or relative income), inequity (the distribution of consumption parameters), food adequacy (shortfall in dietary energy consumption), and a population's nutritional status, the causes and consequences of each are different and so multisectoral collaborative action is needed if all are to be adequately addressed.

For example, increasing food availability can contribute to reduced poverty and to reduced malnutrition (Haddad et al. 1997; NEPAD 2001). Income growth also helps improve both food demand and nutritional outcomes (Alderman et al. 2000; Salinger and Stryker 2001). However, as Alderman et al. (2000) argues, “despite the importance of income growth as a factor in reducing malnutrition, it is, by itself, almost surely unlikely to meet the needs of the coming generation of children... and a combination of growth and specific nutrition programs will be needed.”⁴ In other words, nutrition capital does not trickle down even where food availability is high and economic growth is strong. It often has to be promoted explicitly as a set of development and emergency relief goals within the overall promotion of food security.

This points to the need for targeted interventions that address residual, and often widespread, constraints to human well-being even in the presence of declining poverty at a national level. These targeted interventions should interact across poverty, food consumption and nutrition to achieve the value-added target of enhanced food security. FAO (2002) has estimated that at least US\$120 billion per year of benefits would be generated through the longer, healthier and more productive lives of 400 million people freed from food insecurity.

This is the entry point for USAID's Office of Food for Peace (FFP). FFP can take a lead role in framing a new food security agenda and in defining the operational targets for food aid. Such a strategy should build on the strengths and focus of the 1995 Food Aid and Food Security policy, strengthen areas of weakness, further support the dialogue with partners and collaborators, and offer new approaches to achieve clearly defined objectives.

This paper seeks to support FFP in the process of defining a revised strategy by exploring food security trends and their implications for Title II programming in various operational contexts. In brief, the paper argues for a refocusing of attention to the ‘in’ that defines ‘food insecurity’. This can be achieved, on the one hand, by adding a fourth conceptual pillar to the commonly understood food security framework; namely, factoring in the risks that constrain progress towards enhanced food availability, access and utilization.

On the other hand, programmatic actions need to be reframed such that the vulnerability of food insecure households and communities is addressed more directly. This calls for programs that not only enhance farm productivity or offer succor during crises, but also: i) enhance resiliency, or buffer the ability of food insecure households to withstand hazardous events; ii) enhance their capacity to grow out of insecurity by investing in the physical and institutional assets needed to gain greater economic and labor productivity; and, iii) enhance

⁴ Progress in countries as diverse as Costa Rica, Guatemala, Indonesia, Thailand, and Zimbabwe demonstrates that improvement in nutritional status is achievable even in the absence of sustained income growth (Gillespie et al. 1996).

peoples' capability to have better and more informed choices about their own future. In sum, bringing the management of both risks and opportunities to the center of sustainable development goals will allow FFP to refine and integrate its activities while generating still greater food security impacts in the coming decade. This is not a call for scaling back on development programming; rather, for a refinement of programming such that the risks inherent in the development process itself are more fully understood and accounted for, and links with humanitarian relief are made supportive rather than competitive.

The first section of the paper presents a set of definitions as well as the food insecurity concept that frames the subsequent discussion. Building on that framework, the second section elaborates broad outlines of approaches tailored to different operational environments. The third section addresses a number of emerging issues that are likely to have increasing significance in the food aid and food insecurity debate in next few years. A fourth section raises several process issues that are critical to reaching proposed objectives. The concluding section summarizes key points.

1 A Food Insecurity Framework

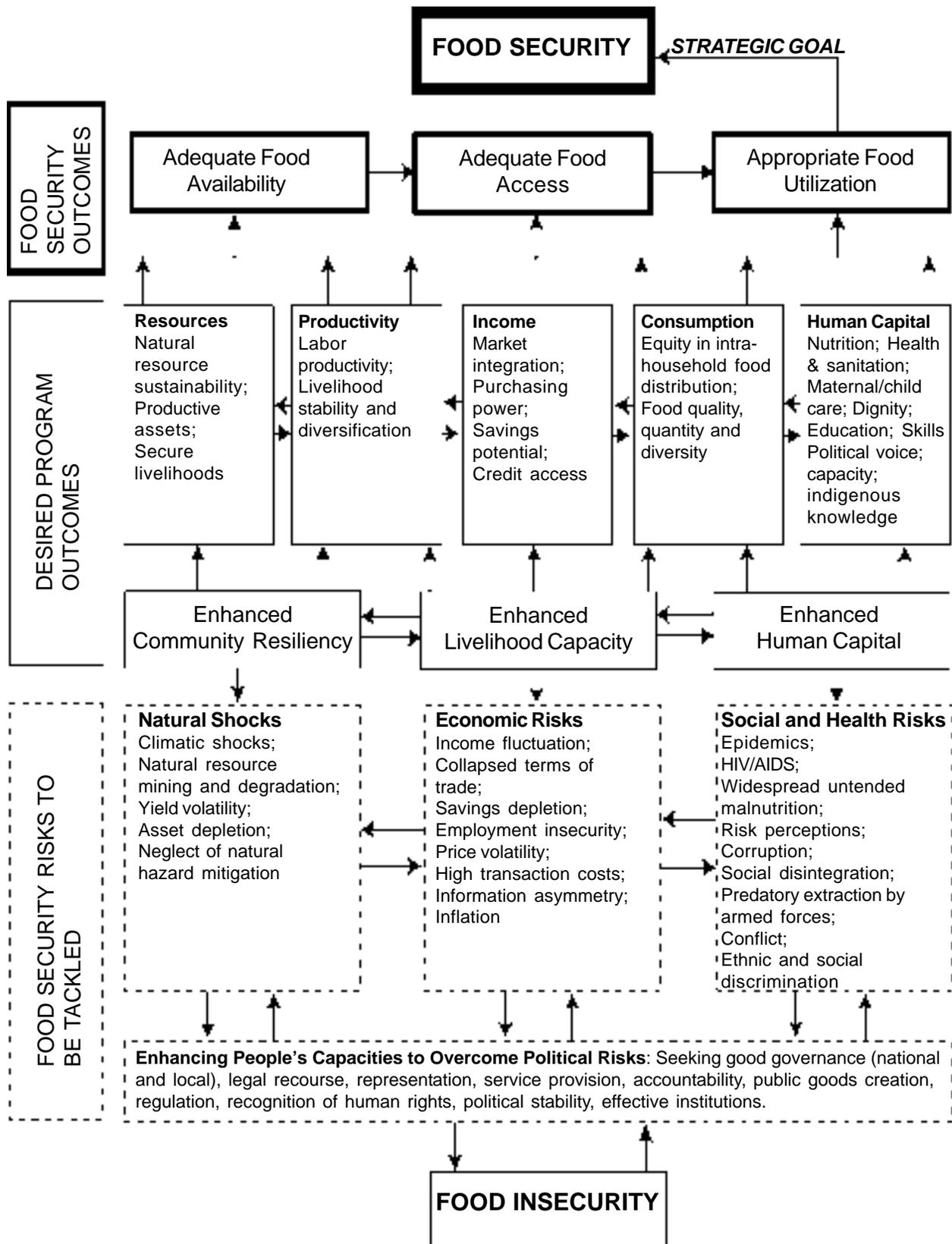
Food security is a concept that has evolved during the 1990s far beyond a traditional focus on the supply of food at the national level (USAID 1995). The definition adopted by the countries attending the World Food Summit of 1996, and reconfirmed in 2002, accepts USAID's three key concepts: i) food availability, ii) food access, and iii) food utilization.⁵ However, a fourth concept is increasingly becoming accepted; namely, iv) the risks that can disrupt any one of the first three factors. Availability, access and utilization are hierarchical in nature— food availability is necessary but not sufficient for access, and access is necessary but not sufficient for utilization. There is a feedback loop in that adequate and appropriate utilization is an input to achieving adequate access for all (via health, sound nutrition and other human capital effects), while access is required for sustainable food availability (where chronic undernourishment impairs labor productivity and encourages resource depletion).⁶ Risk represents a cross-cutting issue that affects all components of the food security framework.

Figure 1 is a conceptual framework depicting the linkages to desired outcomes (central and upper half of the diagram) and potential risks (lower half). Building on USAID (1995, 1996), this framework proposes that food availability derives from domestic agricultural output (cash crops, livestock and food crops), ideally through sustainable use of natural resources (water, land, vegetation). Total food availability from domestic sources is enhanced at the national level by net food imports (commercial or concessionary). Food access refers to the ability of households to secure food in the marketplace or from other sources (transfers, gifts, etc.). Household purchasing power is the key to access and this varies in relation to market integration, price policies, and temporal market conditions. Food utilization incorporates issues of food safety and quality, sufficiency of intake at the individual level, and the conversion efficiency of food by the body, that result in sound nutritional status and growth. In the latter instance, the disruption of health infrastructure, lack of nutrition education and discrimination against women in controlling resources all have a detrimental impact on individual outcomes.

⁵ "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritional food to meet their dietary needs and food preferences for an active and healthy life," (FAO 1996).

