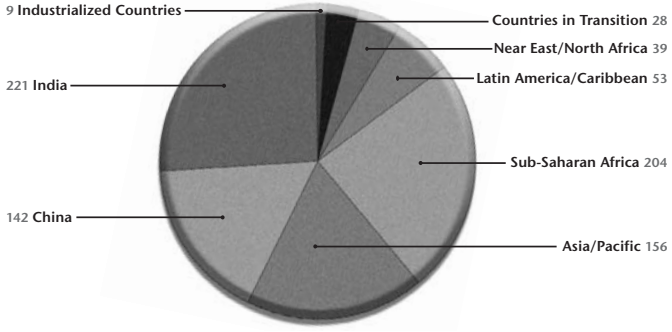
Food as a Health Intervention

Adequate food and nutrition are vital for human health and survival of all individuals. Every day, nearly 25,000 people die from hunger-related causes.[1] Even when mild, micronutrient deficiencies significantly increase the risk of death and severe illness. Worldwide, half of all preventable child mortality has malnutrition as an underlying contributing factor.[2] Together, hunger and malnutrition impose heavy costs on individuals and households, communities and nations (Figure 1).

Figure 1: Number of Undernourished People by Region (Millions)[i]



[i] FAO. "The State of Food Insecurity in the World, 2004." Rome, Food and Agriculture Organization, 2004.

The indirect benefits of food programs and provision can be considerable. In cases where food provision has been integrated into health programming, we observe increased adherence to HIV and TB drug regimens,[3] strengthened community response to care for orphans and vulnerable children,[4] and increased participation in school and health programs, including prenatal health programs.[5] Food assistance programs can serve as a vehicle to offer non-food interventions such as deworming medication, malaria treatment, and information on diet and health habits that have been shown to have an impact on individual and community health. In addition to improving the health outcomes for those living with HIV and TB, such interventions also improve the health of the families, especially the children and mothers, of those benefiting from the programs.[6]

Due to the current vertical funding streams most common to international development, forging links between agriculture, nutrition, education and health is inherently challenging. This chapter aims to demonstrate the value of working to strengthen these links, allowing programs to better address multiple problems at the same time.

The chapter focuses on the indirect health benefits of food programs, but it is important to recognize that nutritional interventions can have an impact on health, most importantly micronutrient supplementation and agricultural interventions, that promote food security. Key micronutrient interventions, such as vitamin A and zinc supplementation both of which have been shown to be highly cost-effective interventions for the health of children under-five, are addressed in the Child Health chapter of the report.

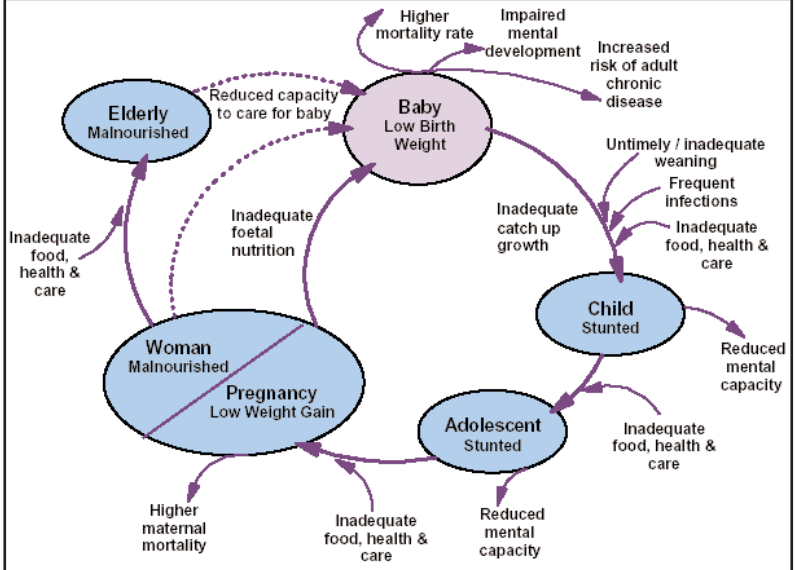
DIRECT AND INDIRECT HEALTH BENEFITS OF FOOD PROGRAMMING

The *direct health benefits* of regular access to food and good nutrition are well appreciated, especially in pregnancy. The nutritional status of women before they become pregnant directly affects the future health of the mother and the child (Figure 2). Women with a high number of births and short intervals between them are particularly at risk of malnutrition.[7]

Programs providing food to pregnant women, breastfeeding mothers and young children also offer *indirect health benefits*, including increased access to information on nutritious dietary practices, exclusive breastfeeding, and greater access to other important health services.

