

Overcoming hunger

Promising programmes and policies

Brown University faculty

An interdisciplinary group of faculty at Brown University scrutinized recent interventions and proposals for ending hunger. The group culled from literature and praxis 26 sets of promising programmes and policies for eliminating regional food shortage, reducing household food poverty, and diminishing individual food deprivation. They used these to address seven of the multiple aspects of hunger: famine, food insufficiency, urban food poverty, rural food insecurity, disease and undernutrition, childhood wasting and stunting, and iodine and vitamin A deficiency. Taking into account the economic, demographic and environmental trends that could thwart effective action, the overall programme calls for an imaginative enlistment of new economic, institutional, and non-governmental resources, as well as the best of past and ongoing efforts, to halve world hunger in the 1990s.

The present article originated from a paper emanating from a Brown University faculty seminar, 'Ending hunger: halfway there', convened by the Alan Shawn Feinstein World Hunger Program, the Center for the Comparative Study of Development, the International Health Institute, the International Relations Program, the Population Studies & Training Center, the Center for Public Policy and American Institutions, and coordinated by Joy Csanadi. Jeanne X. Kasperson and Robert W. Kates prepared the article for publication on behalf of the interdisciplinary group of participants: Thomas Anton, Charles Carpenter, Robert S. Chen, William Crossgrove, Edison Dayal, Loren Fast, Lina Frazzetti, Sidney Goldstein, Peter Heywood, Terence Hopmann, Vincent Hunt, Jeanne X. Kas-

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Sixteen years have elapsed since the World Food Conference recommended in 1974 'that all Governments and the international community as a whole, in pursuance of their determination to eliminate within a decade hunger and malnutrition, formulate and integrate concerted food and nutritional plans and policies aiming at the improvement of consumption patterns in their socioeconomic and agricultural planning.¹ Society has fallen far short of the mark. Indeed, progress in overcoming hunger has slowed. The decline is attributable in part to the worldwide recession that befell the early 1980s, but it is also important to acknowledge the limited success of numerous efforts to alleviate food shortage, poverty and deprivation.

At the same time, however, a hard look at past and ongoing efforts to overcome hunger yields some grounds for optimism. From the broad spectrum of activities, it is possible to identify programmes and policies that have demonstrated particular promise or success in helping to reduce or eliminate some forms of hunger among some groups over time. 'Success stories' are beginning to rear their heads and promising programmes are beginning to show their faces. Taken together, they offer an encouraging array of options for eliminating food shortage, reducing food poverty, and diminishing food deprivation in the 1990s.²

Eliminating food shortage

The elimination of food shortage, be it from famine or chronic scarcity, will require the augmentation and maintenance of a dependable supply of food, at least at the national level, if not at subnational levels. In the face of rising population, it is imperative to strengthen existing systems for anticipating, preventing and responding to the threat of famines and to effect major and substantial increases in the overall productivity of food systems.

Preventing famine and its consequences

It is increasingly possible to prevent famines that originate in food shortage and to eliminate the mortality attendant on famines. Early-

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person, Robert W. Kates, Abdul Khan, Robley Matthews, Ellen Messer, Sara Millman, George Morgan, Morris Morris, Lucile Newman, Rose Okello, Richard Olds, Talbot Page, Richard Palmer, Louis Putterman, Merwin Sibulkin, Peter Smith, Pat Symonds, Susan Watts, Albert Wessen and Mildred Widgoff.

¹World Food Conference, Rome, 5–16 November 1974, 'Resolution V: policies and programmes to improve nutrition', reprinted in Katarina Tomasevski, ed, *The Right to Food: Guide Through International Law*, Martinus Nijhoff, Dordrecht, The Netherlands, 1987, p 36.

²For a full treatment of the terms 'food shortage', 'food poverty' and 'food deprivation', see Sara Millman, 'Hunger in the 1980s: backdrop for policy in the 1990s', *Food Policy*, Vol 15, No 4, August 1990, pp 277–285.

³The Global Information and Early Warning System (GIEWS) of the Food and Agriculture Organization of the United Nations issues *Food Outlook*, a monthly bulletin on the world situation for food and agriculture.

⁴Eg the Famine Early Warning System (FEWS) coordinated by the US Agency for International Development (AID) and the Consolidated Information System for Famine Management in Africa. See Debarati Guha-Sapir et al, *CISFAM (Consolidated Information Systems for Famine Management in Africa: Phaswe One Report)*, University of Louvain, Brussels, Belgium, 1987; World Resources Institute and International Institute for Environment and Development, *World Resources 1988–89*, Basic Books, New York, NY, USA, 1988, pp 63–64; see also Peter Walker, *Famine Early Warning Systems*, Earthscan, London, UK, 1989.

⁵*Mauritania: Vulnerability Assessment*, FEWS Country Report, Office of Technical Resources, Africa Bureau, US Agency for International Development, Washington, DC, June 1989, p 3. For capsule descriptions of FEWS and other systems, see US Library of Congress, Congressional Research Service, *Satellite Technology and World Food Security*, report prepared for the Select Committee on Hunger, US House of Representatives, 101st Congress, 1st Session, US Government Printing Office, Washington, DC.