⁶ It might also be argued that there are scale and temporal effects captured in this diagram; moving from left to right one can define macro-level effects that have a direct bearing on food security, including trends in resource availability, macroeconomic dynamics, and market systems, through community level and then household level effects. At the same time, moving left to right suggests a move from a longer-term timeframe (multi-annual) to a short timeframe (daily).

Figure 1: A Conceptual Framework for Understanding Food Insecurity



These factors interact over time resulting in conditions ranging from acute insecurity (a famine), through seasonal discontinuities (lean seasons), to guaranteed access and utilization for all individuals. Yet, the fourth element, risk, is crucial to our understanding of the term “insecurity.” The widely accepted definition of food security mentions the phrase “at all times.” This relates to expectations and uncertainty. Without viable expectations of availability, access and utilization at all times, a household is subject to deep-seated uncertainty that affects all of its investment and disinvestment decisions.

Poor households typically make economically rational decisions in the face of a wide variety of risks and opportunities. They adapt local knowledge to multiple scenarios and balance possible gains against required investments in the form of their own labor, capital and natural resources. But risks arise in many quarters. Food supply can be affected by climatic fluctuations, soil fertility depletion, or the loss of a household’s productive assets. Market access can be affected by changing global terms of trade, market disruption during crises, or non-farm employment insecurity. Food access can be negatively influenced by physical insecurity (conflict), loss of coping options (such as border closure preventing seasonal job migration), or the collapse of safety net institutions that once protected people with low incomes. Food utilization is often impaired by epidemic disease, lack of appropriate nutrition knowledge or culturally prescribed taboos that affect access to nutritious foods according to age or gender.

Households become food insecure when they are unable to mitigate negative impacts on food availability, access, and/or utilization. Such households balance their uses of private and community resources (including soil, water and vegetation) in an attempt to meet immediate consumption needs while reducing the risk of future shocks. They often face disincentives to longer-term investment in the productive base, including unclear or impermanent land tenure systems (customary or formal), high and unpredictable covariate risks in agriculture, imperfect factor markets, and extractive taxation of rural products (Bergeron and Pender 1999).

While often used to alleviate short-term hunger, food aid can support the development of more diversified livelihoods, enhance human skills and knowledge (which translates into enhanced choice), improve food access through infrastructure and market development, and encourage higher-productivity.

In these cases, households diversify their short-term earning options, which can lead to a diminished reliance on agriculture as the primary source of food (Ellis 2000). This has important implications for food aid. While often used to alleviate short-term hunger, food aid can support the development of more diversified livelihoods, enhance human skills and knowledge (which translates into enhanced choice), improve food access through infrastructure and market development, and encourage higher-productivity agriculture.

In each case, the building of nutrition capital—arguably the engine of labor productivity and creativity—is a critical input to, not just the outcome of, food security interventions.

Public action, such as government policies, local NGO activity or external intervention, can include longer-term investments, such as soil and water conservation, institutional capacity building that supports veterinary coverage, or the dissemination of new agricultural research. Alternatively, public action can have demonstrable impacts over a shorter timeframe, such as emergency relief, which provides life-saving food to needy individuals precisely when they most need it. The middle ground is occupied by activities such as the dissemination of nutrition information through social marketing, which ideally change behaviors that result in consumption and nutrition effects, food-for-work programs which increase immediate food access via intervention in the labor market, while simultaneously raising productivity and income flows through road-building and watershed management. Also, new income generating activities and microfinance help smooth short-term consumption while supporting investments in longer-term income flows via the accumulation of productive assets. In other words, there are upstream and downstream linkages associated with actions taken in the name of food security at any point in the central chain.

Nevertheless, it should also be recognized that public action can also generate positive or negative impacts at any point along the chain. The development process itself can, and often does, increase risks for food insecure people—by concentrating wealth (geographically or in the income distribution), or via unintended side-effects of targeted interventions, such as negative gender outcomes at the intrahousehold level or sociopolitical tensions raised at the community level and above. It is the management of these risks and the buffering of existing societal or individual potential for growth that lies at the heart of a strategy aimed at tackling food insecurity.

2 Managing Risks and Opportunities

Figure 2 presents a framework that identifies potential interventions addressing three main operational goals in a strategy to eradicate food insecurity: a) enhancing people’s resiliency to shocks (protecting lives); b) building people’s capacity to grow out of insecurity by securing a more durable and diverse livelihood base (assets, resources and infrastructure); and c) enhancing the capability of individuals to make better use of available and potential resources by increasing their human capital. In each case, while short-term gains derived through relief aid, consumption smoothing or training are important, they should be seen in the context of longer-term household resiliency to shocks, productive capacity and human capability. Thus, while there are immediate welfare benefits to food aid-supported activities in each domain, they also represent a means to reducing long-run uncertainty rather than merely an end in themselves.

2.1 Enhancing resiliency among vulnerable people and places

There is a strong inverse relationship between the occurrences of shocks (whether of natural origin or related to armed conflict) and progress in reducing the number of undernourished people in developing countries (FAO 2001). Successive droughts, periodic floods, conflicts, inadequate maintenance of infrastructure, and political and economic instability compound the daily risks facing food insecure communities. While investing in long-term agricultural productivity, nutrition, education and health remain critical to achieving sustainable development. The very sustainability of past gains can be threatened where developmental gains do not in fact reduce underlying malnutrition (often linked to temporal fluctuations in consumption), or reduce people’s vulnerability to serious shocks. As Sparrow (2001) argues, “catastrophe is no longer a brief dip on the curve of development but a danger to the process itself.”

Enhancing resiliency does not mean reducing the number of shocks. Natural hazards are widespread and, in some cases, increasing in frequency; yet, most naturally occurring disasters cannot be prevented. Reducing vulnerability rests on helping communities better predict and manage the many risks that they face on a daily basis. According to the World Bank (2001), as households move “closer to extreme poverty and destitution, they become very risk averse; any drop in income could push them below the survival point. The poorest households try to avoid this even if it means foregoing a large future gain in income.” The effort poor households put into meeting short-term (often food) needs often rules out investment behaviors that would have a larger pay-off in the longer term. Instead they are seen to rely on short-run coping behaviors, some of which

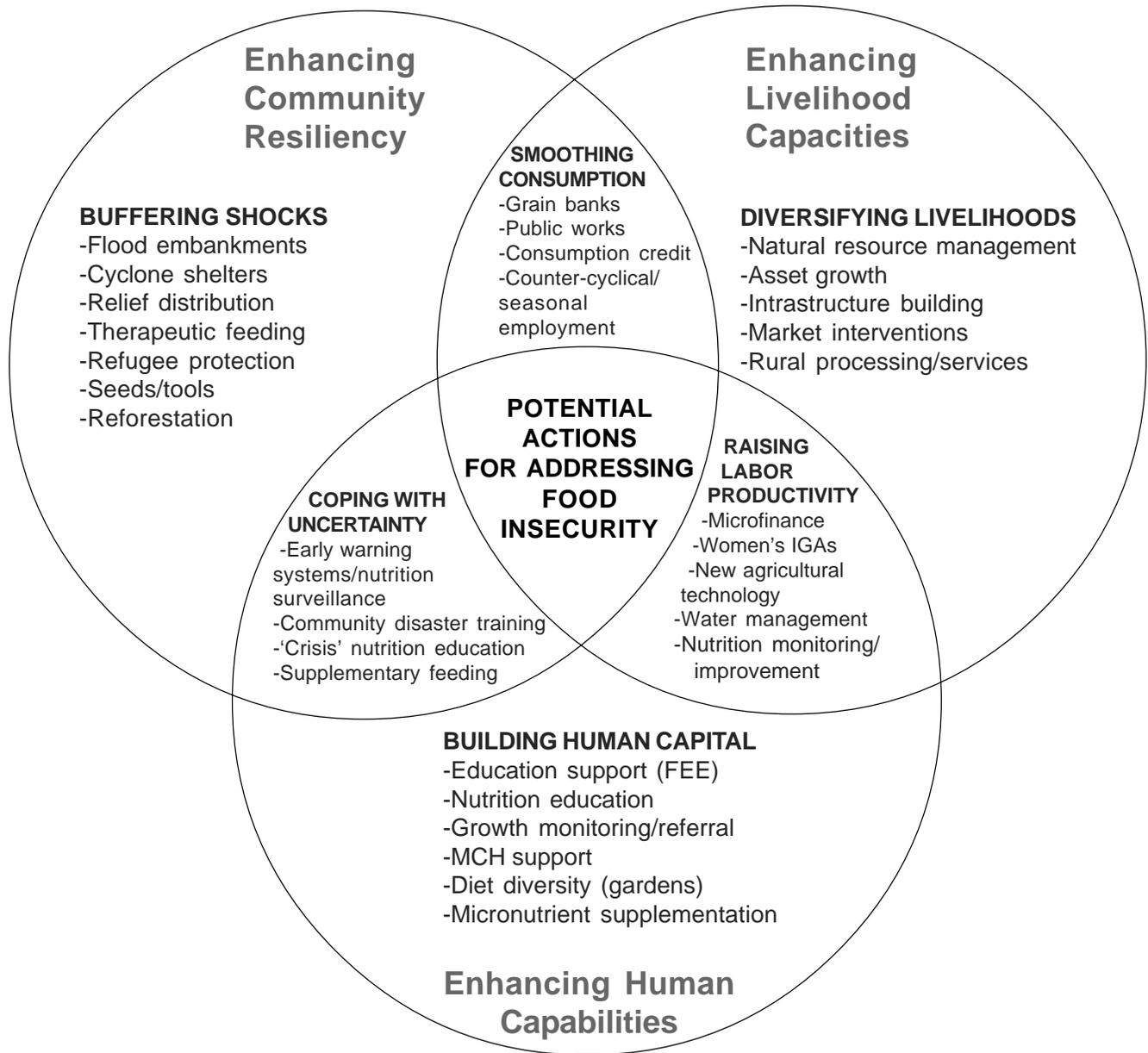
The long-term value of social capital, cultural capital and indeed, nutrition capital, is increasingly recognized as being central to food security at the household level.

may in themselves erode social capital due to direct competition for common resources or the fraying of socially-prescribed norms of behavior.