School feeding programs and take-home provisions also illustrate the indirect benefit of food on health. Such programs often provide an incentive for parents to send their children to primary and secondary school and encourage regular attendance (Table 1). This can be particularly beneficial for young girls.[8] Studies have demonstrated that keeping girls in school longer improves their health by contributing to delays in sexual debut, increasing the age of marriage, increasing the spacing between births, and reducing the total number of children they bear.[9] These multiple outcomes combine to have substantial impacts upon health, reducing infant and maternal illness and death.[10] Tuberculosis (TB) programming demonstrates both the direct and indirect benefits of monthly food provisions, which both improve nutritional status and serve as a successful incentive for drug adherence.[11]

Figure 2: Intergenerational Impacts of Nutrition on Health[i]



[i] The United Nation's Standing Committee on Nutrition. "Commission on the nutrition challenges of the 21st century - Ending malnutrition by 2020: an agenda for change in the millennium." Geneva, UN, 2000. Available at www.unsystem.org/scn/Publications/UN_Report.PDF

Table 1: Best Buys in Food as a Health Intervention

Intervention	Key Indirect Benefits
Food for primary and secondary education	Increase enrollment/attendance Delayed sexual activity Decreased risk of HIV infection Deworming
Food for pregnant women	Increased demand for prenatal services Increased VCT Decreased perinatal mortality
Food for under five children	Increased health screening Health/sanitation education Deworming
Food for orphans and other vulnerable children	Increased enrollment Increased foster care Vocational training/life skills training Decreased vulnerability
Food to support treatment (AIDS/TB)	Increased treatment adherence Decreased drug resistance More rapid recovery Decreased family vulnerability
Food for palliative care	Increased NGO outreach Improved monitoring Decreased trauma for family Improved transition planning

For people living with and affected by HIV/AIDS, food is often cited as their greatest and most urgent need.[12] Food insecurity and malnutrition increase susceptibility to HIV as well as vulnerability to its impact. Food and nutrition security are relevant to each of the key strategic "pillars" of the response to the epidemic, namely: prevention, care and treatment, and impact mitigation.[13]

FOOD AND NUTRITION PROGRAMMING IN THE HIV/AIDS RESPONSE[14]

Prevention: Poverty and hunger can drive women into exchanging sex for food, a practice that fuels the spread of the epidemic. In addition, maternal nutritional status and infant feeding practices are pivotal in reducing mother-to-child transmission and HIV-free survival of infants.

Treatment: HIV-infected adults and children have increased dietary energy needs – by as much as 20-30% in adults and 50-100% in children. Adequate food and nutrition is required to optimize adherence and the benefits of antiretroviral drugs, especially in malnourished adults and children.

Care: There is evidence that good nutritional status may extend the interval between HIV infection and progression to AIDS, spur a positive response to antiretroviral therapy and opportunistic infection treatment, and improve the quality of life and productivity among people living with HIV/AIDS (PLWHA).

While there are substantial opportunities to increase food programming and its associated health benefits, there remains a need for further evaluation to prioritize between interventions and to determine what works best given the specific context and population.

ESTIMATED RESOURCE NEEDS FOR HEALTH-RELATED FOOD-BASED PROGRAMMING

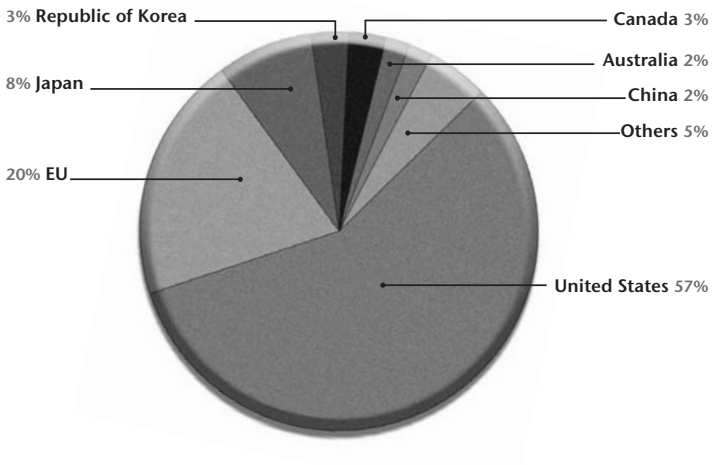
The costs of integrated food and health programs are rarely estimated. In an effort to estimate funding needs, the costs of six "non-emergency" interventions have been outlined in Table 2. This rough estimate provides a basis for conceptualizing what could be achieved by investing in integrated food and health interventions. In sub-Saharan Africa, the region where HIV prevalence ranks the highest and secondary school enrolment for girls is lowest, the resources needed to expand food and nutrition related programming in the poorest one-third of all districts, where in principle they could have the greatest impact, is estimated at roughly an addi-