⁶See, for example, case studies of Botswana, Cape Verde, Kenya and Zimbabwe in Jean Drèze, *Famine Prevention in Africa*, Development Economics Research Programme No 17, London School of Economics, London, UK, 1988.

⁷World Food Programme, Committee on Food Aid Policies and Programmes, *Review of Food Aid Policies and Programmes*, World Food Programme, Rome, Italy, 1989, p 10.

⁸Maurice F. Strong, 'Ending hunger through sustainable development', *The*

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warning systems that monitor weather conditions, crop growth, food prices and stocks, and pest infestations permit projections of regional food shortage. Such projections, in turn, trigger the enlistment of food reserves, imports and aid to make up for anticipated deficits. When widespread shortages do augur famine, national and international relief agencies and non-governmental organizations (NGOs) can lessen or prevent the death toll by distributing food at no cost, selling food at reduced cost, providing opportunities for necessary income, and dispensing emergency medical care to those at risk of malnutrition and disease. Although such efforts are all too often stymied in areas beset by civil strife or armed conflict, some promising programmes and policies (all of which warrant additional bolstering in the current decade) are in place:

- national and international famine early-warning and response systems;
- national and international food reserves and buffer stocks;
- relief interventions in zones of armed conflict;
- international agreements on rights of civilians to food in zones of armed conflict.

Many of the requisite mechanisms for preventing famine and its associated mortality already exist. The past decade has witnessed an impressive marshalling of resources to cope with drought, flood, war and famine, and one major outcome has been an extraordinary improvement in the global capacity for providing emergency food aid. The Food and Agriculture Organization (FAO) of the United Nations coordinates the Global Information and Early Warning System (GIEWS), which emerged in 1975 after the 1974 World Food Conference.³ Several regional and national systems are in operation as well.⁴ One of these, the Famine Early Warning System (FEWS), has of late begun to produce sophisticated 'vulnerability assessments' that rely on a combination of remote-sensing satellite data and field observations to pinpoint and ward off the likes of an impending food crisis that threatened the livelihood of 1500 fishermen in a specific locale in Mauritania.⁵ Some African countries have developed early-response plans to take advantage of early warnings.⁶

Recent years have witnessed the annual distribution of some 2–4 million tonnes of emergency food aid. Continuing donor commitment should render it possible to place emergency food stocks in places where they are most needed and to improve logistical and distributional capabilities within areas at risk of food shortage.⁷ Or perhaps Maurice Strong's resurrection of a proposal for a World Food Bank may be an idea whose time has come.⁸

A predominant and extremely obstinate obstacle to the elimination of famine persists in the destruction (deliberate or incidental) or interdiction of civilian food supplies in zones of armed conflict. Michael Glantz emphasizes the inextricable link between war and famine,⁹ and the newspapers of the world spotlight the use of food as a weapon of war.¹⁰ *Ad hoc* interventions in conflicts have achieved a measure of success in staving off mass starvation, though not famine itself, in war-torn areas such as the Southern Sudan in 1989–1990.¹¹ In short, however, 'food wars' prevail even in the face of numerous international agreements that proscribe them.¹²

Pronouncements, declarations, agreements and outright treaties and

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Third Annual Arthur Tanco Memorial Lecture, Tokyo, Japan, 6 April 1989, The Global Hunger Project, New York, USA, 1989, pp 23–24.

⁹Michael Glantz, 'Drought in Africa', *Scientific American*, Vol 256, No 6, June 1987, p 40.

¹⁰See, for example, Rosemary Righter, 'Africa: first the good news . . .', *The Sunday Times*, 10 February 1985, pp 1, 12; Neil Henry, 'Food aid imperiled in Ethiopia', *The Washington Post*, 26 February 1990, pp A1, A16; Jane Perlez, 'For the Sudan, famine is almost as certain as civil war', *The New York Times*, 4 February 1990, section 4, p E2; Paul-Jean Franeschini, 'La guigne africaine', *Le Monde*, 7 March 1985, p 1.

¹¹'"Operation lifeline" launched: 100 000 lives at stake', *UN Chronicle*, Vol 28, June 1989, p 35; Joe Neff, "'Operation lifeline" (United Nations emergency food program, Sudan)', *Africa Report*, Vol 34, May/June 1989, p 95; Abdul Mohammad, 'A lifeline for Sudan', *The Washington Post*, 25 May 1989, p A27.

¹²The Alan Shawn Feinstein World Hunger Program at Brown University has been tracking 'food wars' for the past few years. As Sara Millman (*op cit*, Ref 2) reports, 17 countries experienced food wars in 1989. See also Ellen Messer, 'Food wars', in Robert S. Chen, ed, *The Hunger Report 1990*, Alan Shawn Feinstein World Hunger Program, Brown University, Providence, RI, USA, 1990, forthcoming.

¹³Philip Alston and Katarina Tomasevski, eds, *The Right to Food*, Martinus Nijhoff, Dordrecht, The Netherlands, 1984, pp 21–30; Asbjørn Eide *et al*, eds, *Food as a Human Right*, United Nations University, Tokyo, Japan, 1984; for the texts of applicable international laws, see Tomasevski, *op cit*, Ref 1.