Increased attention to coping strategies has usefully demonstrated their role in enabling the poor to survive under extreme adversity (Ellis 2000; Toulmin et al. 2000). The long-term value of social

capital, cultural capital and indeed, nutrition capital, is increasingly recognized as being central to food security at the household level (Marchione 1999). Customary systems of lending, giving and exchanging resources

Figure 2: A Framework of Potential Actions for Addressing Food Insecurity



serve to balance out variability in resource availability, consumption and temporal shocks to nutritional status. Private mechanisms to reduce risk are often least efficient when shocks are generalized and so may not prevent insecure households from engaging in activities that carry negative externalities. For example, cutting down trees to generate short-term income, depleting scarce savings, selling productive assets, cutting the amount of food consumption each day, or reducing demand for health and education are all coping behaviors that undermine a household's own future (Von Braun et al. 1999). Thus, there is mounting evidence that by enhancing the ability of the food insecure to cope with risk, important longer term impacts on productivity and efficiency can be achieved (van der Walle 1998; World Bank 2001; UNISDR 2002). Holzmann and Jorgensen (2000) also point out support for better risk management among food insecure households and entire communities can also "enhance the welfare distribution and societal welfare without actually redistributing income among individuals."

There are three dimensions to enhancing resiliency, which include overlaps with the goals of building livelihood capabilities and human capacities; namely, a) effective relief and reconstruction; b) smoothing consumption; and, c) helping communities to be more prepared for uncertainty.

2.1.1 Relief and Reconstruction

Timely response to emergencies is an essential part of USAID's mandate. Providing the right food to the right people, at the right time remains of paramount concern. The rising tide of conflicts and natural disasters in the world's poorest nations during the 1990s led to a sharp increase in food-related emergencies and a 500 percent increase in the share of global aid budgets devoted to humanitarian assistance (WFP 2002). From 1992 through 2002, the relief category of global food aid flows remained consistently larger than the development food aid category due to the increasing number, and persistence, of countless humanitarian emergencies. In terms of U.S. contributions, roughly 40 percent of U.S. annual food aid deliveries since the late 1990s have consisted of emergency relief compared with less than 30 percent allocated to development activities. The residual is accounted for by bilateral program aid.

Much has been learned during the past decade about how to do a better job in delivering humanitarian assistance (Slim 2000; Smillie 2001; Young et al. 2002; Minear 2002). This is not to say that further improvements are not needed (Seaman 1999; Janz and Sleat 2000; ACC/SCN 2002). Particular attention is needed in the areas of:

- a) Ensuring that nutritional status is stabilized and improved among populations most affected, not simply saving lives;
- b) Ensuring micronutrient (diet diversity) and energy adequacy;
- c) Defining and responding to context-specific needs of adolescents, the elderly, and women without children (not just a generic category of 'mothers and infants');
- d) Ensuring that host populations (sometimes worse off than incoming refugees or IDPs in terms of nutritional or health status) are not marginalized in the delivery of relief resources;
- e) Ensuring non-food complementarity. While food aid often reaches its target populations quickly other essential resources often lag in emergency situations due to under-resourcing of consolidated appeals and/or gaps in agency mandates;
- f) Ensuring minimal disruption of social structures by inappropriate targeting and use of universal protocols that may, in some circumstances, be inappropriate, such as the focus on children where adult men or elderly women could be at higher physical or nutritional risk. The common focus of nutrition sampling or medical triage on younger women and infants can mistakenly exclude people who are in certain circumstances at greater immediate risk;
- g) Effective transitioning from crisis towards reconstruction. This requires considerably more analytical strength in relation to market and livelihoods analysis; and
- h) Systematic (and more critical) monitoring and evaluation systems that enable timely and concise feedback on the effectiveness of relief and reconstruction interventions.

Four main types of emergency are recognized today: i) sudden natural shocks; ii) chronic emergencies; iii) complex emergencies; and, iv) slow-onset emergencies. Sudden natural shocks, such as Hurricane Mitch or the Orissa Super-Cyclone, require attention to priority needs (which are not always food), and the potential for delivery of bulk commodities, especially where infrastructure is severely damaged.⁷ Ensuring supplies of easy to transport foods for immediate response is important, including high energy biscuits and Humanitarian Daily Rations (HDRs) (Grobler-Tanner 2002; NAS 2002). These will arguably play an increasingly important role in coming years, but their most effective niches and best practices in distribution need to be better understood. The need for pre-packaged foods may grow along with the damaging scale of large natural disasters, but also where large populations are cut off due to communications constraints associated with chronic emergencies. In these cases, pockets of people survive long periods of chronic food insecurity, but their needs become suddenly acute when small shocks destabilize their already eroded capacity to cope.

The delivery of food aid in complex emergencies remains difficult and dangerous. Many humanitarian emergencies today are linked to armed conflict, particularly in the context of failed or failing states.⁸ The recent blurring of military and humanitarian actions through military transportation of foods or protection of food convoys troubles many food aid partners since it is seen to erode the widely-desired impartiality of the humanitarian enterprise. The professionalization of relief work has gone some way towards ensuring that minimum standards are sought and maintained (SPHERE 2000; Kahn 2002). However, it is increasingly recognized that the “do no harm” mantra, linked also to “take no sides,” may not be fully appropriate for all of today’s complex crises since the humanitarian community is increasingly involved in documenting human rights abuses and increasingly the target of such abuses (ACC/SCN 2002; Kahn 2002).

Where states are failing, providers of food aid fulfill some of the functions of the absent government— that is, they offer a modicum of life-support to a country’s most vulnerable individuals; support a continuance of certain services (e.g. health and education); offer an information support function by providing data on nutrition, morbidity and mortality problems; contribute towards the maintenance of market activity through direct resource distribution, market sales, and the local hiring of staff and vehicles; and maintain some sense of physical security, if only in small areas.

Food aid agencies also seek to uphold the hope of protecting certain universal norms of behavior. Food resources have been used in Bosnia, North Korea and Sudan to bargain for “humanitarian space” (Slim 2000) with a view to keeping humanitarian priorities high on any contested political agenda. Food convoys carry a symbolic weight that tends to encourage dialogue, whether at a road-block, among cattle-raiding clans, or between military authorities. Moral quandaries are likely to persist to the extent that food aid institutions must decide if they will negotiate (bribe) safe access to target populations under the control of warring parties, or withhold relief food from adult males in camps known to contain perpetrators of atrocities. Thus, greater effort is needed to assess whether attempts at bargaining for humanitarian access have been effective. While all such endeavors are inherently political, more attention is needed to understand how such processes work, where the authority for such decisions rests, what was the cost of access (in fiscal terms), and what may have

⁷ Emergency relief will be food-based for the foreseeable future due to a lack of empirical evidence demonstrating convincingly that cash ‘is better’ than food or that cash alone can effectively save and maintain life in major emergencies. The local inflationary effects of cash injections where markets are disrupted (which characterizes most humanitarian emergencies) have been of serious concern in Ethiopia and Afghanistan. While there is plentiful evidence that food aid recipients are often obliged to sell food in order to obtain a) more desired foods than those received as aid, b) condiments, c) non-food items deemed essential to survival, there is little evidence that food aid is sold because food itself was either unnecessary or too plentiful. There is, however, little doubt that resources complementary to food (including fuel, clothing and water) are increasingly important in saving and securing lives.

⁸ ‘Hunger’ is often posited as a determinant of conflict-driven emergencies (Collier 2000; Messer and Cohen 2001; FAO 2002). While the roots of disaffection in poorest countries are certainly tied to an absence of resources, services and security— which translates into disputes over political power, religion, or ethnicity— there remains little empirical evidence of causality when controlling for the many other triggers of conflict.

been the cost (in human terms) of access denied. Continued improvements in how emergency response is carried out will be predicated on ensuring that the most needy people do, in fact, receive not just most of the resources involved, but the resources that they need when they need them most. Where this is ever in doubt, the premise underlying conventional approaches to relief should be critically reassessed.