Table 2: Estimated Programming Costs for Sub-Saharan Africa[i]

Intervention	Program Components	Unit Cost per Day[ii]	Days	Annual Cost	Reference Sub-Population (Millions)	Target Most in Need	Estimated Coverage of Target in Mid-Term[iii]	Cost to Finance Additional Targeted Beneficiaries ($ Millions)
Food for secondary education	Food for girls attending secondary school	**$ 0.19** [iv]	180	**$34**	9.3 [v]	**50%** [vi]	**50%**	**$79**
Food for primary education	Food for girls attending primary school	**$ 0.19** [vii]	180	**$34**	46 [viii]	**25%** [ix]	**50%**	**$196**
Food for pregnant women	Vitamin supplements & take-home rations for women attending prenatal care clinics	**$ 0.06**	200	**$12**	26.9 [x]	**40%** [xi]	**50%**	**$65**
Food for under five	Food supplements to all community pre-school programs	**$ 0.05**	100	**$5**	112.7 [xii]	**25%** [xiii]	**50%**	**$70**
Food for orphans[xiv]	Food support for children living in institutional settings & to families who include or have taken in orphans	**$ 0.26**	365	**$95**	43.4 [xv]	**50%** [xvi]	**50%**	**$1,030**
Food to support treatment (AIDS/TB)	6 month family food ration to all patients following initiation of drug therapy for HIV/AIDS and/or TB	**$ 0.20**	180	**$36**	23.8 [xvii]	**10%** [xviii]	**60%**[xix]	**$51**
Food for palliative care	Food ration for distribution through community groups to those at the end of their lives suffering from AIDS or Cancer	**$ 0.20**	180	**$36**	4.4 [xx]	**50%** [xxi]	**60%**	**$48**
								$1.5 billion

[i] Total Population sub-Saharan Africa: 665,496,000; Adult HIV/AIDS prevalence rate: 7.5%, UNICEF, 2004.
[ii] Estimates per WFP average for sub-Saharan Africa. Personal communication with WFP.
[iii] Rough estimate of percentage of target that can be reached in first three years of program scale-up.
[iv] The unit cost of providing take-home rations depends on the nature of the program, the region where it is being implemented, and the family size. The unit cost can range between 19 cents-80 cents.
[v] Girls enrolled in secondary school: 9,300,000, UNESCO, 2000.
[vi] Targeting one-third of the poorest schools with objective of 50% increase in enrollment.
[vii] The unit cost of providing take-home rations depends on the nature of the program, the region where it is being implemented, and the family size. The unit cost can range between 19 cents-80 cents.
[viii] Girls enrolled in primary school: 46 million, UNESCO "Literacy for Life," 2006.
[ix] Targeting one-quarter of the poorest schools with objective of 50% increase in enrollment.
[x] Number of births/year: 26,882,000, UNICEF, 2004.
[xi] Initial target based on number of births attended by skilled personnel: 41%, UNICEF, 2000.
[xii] Total population under 5: 112,679,000, UNICEF, 2004.
[xiii] Initial focus of the one-quarter poorest communities.
[xiv] The UN Convention on the Rights of the Child defines orphans as children under the age of 18 whose parents have died.
[xv] Orphans due to AIDS total: 12,100,000, UNAIDS, 2004. Total number of orphans (All Causes): 43,400,000, "Children on the brink." World Bank, 2004.
[xvi] Rough estimate of the number of orphans that can be identified.
[xvii] Total number of PLWHA: 23,800,000, UNAIDS, 2004.
[xviii] Based on WHO '3 by 5' target of PLWHA in Africa who are candidates for therapy.
[xix] Rough estimate of percentage of target that can be reached in first three years of program scale-up through health system corresponding to immunization coverage rates.
[xx] Total number of AIDS Deaths: 2,200,000, UNAIDS, 2004.
[xxi] Rough estimate of the percentage of persons requiring palliative care who can be identified.

Figure 3: Total Donor Food Aid Contributions for FY04[i]



[i] WFP. "Food Aid Monitor – 2004 Food Aid Flows." Rome, World Food Program, 2005.

tional $1.5 billion annually. Given the high dropout rates and acute need to increase participation in secondary school, particularly among girls, the costing estimates include additional funding to double secondary school enrollment rates for girls.