While slow-onset emergencies are often linked to periodic, hence expected, droughts or floods, the severity and scale of impact are not predictable. In areas lacking resources and services, creeping disasters manifest more slowly and their determinants are less clear, which makes defining the appropriate response a challenge. But with a progressive erosion of household resiliency over time (where conditions are bad over multiple years), the importance of timely public action only grows. The scale of the 2002-03 humanitarian crisis in southern and eastern Africa is a case in point. Greater attention to past emergency interventions in such locations is needed and, hence, greater accountability where reconstruction indicators are concerned.

Measures of effective reconstruction in the post-crisis food security domain have yet to be adequately elaborated. Much discussion was generated by Orissa's super cyclone around how to build beyond what was there before. Yet, many resources earmarked for reconstruction were suddenly diverted to meet perceived emergency needs after the subsequent Gujarat earthquake. Indeed, the virtual suspension of many Title II development activities in, for example, Ethiopia (even in unaffected regions) when famine alarms are rung demonstrates that even slow-onset emergencies seem to take institutions by surprise. More investment in vulnerability assessment is needed in drought/flood-prone localities, as well as support for non-farm income diversification, community planning for disaster response, attention to the potential insurance functions of micro-finance programs (flexibility in repayment, savings, support for consumption credit, etc.), and attention to community-level buffers such as grain or other resources. Again, more critical analysis of market systems is needed in order to better define potential short- and longer-term programming opportunities.

While these four emergency types have different operational implications, there are three important principles common to all cases. First, an institutional presence prior to the emergency helps in responding to the emergency. While the relief-to-development continuum is well understood, investing in development where risks are high is an important parallel concept. It is not enough to claim rhetorically that one is helping the vulnerable by working in a poor country if activities are neither located in the most vulnerable parts of that country, nor designed to reduce the vulnerability itself. Too much is claimed in the name of generic poverty reduction. The enhancement of resiliency among vulnerable households requires specific risk-reduction activities where they are most needed—which may not be where returns to investment are highest (Ravallion and Wodon 1997; Trujillo et al. 2000; Wodon and Morris 2001; IFAD/WFP/FAO 2002).⁹ This suggests that: a) income poverty alone is a poor indicator on which to prioritize country or sub-national programming; b) a combination of deprivation and risk factors need to be constructed to guide investment targets (places and types of intervention); and c) greater attention is needed to enabling/hindering factors in evaluating how successful programs have been.

Naturally, in some sudden onset natural disasters and many complex emergencies, a prior presence in the locality may not be possible. Indeed, there are many countries where FFP has no developmental activities and no USAID mission presence. However, these countries are not immune to large-scale disasters. While the humanitarian imperative implies an urgent response to crisis wherever it is manifest, the development imperative is more selective. Despite an avowed focus on the poor, "development assistance does not target

⁹ For instance, Brazil, Peru and Ecuador have large differences in standards of living between higher and lower productivity regions. Brazil's drought-prone northeast, Peru's interior highlands, and Ecuador's western lowlands each contains above-average concentrations of poverty and malnutrition. Yet, environmentally marginal or fragile regions are not perfectly correlated with measures of deprivation. Some of the worst malnutrition in countries like Kenya, Ethiopia and Zimbabwe is found in regions of high agricultural productivity and relative prosperity. That is why the UNEP/GRID (1997) study of West Africa found no significant association between child stunting and agroclimatic zones.

neediest countries” (FAO 2002), nor indeed does it always target the neediest people within food insecure countries.¹⁰ There are many reasons for this apparent mismatch, prominent among which are concerns about demonstrating efficiency (economic rates of return) in locations where institutional capacity is low, population densities are low and partnership capacities are low. While these concerns cannot be lightly dismissed, there are calls for attention to the growing “risk of increasing marginalization” of the poor (IFAD 2002), which requires that priority be given to investments in marginalized locations that may be further destabilized by shocks, as well as chronic malnutrition (Ravallion and Wodon 1997; UNCTAD 2002).¹¹ Seeking stronger partnerships with non-Title II development programs may allow a virtual presence in locations where FFP does not operate. This would entail promoting a higher level of visibility for food security goals and more active participation of USAID and FFP partners in discussion forums even where Title II activities are not significant.

The second principle common to all types of emergency is that effective management of risks requires a specific understanding of the local nature of risks and resiliencies. A prior presence is part of that story, but much greater use should be made in development programming of the sophisticated techniques of vulnerability mapping widely used in famine early warning and contingency planning. According to the International Federation of the Red Cross and Red Crescent Societies (IFRCRS 2001) “only through detailed contextual analysis will programmes be able to identify both the potentials and limits of humanitarian aid. Relief programming will always have an impact on prospects for recovery.” The assessment of vulnerability is not something to be done during an emergency—it needs to be done prior to disaster since degrees of vulnerability depend on underlying prior conditions. The most important challenge is not the choice of technique or technology to be used in combining data on climate, crop assessments, market prices or migration patterns, but the ability to translate a measured need into committed development investments that reduce the risks identified.

A third commonality is that whatever the emergency response, reconstruction should be tied in better with relief activities. Post-crisis investments should ideally: a) maintain stability of consumption; and b) generate the assets, systems and information that take the population beyond where they were before. In other words, post-crisis investments should buffer people from likely future shocks.

As noted above, ideally all marginalized communities should benefit from development investments that have a risk dimension embedded in them. In practice, most vulnerable communities around the world have barely begun to tap intended benefits of development. Emergency rations may be the first form of external assistance many people have ever seen. As a result, emergency responses should seek as soon as possible to define not exit strategies but asset strategies. At what point can therapeutic and supplementary feeding initiatives give way to targeted take-home rations, then to employment generation and other forms of activity that generate assets to buffer future shocks, as well as enhance local productivity?¹²

¹⁰ In 2000, a “relatively small share of food aid was given to countries that...had national food gaps.” (USDA 2002)

¹¹ It should be underlined that Robert Fogel’s (1994; 1997) seminal work on the links between nutrition, labor productivity and macroeconomic growth showed it was the removal of chronic malnutrition among marginalized adult populations, rather than the eradication of famine, that made the greatest difference in cutting poverty in 18th and 19th century Europe. Chronically undernourished children are at particular risk of disease and death every day, and even more so during crises (Pelletier 1992). The unacceptably high levels of chronic malnutrition (especially stunting) that persist in many developing countries indicate that even where development policies and investments have been effective, targeted nutrition interventions are still required. Rehabilitating wasted individuals during crises is already a FFP priority, but preventing them from falling to that level requires more attention to growth monitoring, targeted food supplementation, Maternal and Child Health referral systems, and hence an ability to make inroads in building nutrition capital among the most food insecure.

¹² This is not to say that direct food transfers are not important in their own right even in a reconstruction phase that links with development. For example, recent work in Guatemala showed that supplementary feeding of children aged 6–24 months in populations with inadequate dietary intakes, long after Hurricane Mitch had passed, was effective at preventing the onset of wasting in a large proportion of children (Rivera and Habicht 2002). Thus, the building and protecting of nutrition capital in itself represents a post-crisis development investment.

As shown in Figure 2, different interventions can buffer the resiliency of vulnerable communities—most created through the aegis of public works. Some relate to the ability to withstand shocks including the construction of flood embankments, cyclone shelters, well protection from polluting flood water or water-catching cisterns. Others relate to the revival of rural economic activity (Little 2002). The distribution of seeds and tools can be gratis or can be linked to public works or community-wide participation in voluntary labor-intensive activity (Janz and Slead 2000). Of course, the timing of seed distribution is critical. Too soon before planting often results in the consumption of those seeds unless adequate food aid is delivered to the same recipients simultaneously; too late and the short windows of planting opportunity can be missed. While seed programs have in the past often relied on distribution of new, higher yielding seeds developed through agricultural research, some attention needs to be paid to maintaining the beneficial effects of biodiversity where local varieties demonstrate a resiliency to shocks such as drought—bearing in mind the inherent importance of biodiversity to many local cultures (NEPAD 2001; Dwasi 2002). Livestock have also been redistributed as part of microcredit initiatives, while reforestation and terracing can both improve soil erosion and flooding, which increases agricultural productivity.¹³

Importantly, asset creation does not only relate to physical buffers. For example, the process of terrace construction through food for work is part of the goal of community-level capacity building. When carefully implemented, interventions serve to generate new or build on existing capabilities. These can be at the level of the individual, including management or handicraft skills. Teams of workers need supervisors, worksites need foremen, who are sometimes women, construction skills can be tapped, and so on. Community discussion in setting priorities for assets and services itself contributes to building consensus and awareness of potential capabilities or constraints. And local tendering for private facilities and services (trucking, surveying, materials provision, etc.) promotes market activity, as well as encourages transparency in the process of contracting for community development.

2.1.2 Consumption Smoothing

Other forms of public action aimed at enhancing resiliency are designed less to erect protective walls than to smooth damaging volatility in income and food consumption. Between 20 and 50 percent of households classified as “poor” at any given time are not always poor (below a set poverty line) but have been pushed below the line by periodic or catastrophic income losses, such as sudden unemployment, unexpected death of the main income earner, epidemic loss of all livestock, increased expenditures, medical and funeral expenses relating to HIV/AIDS, and the lack of public services to compensate for, and stabilize consumption (Sinha and Lipton 2000; Baulch and Hodinott 2000).

Recent empirical work suggests that in circumstances of high poverty mobility, greater gains can arguably be made from smoothing fluctuations and uncertainties than in simply seeking to reduce the percentage of total households below a fixed poverty line.

Smoothing consumption as a means of stabilizing the damaging dynamics of poverty has only now received much attention. Recent empirical work suggests that in circumstances of high poverty mobility, greater gains can arguably be made from smoothing fluctuations and uncertainties than in simply seeking to reduce the percentage of total households below a fixed poverty line (Yaqub 2001). For example, in Vietnam it has been estimated that the national

incidence of poverty could be reduced to 34 percent by implementing conventional growth policies, but this would carry the penalty of increasing national income inequality to 0.38 (Gini coefficient). By contrast, the generation of less but more stable growth (more stable over time at the lowest end of the income distribution

¹³ Of course there are sustainability issues where environmental resource interventions are concerned. While consumption effects via resources transferred can be readily observed, the longer-term income-flow effects derived from enhanced natural resources can only be gauged through post hoc assessment (returning 10-15 years after the end of a cycle). USAID should dedicate greater resources to measuring food aid effectiveness in this way, and link ‘after the fact’ studies to the design of new proposed interventions.

resulting in a Gini of 0.30), would allow the poverty rate to fall to just 22 percent of the population (World Bank 1998). The better distribution of income and greater stability in that distribution results in greater income gains overall, which is essential for smoothing food consumption and buffering fluctuations in nutritional status.

Similarly, McCulloch and Baulch (1999) found in Pakistan that if income flows were smoothed, the effect on poverty would be striking. The poverty gap would fall by 50 percent simply due to smoothing. Since this would occur without an increase in mean income, this large effect derives from a reduction in transitory (variable) poverty. Indeed, a two-year smoothing achieved the same reduction in overall chronic poverty as an increase in income of almost 40 percent. Thus, public action should seek to combine longer term sectoral growth with consumption smoothing initiatives that result in potentially larger reductions in aggregate poverty in the shorter-term. These might include microcredit focused on consumption support (Zeller and Meyer 2002), enhancing savings behavior and security, public works with a stronger employment guarantee element, new forms of crop insurance (Hazell et al. 2001), village-level grain banking, and possibly targeted (seasonal) food market interventions aimed at price stabilization.

2.1.3 Preparedness

Doing a better job of managing shocks, volatile consumption and uncertain productivity requires attention to links across investments aimed at development, emergency relief, post-crisis reconstruction and future preparedness. According to Christoplos et al. (2001), “a concern for risk, and with it a motivation to improve disaster ...preparedness, has tended to fall between the cracks of the conceptual frameworks that have driven development co-operation and humanitarian assistance.” While great strides have been made in delivering relief, building risk-awareness into development, such that food insecure households are better managers of uncertainty, is still lagging (Wodon and Morris 2001; IFRCRCS 2001).

Doing a better job of managing shocks, volatile consumption and uncertain productivity requires attention to links across investments aimed at development, emergency relief, post-crisis reconstruction and future preparedness.

Some countries have established reasonably efficient nutrition surveillance systems (Bangladesh, Indonesia, Thailand); some PVOs have made strides towards developing community-based early warning systems (Sudan, Ethiopia); and numerous agencies have progressed in the elaboration of more global warning systems (FEWS, FIVIMS, GIEWS, VAM, etc.). However, good warnings are not invariably coincident with good operational responses. Similarly, effective relief is not invariably followed by effective transition into reconstruction and development. Part of the disconnect is due to a lack of attention to contingency planning and to a continuing lack of knowledge of best practice regarding when and how to transition from relief to development. A greater investment is needed in reviewing recent experience with a view to establishing the appropriateness of food supported interventions at various points in a transition process and the best approaches to managing that process such that local resiliency is enhanced.

For example, there is considerable scope for community training in the functioning of local early warning systems and detailed response plans (evacuation/relief distribution/shelter identification), and for better assessment of the potential impact of slow-onset disasters once these have been defined (Little et al. 2001; Lybbert et al. 2002); that is, how do people actually respond to early warnings, rainfall forecasts, and local signs of distress? Investments in construction of safe havens, signaling (communications) systems, and pre-registration of need (lists of local resources as well as human resource needs) can make a huge difference in the impact of shocks (Kreimer and Arnold 2000; IFRCRCS 2001). Some Title II activities support precisely these kinds of activity, such as in Bangladesh.

On the other hand, there is scope for enhancing human resiliency by linking risk-coping measures with food-supported education activities (schools should not only be ‘crisis centers’ but places where disaster response

plans are also taught), as well as nutrition and health training, either at the community level or via institutional settings for health care and immunization. For example, it has been shown that the children of mothers lacking formal education still show significant nutrition benefits if they have access to narrowly-framed nutrition information (such as good sources of dietary vitamin A, the value of micronutrients on child health, and the appropriate timing for introduction of complementary foods to breast-fed babies). This information can enable mothers to buffer negative nutritional effects of food crises in the short-run such that nutrition information itself represents a resource that helps insecure individuals cope with risks (Block et al. 2002; Webb and Block 2003).

2.2 Livelihood enhancement

The importance of information flows and the capacity of individuals to use such information not only relates to behavior change but is a key element in enabling households to enhance their livelihoods and, hence, protect themselves over the longer-run. While the enhancement of a livelihood typically involves raised productivity output and reduced dependency on only a few sources of income, the enhancement of resiliency also requires that the income, assets and systems thereby created be protected in the face of shocks.

Income diversification has been shown to be positively associated not only with wealth accumulation but also with an increased ability to withstand exogenous shocks, at least in terms of partial consumption smoothing (Barrett et al. 2001). Indeed, recent work on diversification serves as a useful bridge between work on agricultural intensification and poverty alleviation, on the one hand, and risks, shocks, and vulnerability, on the other. The intensification literature generally focuses on potential multipliers between agricultural productivity and the rest of the rural economy since a vibrant non-farm rural sector allows for greater farm specialization as well as higher demand for farm products. By contrast, the livelihoods literature focuses on the importance of spreading risk through covariate insurance strategies where households seek to protect themselves against the vagaries of climate and shocks.

This dual characteristic of livelihood diversification— generator of wealth as well as smoother of consumption— has led a number of development agencies, governments and non-governmental organizations to promote income and asset diversification as a key strategy for countries facing repeated income and consumption shocks (Barrett et al. 2001). Of course, the commitment to diversification as an objective within livelihood development strategies assumes not only that diversification will reduce vulnerability and improve levels of consumption, but that food insecure households in risky environments can in fact diversify. As noted above, such is not always the case. There are real entry barriers to more diverse, higher learning rural activities. These relate to a lack of capital, lack of access to credit for those without collateral, lack of information, lack of expertise, and high opportunity costs of participation in any new (therefore uncertain) endeavor with unknown returns. This means that interventions that overcome at least some of these constraints are critical if vulnerable households are to acquire the financial or physical capital that they need.

In this regard, public works can be important in reducing opportunity costs while enhancing private and public assets that are essential to enhanced agricultural productivity: road infrastructure, watershed management, micro-dam construction, and water management systems. Microfinance schemes can support training, start-up capital and initial assets required in new income generating activities (IGAs), as well as support for rural processing, cottage, and local transport service industries.

The agricultural productivity enhancement activities of Title II partners have been very important; particularly where they identified local constraints and worked with local communities to remove them (Bonnard et al. 2002). It should be emphasized that raising the productivity of agriculture is not simply about raising yields per area of land cultivated. Reducing costs, increasing labor (often hired) demand, enhancing stability in total output, resistance to weeds, pests and diseases, and the promotion of new crops alongside traditional

ones can all stimulate local services, market activity, and demand. Recent successes have included reducing costs through new technologies and lowered post-harvest losses, introduction of livestock and egg marketing, encouragement of diet diversity via home gardens, and diversification into cash crops where market outlets allowed. In all cases, success has to be measured not simply in terms of more production, but also if it can be sustained.

Unfortunately, a major problem in many developing countries remains the relative neglect of agriculture. According to several United Nations agencies, “inadequate government spending and low gross capital formation seriously compromise agricultural productivity in countries with widespread poverty and undernourishment” (IFAD/WFP/FAO 2002). This can be only partially counter-balanced by USAID-supported interventions. However, where they succeed in both raising productivity and allowing diversification of income and assets, such interventions serve a critical role in reducing vulnerability.

The agricultural productivity enhancement activities of Title II partners have been very important; particularly where they identified local constraints and worked with local communities to remove them.