CURRENT EXPENDITURES FOR FOOD PROGRAMMING INTERVENTIONS AFFECTING HEALTH

Global health cost estimates rarely include food interventions. For example, the U.S. President's Emergency Plan for AIDS Relief, while emphasizing nutrition needs and the importance of palliative care, does not include resource estimates for food assistance. Similarly, while malnutrition contributes to more than half of all infant deaths, resource need estimates to reduce child mortality only include very limited food-related interventions.[15] Consequently, policy-makers and programmers lack adequate information to permit the planning estimates needed to support advocacy, identify and mobilize resources, and adjust institutional approaches.

The vast majority of food consumed by those living in poverty is locally grown. The main external mechanism for food programming is through the provision of food assistance and commodities. International food aid deliveries in 2004 to developing countries were estimated to be 7.4 million metric tons, of which the U.S. contributed 57% (Figure 3).[16]

In 2004, **nearly 60% of food aid was directed to emergencies**. As the amount of funding allocated to emergency food aid continues to increase, funding for non-emergency food aid has decreased over the past 10 years.[17] There are no estimates currently available on total domestic spending in developing countries on food-based programs.

In 2006, the U.S. Congress **appropriated** approximately $1.3 billion for food assistance.[18]

RAMPING-UP STRATEGY TO ADDRESS THE GLOBAL NEED

Major efforts are required domestically and internationally to improve the understanding of the critical role food and nutrition programming could play in advancing global health. A more active and expanded set of partners could effectively promote an agenda that integrates food, nutrition, agriculture and education programming into health programs. Such a partnership would promote greater coherence among both policies and programs sponsored by donors and national governments.

Scaling up of "non-emergency" food security programs, including poverty reduction and strengthening of agricultural markets, could have a significant impact on reducing cyclical hunger emergencies. Recent declines in funding for non-emergency food assistance programs should be reversed.

Presidential initiatives, such as the Millennium Challenge Corporation and the President's Initiative to End Hunger in Africa, could present important vehicles through which to foster long-term agriculture investments that improve the livelihoods and resiliency of vulnerable populations in fragile states.

MAJOR PROGRAMMATIC CHALLENGES FOR INTEGRATING FOOD AND NUTRITION INTERVENTIONS WITHIN HEALTH PROGRAMS

Food security, economic development and health are interdependent. **Greater recognition within the health sector that food programs are health-producing**, backed by solid evidence, would enhance the leveraging capacity of food-based interventions within a full range of health-focused interventions.

In the fight to end hunger and malnutrition, critical gains can be made by **taking stock of and improving on existing investments and operations**. Currently, it is difficult to track and monitor nutrition, food, agriculture, education and related health activities within and between government agencies and programs. Integration of food as a component of health programs could result in major benefits but will require a commitment to increased research and reporting on health expenditures allocated to food interventions.

INTERNATIONAL POLICY ACTIONS AND OPPORTUNITIES AFFECTING THE INTEGRATION OF FOOD AND HEALTH INTERVENTIONS

International agreements to **improve the targeting of food assistance** for particular health and development purposes will both enhance nutrition and food security outcomes while simultaneously addressing concerns about the mechanisms of food aid delivery. Global negotiations, such as the annual World Trade Organization and G-8 meetings, provide opportunities for donor countries to make a difference on these issues. The Initiative to End Child Hunger, to be launched in 2006 by the World Bank, UNICEF, and World Food Programme, provides a mechanism to focus and support these global efforts.

U.S. POLICY ACTIONS AND LEGISLATIVE OPPORTUNITIES INTEGRATING FOOD AND HEALTH INTERVENTIONS

There are many actors, agencies, institutions and political influences involved in funding U.S. food, nutrition and agriculture programs. The complexity of the institutional landscape and the resource allocation process constitute major coordination challenges between the health, agriculture and nutrition sectors.

The lead-up to the **reauthorization of the Farm Bill in 2007** provides an important opportunity for strengthening policy measures, agency coordination, and management structure to make necessary improvements to food assistance programs. The focus should be on a comprehensive package of food, nutrition and allied health interventions that improve nutritional status of those at high risk, and better coordination between food security and food programming activities.

The U.S. Congress recently mandated the development of a strategy to address the nutritional requirements of persons receiving care and treatment by the Office of the Global AIDS Coordinator, USAID and USDA to **expand existing interventions for improving nutrition and the use of food assistance in the international HIV/AIDS response**. An interagency planning exercise involving all USDA and USAID food programs should work to incorporate nutrition indicators into HIV/AIDS monitoring and evaluation plans, accelerating the fortification of staple foods with essential micronutrients, nutrition education and counseling, therapeutic and supplementary feeding, and prevention of mother-to-child transmission and infant feeding.[19] Greater efforts are also required to develop national frameworks for linking food and nutrition activities with the care and support of people infected and affected by HIV/AIDS, orphans, vulnerable children and their caretakers.

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