2.3 Enhancing Human Capital, Nutrition Capital and Labor Productivity

In addition to financial and physical capital, effective livelihood diversification requires human and social capital accumulation. The role of information and institutions (such as schools and clinics) in enhancing preparedness to shocks was noted above; yet, the importance of both goes further. Asset and income diversification are built on enhanced labor productivity, for which skills and nutrition are prerequisites. It has been estimated that every US\$1 invested in an early childhood nutrition program in a developing country could potentially return at least US\$3 worth of gains in terms of academic achievement, without even considering the many other social and economic development benefits that would accrue (Behrman and Rosenzweig 2001). By contrast, children from food insecure households suffer a double jeopardy in that they are both more likely to suffer loss of health and nutritional status when their lives are affected by damaging shocks and they are less likely to recover quickly (Currie and Hyson 1999). For example, extreme (albeit temporary) drought can have long lasting effects since child growth velocity falters during crises (Alderman et al. 2001). Lost growth velocity may be only partially regained and this translates into poorer education outcomes and compromised adult height, both of which perpetuate hunger into the next generation (Case et al. 2001). In other words, the nutrition-education-poverty linkages are increasingly demanding attention.¹⁴

Title II activities of the past few years have made important contributions to education, with school enrollment and drop out rates improving.¹⁵ The institutional provision of meals can facilitate early entry into school. Malnourished children often suffer cognitive under development that slows their mental maturation, causing them to start school later than they could have. Studies from Ghana show that stunted children can lose two years of education simply because they start school years later than they should (Pollitt 1999; Jukes et al. 2002). By contrast, it has been found that increasing a child’s birth-weight can increase later schooling attainment simply because they enter school in a timely fashion and have more years of education as a result (Glewwe et al. 2000).

Once enrolled in school, nutritionally deprived children attend more erratically, perform less well, and drop out earlier— all of which reduces the total number of years of education available to them. A recent study in the Philippines showed that better nourished children perform significantly better because of greater

¹⁴ According to Glewwe and King (1999) “studies generally support the hypothesis that causality runs from poor nutrition to poor school performance. The most likely pathways involve the effects of inadequate intake of calories, protein and specific micronutrients on cognitive development, which in turn affects school readiness and performance.”

¹⁵ A lack of standardized indicators hampered recent assessments of Food for Education programs (Bonnard et al. 2002).

learning productivity per year of education (Glewwe et al. 2000). Similarly, iron deficiency anemia among children under two in Costa Rica and Peru is associated with poor performance on tests of intelligence once they had reached school age (Pollitt 1999). Take-home rations also serve as an important parental incentive to let children enroll and attend. Even free universal education carries hidden costs for transportation, books and uniforms. Girls in particular are more likely to attend primary school if parents know that at the end of each month they will gain food rations that offset the loss of the girl's labor at home. When girls remain in school, they tend to marry later and have fewer, more healthy children, as well as are able to secure better employment later in life (Allen and Gillespie 2001).

Title II activities of the past few years have made important contributions to education, with school enrollment and drop out rates improving.

Similarly, during periods of crisis, parents often respond to the need for more income-earning potential by removing children from school. Jacoby and Skoufias (1997), for example, showed that when hit by a drop in income, poorest households tend to withdraw their children from school such that a ten percent decline in agricultural income (due to drought) leads to a drop in school attendance— leading to a predictable decline in future earnings. It is increasingly recognized that schools also perform an important socialization function during crises, and that keeping such institutions open even in the midst of civil conflict allows for some food access for food insecure households, plus a buffer against psychological trauma for the children (ACC/SCN 2002). The Global Food for Education Initiative should be capitalized on as much as possible. Priorities for FFP collaboration with USDA on this initiative could be in defining a number of sentinel schools where best practices might be documented, monitored and evaluated with a view to longer term impact assessment.

Of course, school meals may not in themselves redress a child's malnutrition. However, combined with possible complementary services such as de-worming, consumption of micronutrient fortified foods, immunization, and education in hand-washing behavior and nutrition education, schools can play a major role in the socialization of appropriate food security related behaviors. Similarly, effective actions in the domain of food and nutrition depend on equally effective action where education itself is concerned. Early entry and good attendance in school does not in itself translate into a formal education if food is available and trained teachers, books, and other materials are not. In that case, the school is merely a vehicle for targeting supplementary food to school-aged children— important for food security, but insufficient if building human capital is a genuine goal. Partnering with donors, programs and national institutions that can effectively deliver appropriate forms of education is critical.

In terms of other (non-school) interventions seeking to build nutrition capital, there is growing evidence that severely malnourished children respond well to appropriate supplementary feeding initiatives (WHO 1997; Allen and Gillespie 2001). It has therefore been argued that a high priority for nutrition interventions should be to seek to stop growth faltering in the first eighteen months after birth, and that support for appropriate breastfeeding and the transfer of sound nutrition knowledge during this period is important (Shrimpton et al. 2001). Positive deviance approaches and the Hearth Model have shown potential as techniques that build on, and encourage the effective participation of communities in their own health and nutritional development (Marsh and Shroeder 2002).

More debate surrounds the effectiveness of nutrient supplementation for women. Some studies have shown significant maternal weight gains, increased birthweight and reduced perinatal mortality from maternal protein-energy supplementation (Karim et al. 2000). A recent review of iron supplementation in developing countries suggests that providing supplements to women during antenatal care visits offers positive outcomes in the right circumstances (Yip 2002). Yet others are more cautious. One review of twelve different interventions found little evidence of positive impact on fetal growth or birth weight among women who are not severely malnourished (De Onis et al. 1998). Nevertheless, there is wide agreement on the positive

effect of supplementation for those severely undernourished women who exhibit very poor nutritional status during early pregnancy (Allen and Gillespie 2001; WFP 2003).

Some interventions link with ministries of health in trying to improve women's use of antenatal and other clinics. The provision of improved services (not simply passive growth monitoring), better information and, sometimes, take-home rations encourage women who would otherwise not attend and offset the opportunity cost of their time.¹⁶ By freeing women of one of their immediate concerns (feeding their families), food-supported activities can allow women to take advantage of opportunities when they are available. One of those opportunities is, of course, access to useful information on sound nutrition, health and care practices that have multiplier effects beyond nutrition. While a combination of nutrition inputs with knowledge can have a greater impact than either intervention alone, the overriding goal needs to be changing critical nutrition and health behaviors which in part means expanding choices, not simply one-off improvements in birthweight. The most successful supplementation programs tend to be ones that are well integrated into broader health and education initiatives. One example is Mexico's PROGRESA program, which provides supplements to pregnant and lactating women and to children between the ages of four months and two years (and to any malnourished children under five). The program has significant effects in terms of reduced probability of child stunting. For example, it is argued that in the poorest participating households supplementation alone leads to roughly a three percent increase in lifetime earnings quite apart from the many other effects linked to earlier age of starting school and better performance in school (Behrman and Hoddinott 2001).

It is the synergistic benefits of interventions within all three inter-locking domains of Figure 2 (buffering communities from shocks, enhancing livelihood diversity and building human capacities for change) that will generate the most benefits in terms of reduced food insecurity. The framework allows for a prioritization of different types of activity according to the prevailing risks in any given location and the comparative advantage that a USAID collaborating partner has in providing leverage with its resources towards greater household resiliency. The interventions needed largely mirror existing Title II activities, but require further attention to a) targeting the food insecure localities within poor countries that would most benefit from reduced risks, and b) combining interventions in the same locations (rather than widely spread geographically) to generate value-added effects at the local level. There are, however, a number of additional considerations that will pose substantial challenges to food aid operations in the coming decade. A number of these are briefly considered in the next section.

3 Emerging Food Security Challenges

In the context of evolving debates on food aid programming priorities, there are three new issues that need to be squarely confronted: i) HIV/AIDS, ii) rapid urbanization, and iii) uncertainty over the future stock and stability of food aid supply for development.

3.1. HIV/AIDS

HIV/AIDS has emerged as a scourge that in scale, complexity and tragedy, threatens to be as devastating in the 21st century as famine was in the 19th and 20th centuries. With approximately 42 million individuals currently living with HIV/AIDS, the annual death toll exceeds three million and continues to rise (UNAIDS/WHO 2002). Assuming that each infection bears directly on the lives and livelihoods of just four additional people, there are already almost 200 million people worldwide affected by the disease—most of them in low income developing countries.

¹⁶ Micronutrient deficiencies among pregnant and lactating women may also be addressed directly by ensuring that affected mothers and children consume micronutrient-fortified food rations or supplements.

Sub-Saharan Africa is the continent most affected by HIV/AIDS and where the disease has become not only the leading cause of adult morbidity and mortality but also a major contributor to recent large-scale food crises (Barrett and Rugalema 2001). HIV/AIDS is also spreading rapidly across Asia. India already leads the world in absolute numbers of HIV infections, currently estimated at around five million, while the scale of the problem in China, still poorly understood, is expected to escalate rapidly in the coming decade.¹⁷

Sub-Saharan Africa is the continent most affected by HIV/AIDS and where the disease has become not only the leading cause of adult morbidity and mortality but also a major contributor to recent large-scale food crises.

This pandemic is unusual in a variety of ways. First, it mainly infects and kills individuals in the most productive 15 to 45 age group. Second, a large part of its transmission relates to individual behavior that is only partially defined by level of wealth. Third, the disease affects household food security through multiple routes. Immune system resistance to infection may be higher among well-nourished people. Thus, it has been argued that the onset of the disease might be delayed in well-nourished HIV-positive individuals and that sound nutrition may reduce opportunistic, secondary disease infections among AIDS patients, thereby potentially delaying mortality (Friis 1998; ACC/SCN 1998; Allen and Gillespie 2001).¹⁸ In this sense, good nutrition is arguably both the first line of defense and the first line of attack against the epidemic.

However, infection and death contribute to eroding a household's capacity to secure food security and/or withstand shocks. AIDS morbidity and mortality reduce a household's ability to produce and buy food by depleting savings and assets (for medical treatment but especially for funerals), and by reducing the insurance value of social networks as increasing numbers of households call in favors simultaneously (Egal and Valstar 1999). Morbidity affects agricultural productivity by reducing labor availability and efficiency, pushing households to reallocate labor from productive activity towards patient care, and by shifting income-earning responsibilities to the elderly and the young (Brown et al. 1994; Deininger et al. 2001). At a national level, government investments in human capital development (education, training, higher education, health) are all at risk when the next generation of productive adults is compromised by infection rates of up to 30 percent. Future economic growth, tax income, and the inter-generational transfer of skills and knowledge (cultural capital) all become less certain.

While the negative impacts of HIV/AIDS on food security are clear, the required response is less so. A public health approach alone is insufficient since the two-way economic and social ramifications of the pandemic go far beyond disease control. However, the potential for Title II supported interventions has yet to be elaborated. The empirical evidence that food (nutrients) can assist directly in resisting, delaying and/or allaying the onset of AIDS remains sparse. A handful of studies focused on maternal-child transmission, or the role of individual micronutrients in relation to HIV progression, is not a sufficient basis on which to make policy (Allen and Gillespie 2001).

However, it is sufficient to suggest that food may have at least a buffering role to play where livelihoods are concerned (FANTA 1999). On the one hand, focusing asset building and protection measures, income diversification activities, and certain kinds of food insurance capabilities (grain banks, consumption credit, meals in schools) in HIV-infected areas would serve to reduce some of the uncertainty that increases as more adults fall sick. On the other hand, offsetting opportunity costs of time involved in patient care (offering rations through clinics), and providing take-home resources for foster families through schools (off-setting their costs in looking after a child) would also help maintain income flow, possibly in the form of food, especially

¹⁷ Some estimates put China's level of infection many times higher than the official 1 million cases (Barrett and Rugalema 2001).

¹⁸ While it can correctly be argued that food security is also impacted via malaria, tuberculosis and other diseases, HIV/AIDS is unique in the scale and severity of its impact and because of the lack of low-cost and reliable medical (or indeed non-medical) responses tailored to low income countries.

where fortified products reduce serious local micronutrient deficiencies. For example, there are projects in elementary schools in Mozambique that provide take-home food rations for families who a) commit to sending their daughters to school and b) send orphans in their care to school. The rations cover at least part of the cost sustained by the foster families in ensuring that orphans receive at least a minimum education and some sense of stability.

Of course, any action in this area raises questions about targeting as well as implications for exit strategies. Given the long-term nature of such an epidemic, are activities built around short project cycles an appropriate response? At the very least, a new strategy requires attention to this new confounder among the long-standing determinants of food insecurity, and the most appropriate response may be: a) giving a high priority in all Title II supported activities (existing ones) to those parts of the country where infection rates are highest; and, b) seeking to define new intervention modalities that either get needed micronutrients to high-risk populations (particularly pregnant and lactating women), or offset the opportunity costs among affected households of continued schooling or appropriate health seeking behavior.

3.2 Urbanization

The second emerging issue is the increasingly urban nature of food insecurity. Concerns do not relate to cities per se but to the functional processes and outcomes associated with a) rapid growth, b) vulnerability to shocks of large concentrations of people, and c) the nutrition transition.

3.2.1 Rapid Growth

Although the magnitude and rate of change vary by country, there is little doubt that more inhabitants of developing countries will be living in urban than rural areas within the next two decades. Already almost 85 percent of Latin Americans are town and city-dwellers; soon more than half the population of Africa and Asia will also be urban-based (Garrett 2001). These trends in themselves carry many challenges, not the least of which is reliable food provisioning.

That said, clarity is needed in defining the problems that Title II resources can effectively remediate and in establishing priorities for action. The mere fact that large numbers of poor people congregate in ever larger urban centers does not in itself make all such centers high concentrations of food insecurity. While the proportion and number of urban poor in developing countries has grown quickly during the past two to three decades (increasing the size of peri-urban slums in particular), this does not mean that poverty priorities are now more urban than rural. For example, taking a simple head count index there are, with few exceptions, still more people living in poverty in rural locations than in towns (IFAD 2002).¹⁹ Furthermore, rural-urban disparities in income per capita have been shown to increase in many poorer developing countries between 1970 and the mid-1990s (Bloom et al. 2000).

Urban food insecurity problems arise on a large scale when urban growth is particularly rapid and especially when linked to distress migration. Migration patterns tend first to be seasonal round-trips followed by longer stays and quasi-permanent moves. There is a flow of remittance income (urban to rural), food (rural to urban) and skills (both ways) as long as urban migrants remain attached to their households in the rural areas. While these transfers can have some benefit to both the urban migrant and the rural household, family separations can result in an increase in the spread of HIV/AIDS and other communicable diseases and the further impoverishment of rural households due to the loss of productive labor. In already impoverished areas of the city, migrants and internally displaced people are poorly served by limited public services and often face formidable social and economic barriers to income opportunities. Competition and lags in infrastructure

¹⁹ The exceptions where urban poverty numbers exceed those of rural poverty include Cameroon (where the data are old, dating from 1984), Mongolia and Georgia (countries undergoing rapid economic transition during the data reference period), and Honduras and Trinidad and Tobago.

development to absorb growing urban populations impede migrants from securing employment. If migrants permanently settle in urban areas without the capacity for absorption, then both the urban and rural sectors remain mired in poverty.

3.2.2 Urban Shocks

A second concern of urban population concentration relates to shocks. While IFAD (2001) argues that the rural poor are “much more vulnerable to fluctuations in well-being than the urban [poor],” the urban poor were at least as severely impacted by the Asian financial crisis of the late 1990s as many rural poor because of more rapid price dissemination effects and real food supply constraints (Frankenberg et al. 1999; Block et al. 2002). It is also noted that large cities in poor countries located, as they often are, close to coasts or navigable rivers are vulnerable to climatic shocks such as large wind storms (for example, Mitch and Orissa), earthquakes (Budj, Gujarat; Mexico City, Mexico), floods (Dhaka, Bangladesh) and even drought (Bulawayo, Zimbabwe)(IFRCRCS 2001; Webb 2003). The cost of disaster-proofing large urban areas is prohibitive in poor countries, and so the costs of large natural disasters grows. According to the global reinsurance company, Munich Re, the economic bill related to disasters rose fourteen-fold from the 1950s to the late 1990s, in large part due to the increasing concentration of wealth in vulnerable geographic locations and the post-disaster cost of repairing damaged urban infrastructure (Munich Re 2001).

3.2.3 Epidemiologic Transition

This transition describes fundamental shifts in diet, physical activity, health, and nutrition associated with the industrialization, wealth accumulation and global market integration that are often linked to urbanization. Concerns relate to negative consequences, such as altered dietary patterns and decreased physical activities, which tend to go hand-in-hand with an increase in chronic diet-related diseases. For example, urban households tend on average to consume a higher share of energy from fats and sweeteners than rural households, and most urban dwellers also eat more animal products than their rural counterparts (Popkin et al. 2001).

These changes have important ramifications for food security, particularly in the sense that obesity risks shadow undernutrition as the primary nutrition problem of poor countries, which in itself carries the danger of further urban bias in the allocation of public health resources. The nutrition transition has brought about a rapid shift toward a high incidence of obesity and non-communicable diseases (such as diabetes, hypertension and heart disease), at a time when large segments of the population still face undernutrition and poverty-related diseases. The increased burden of health care, the threat of economic losses from obesity, and higher medical kudos derived from work on coronary disease, diabetes and cancer versus protein-energy malnutrition, are all likely to increase urban medical costs at the expense of rural primary health care resources. However, a further complicating factor is the rising number of households that contain obese adults alongside an undernourished child. In China, for example, large national surveys suggest that 23 percent of all households with underweight children are among this group (Doak et al. 2000). Similar findings from Brazil suggest that this too should be an expected problem associated with the urban nutrition transition. The challenge will be to derive appropriate food and nutrition policies and interventions that can meet the needs of undernourished people while simultaneously addressing the (often poverty-related) causes of obesity in the urban centers of poor countries.²⁰

While the problems of urban food insecurity are widely recognized, experiences of food-supported interventions are relatively few, and even those are poorly documented (Bonnard et al. 2002). There are, however, a number of promising avenues, including recent poverty targeted public works activities in cities in Ethiopia and Botswana (von Braun et al. 1999; Garrett 2002), support for urban neighborhood based childcare centers in Guatemala (Ruel et al. 2002), and urban agriculture initiatives (Moseley 2001; Garrett

²⁰ The association between poverty (a lack of purchasing power and constrained choices) and obesity has been widely documented in the U.S. and is apparent in many developing country settings (Pena and Bacallao 2000; Hoffman et al. 2000).

2001). Indeed, many forms of intervention can be easier in urban than rural areas simply because of the proximity of infrastructure, high population densities, reasonably well-functioning food markets, and government willingness to support at least minimal health services. Capitalizing on such locational benefits where food insecurity problems are accurately deemed to be of a high priority (compared against other similar concerns in the same country) should be a higher consideration for future Title II activities (Bonnard et al. 2002).

3.3 Ensuring Future Food Aid Resources

Today, U.S. food aid is approaching record lows in terms of both absolute (constant) dollar value and share in total development assistance (Sposato 2002). The overall trend in food aid availability has been downward since the mid-1980s and that decline has occurred in the context of significant and continuing volatility in international supplies (Sposato 2002; WFP 2002). Indeed, U.S. deliveries of food aid have varied by a factor of more than three over the past decade, ranging from roughly three million tons in 1997 to over nine million in 1999 (WFP 2002). Nevertheless, since other major donors such as Canada, the EU, and Australia have also shown a consistent downward trend in food aid donations, the U.S. share represents over 62 percent of global flows (in 2000). But will this level continue? Can U.S. food aid more successfully leverage: a) more stable inter-annual U.S. food aid donations; b) additional non-U.S. food donations to address the world's problems of food insecurity in partnership with the U.S.; and, c) urgently required non-food complementary resources to make food aid programs more effective in coming years?

The goal of reducing food insecurity through consumption smoothing, improvements in livelihoods, and investment in human capital depends on implementing consistent and reliable interventions that can promote behavior change at the household and community levels, and that contribute to longer term economic gains. The volatility of food aid availability and the short time horizon permitted for programming

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of grant food aid (in particular Title II) have frequently been identified as barriers to maximum effectiveness of such programs (USAID 2002). Despite the fact that food aid is not officially intended as a means for dumping of agricultural surpluses (USAID 2002), the empirical evidence is persuasive that food availability does in fact track agricultural surpluses (Stocke and Clay 2000; Sposato 2002) and the gradual decline in U.S. food aid reflects a shift from surplus-promoting agricultural price support policies. The downward trend in food availability from other donors is also a result of reduced levels of intervention stocks or surpluses as a result of their own move away from price supports since 1992.

The recent U.S. Farm Bill represents a return to coupled producer price subsidies that are likely to result in increased U.S. production and thus a reversion to surplus-driven food aid flows in bumper harvest years. The 2002 Farm Bill has been challenged in the World Trade Organization as a violation of trade agreements in the Doha Round. It remains to be seen whether the subsidies incorporated into the new Farm Bill will stand unmodified. Agricultural price supports are for the first time on the table for discussion in the current round of trade negotiations, and there is considerable pressure, including from the U.S., to reduce producer subsidies. Producer subsidies are under attack because of their distorting effects and because they disadvantage developing countries trying to export their agricultural products.

As food aid supply depends on unpredictable factors—the politics of agricultural price supports in the U.S., the outcome of WTO deliberations, as well as climatic factors affecting production—there is no assurance that fluctuations in food aid supply will be congruent with changing levels of need in the developing world, especially where non-emergency needs are concerned. The volatility of food aid is not a new issue in itself, but it needs to be addressed if food aid is to achieve new strategic goals (Kahn 2002). This could be achieved

by programming food aid in quantity rather than value terms, and by identifying sources of funds to purchase food not only within the U.S. but from other sources if necessary.

In the face of declining supplies and increased demand for food to support emergency response, as well as non-emergency food programs, the logic of monetizing relatively scarce food resources seems weak. This reasoning is compounded by the fact that food is also declining as a share of total development assistance (USAID 2001; Sposato 2002). But monetization of food aid provides cash to support essential complementary activities, not just for food distribution, but in support of the longer term transition to food security through interventions such as provision of credit, purchase of inputs to complement food-for-work in the creation of productive infrastructure, and environmental resource enhancement.²¹ At present, many of the PVOs that manage Title II non-emergency programs depend on monetization to support their activities because other development assistance may not be available nor provided on a grant basis. There is no question that interventions funded by cash are an essential complement to food. Whether obtained through monetization or the leveraging of complementary cash resources from other sources, the importance of cash for effective food aid programs must gain higher priority on the donor agenda.

4 Conclusions

Often overlooked is the progress that has been made in addressing global food insecurity since the formulation of the Food Aid and Food Security policy in 1995. The many benefits and lessons deriving from the resultant strategy should be recognized and built upon. USAID's initial thrust towards combining agricultural enhancement activity, with a focus on nutrition (typically via MCH) was, and remains, viable and desirable (Ray and Vanderslice 2002; Bonnard et al. 2002). The next phase should capitalize on best practices, further refine comparative advantage where it can be demonstrated, seek to better demonstrate measurable impact, and not spread resources too thinly by articulating too many new objectives.

It has been argued in this paper that the next step might involve a conceptual shift towards the challenges of tackling food insecurity. This does not mean a move away from development towards emergency response; it means addressing more explicitly the constraints that continue to impede socioeconomic development, as well as the problems in securing gains over the long haul. In other words, attention to risks and resiliencies facilitates attention to development sustainability. Within this overall framework, various combinations of Title II supported activities meet different, although overlapping, goals (as illustrated in Figure 2). A number of new activities might be considered, but in most cases, greater gains can be achieved through narrower targeting, better tailoring of response to need, and improved synergy across sectoral activities. In this sense, a number of preliminary conclusions can be proposed.

First, the process of re-focusing attention and investments in the most food insecure countries should be continued, and taken to its logical next phase. Food aid programs should be concentrated in the most food insecure communities in the poorest countries and complemented with appropriate combinations of interventions to have the greatest impact. A better genuine understanding of the differences and overlaps between poverty and food insecurity will focus interventions in the areas where food insecurity is most entrenched.

Second, to identify the most appropriate combinations of interventions requires greater investment in problem analysis at a local level, followed by a better tailoring of solutions. The analysis of food insecurity covers

²¹ Monetization also serves to increase the overall availability of food via the market, albeit not always at locations or at prices that poorest people can afford. This 'secondary' function of food aid monetization warrants better documentation in terms of potential food security impacts.

ground common to both disasters and development. Understanding the risks and resiliencies at household, community and sub-regional levels should be seen as an investment not only in improved relief targeting but in better prioritizing development resources as well as better post-crisis reconstruction and crisis preparedness. But to be effective, it must be based on institutionalized monitoring of trends and on the impact of interventions that seek to change those trends from a multi-disciplinary approach.

Third, greater attention should be given to the functional issues raised by rapid urbanization, and in some cases, greater openness to the demand for urban-based food insecurity activities. Growing urban poverty in itself should not cause a structural reorientation of Title II activities away from rural areas if that is still where priorities are found.

Fourth, by contrast, HIV/AIDS will be an inescapable consideration in most programs of the coming decade. Close attention will be needed to the best degree to which AIDS morbidity, possibly more than mortality, becomes a primary cause of food insecurity. Creative new approaches are likely to be needed such that resources can be used to the best effect in buffering the economic (food) costs to households without stigma and without high administrative screening costs. The role of food as nourishment, with a view to protecting against or delaying progression of the disease itself, remains highly political and empirically poorly understood. This is an area in which USAID needs to invest in documentation of effects and best practice.

Fifth, there should be an increased focus on capacity building with Title II partners and with local institutions (consistent with Ray and Vanderslice 2002). If programming is to pay greater attention to exit strategies and long-run sustainability then local capacity building, along with human capital investment, are essential to maintain positive changes initiated via food aid programs.

Sixth, the secular decline in food aid availability, and its annual volatility, should be addressed through financing mechanisms that allow for programming food in more predictable quantities over a relatively longer (ideally counter-cyclical) time horizon. Avenues for closer collaboration with other food aid donors and implementing partners might be explored, including a facilitation role where the new challenge of grain surplus disposal generates economic and political difficulties for developing countries (such as India and China).

Seventh, FFP and its collaborating partners should arguably become stronger and more vocal advocates on behalf of the world's food insecure. As obesity, HIV/AIDS, poverty, environmental degradation, and globalization capture the international headlines and their associated political agendas, the world's food insecure tend to be overlooked except when the scale of suffering enters into seven or eight digits (as is happening today in Africa). Advocacy requires bearing witness to the suffering of chronic, not just acute malnutrition. It requires greater publicity of success stories. It requires more public demonstration of the direct and multiple links between hunger, the stalling of economic development, the risks inherent in natural disasters, and how an environment of uncertainty affects households' choices about sending children to school versus work on the farm versus begging on a city street. Ultimately, advocacy should translate into lobbying and a voice in Congress that succeeds in expanding cash and other funds available to Title II programming in the coming decade. Strong advocacy efforts are needed to leverage cash resources to support essential complementary programs focused on tackling food insecurity.

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the \mathbb{R}^n -valued function \mathbf{f} is a solution of the system (1) if and only if \mathbf{f} is a solution of the system (2).

Let us assume that \mathbf{f} is a solution of the system (2). Then, for any $t \in \mathbb{R}$, we have

$$\mathbf{f}(t) = \mathbf{f}(0) + \int_0^t \mathbf{f}'(s) ds = \mathbf{f}(0) + \int_0^t \mathbf{A}(s) \mathbf{f}(s) ds.$$

Since \mathbf{f} is a solution of the system (2), we have $\mathbf{f}(0) = \mathbf{0}$. Therefore, we have

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