¹⁴The international community concerned with disaster relief and the role of peacekeeping forces has taken up the discussion. For example, in 1989 The International Peace Academy convened two workshops to address issues of emergency humanitarian relief in zones of armed conflict. See Thomas G. Weiss, ed, *Humanitarian Emergencies and Military Help in Africa*, Macmillan Press, New York, 1990; and L. Gordenker and Thomas G. Weiss, eds, *Soldiers, Peacekeepers, and Disasters*, Macmillan Press, New York, 1990 (forthcoming). Similar concerns appear in 'The Cairo Declaration' in World Food Council, *The Cyprus Initiative Against Hunger in the World: President's Report to the Fifteenth Ministerial Session, Cairo, Egypt, 22–25 May 1989*, World Food Council, Rome, Italy, 1989. 'The Cairo Declaration' appears in full in this issue of *Food Policy*, Vol 15, No 4, August 1990, pp 346–350.

¹⁵*Food Systems and Food Security*, Annex III of *Potentials for Agricultural and Rural Development in Latin America and the* continued on page 289

laws abound. The rudiments for the international protection of civilian rights to food exist in the Universal Declaration of Human Rights, the International Covenant on Economic, Social, and Cultural Rights, and more specifically, the 1977 protocols to the Geneva Conventions of 1949, which prohibit the starvation of civilians as a means of combat.¹³

The past two years have prompted renewed interest in an international covenant for the sanctity of civilian food supplies and the safe passage of emergency food relief.¹⁴ Giving teeth to such a covenant could bind, or shame, nations to provide within their national boundaries safe passage and perhaps permit convoy by peacekeeping forces of the United Nations.

Increasing the productivity of food systems

Interventions that help to increase the productivity of small farmers or the provision of basic foodstuffs call into play a spectrum of policies and programmes. They influence the prices for inputs, crops, and foodstuffs, the provision of services, the adoption of new technologies and the development of farm systems that are flexible, efficient and sustainable over the long term. Promising programmes and policies include:

- expansion of the availability, particularly to small farmers and women, of food production information and materials (including seeds, fertilizers, water supply and appropriate technological aids) and credit;
- improved infrastructure for distribution of needed inputs and for marketing of crops;
- new technologies that minimize food losses before, during and after harvest, including storage, transportation and preparation.

A recent report cautions against equating food policy with agricultural policy.¹⁵ The overall productivity of food systems encompasses more than sheer agricultural productivity, which is too often interpreted as the yield of crops. It is important to assess the efficiency with which raw agricultural products are converted into and delivered as edible foods. Attempts to increase food production have achieved some success. Between 1964 and 1985 per capita food production outstripped population growth in countries with 73% of developing world population. The period witnessed an average annual increase of 0.5%, the equivalent of a cumulative increase of 10.5%, in per capita food production.¹⁶ Particularly impressive were the gains reaped from improved varieties of rice and wheat in Asia and Latin America, although only the first generation of these varieties resulted in a doubling of rice yields and a quadrupling of wheat yields. Subsequent generations cannot claim a yield potential higher than that of their predecessors, but they exhibit greater stability in the presence of insects and diseases. Also, since they mature in fewer days, they are amenable to more frequent cropping.¹⁷ As overall production increases have slowed in Asia and Latin America, some countries in these continents have joined sub-Saharan Africa in a decline in per capita food production.¹⁸

An axiom of late suggests that 'getting prices right' is the key to removing the disincentives to smallholder production and thereby effecting a rise in agricultural productivity.¹⁹ Yet even favourable agricultural prices have failed to bring a concomitant enhancement of access to needed agricultural inputs such as fertilizers and pesticides. Such inputs have become prohibitively expensive for most African

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Caribbean, FAO, Rome, Italy, 1988, p 2.

¹⁶See Robert W. Kates *et al*, *The Hunger Report: 1988*, Alan Shawn Feinstein World Hunger Program, Brown University, Providence, RI, USA, 1988, for list of countries, map, and additional details.

¹⁷Robert W. Herdt, 'Increasing crop yields in developing countries', paper presented to the annual meeting of the American Agricultural Economics Association, Knoxville, TN, USA, 30 July–3 August 1988, pp 6–7.

¹⁸Lester R. Brown, *Changing World Food Prospects: The Nineties and Beyond*, Worldwatch Paper No 85, The Worldwatch Institute, Washington, DC, USA, 1988.

¹⁹Peter Timmer, *Getting Prices Right*, Cornell University Press, Ithaca, NY, USA, 1986.

²⁰'African economy still struggling uphill', *African Recovery*, Vol 3, No 3, December 1989, pp 1–19.

²¹Walter V. Reid *et al*, *Bankrolling Successes: A Portfolio of Sustainable Development Projects*, Environmental Policy Institute and National Wildlife Federation, Washington, DC, USA, 1988, p 29.

²²John Madeley, 'The success of Cameroon's agricultural policy', *Food Policy*, Vol 12, No 3, August 1987, p 196.

²³Michael Lofchie, *The Policy Factor: Agricultural Performance in Kenya and Tanzania*, Lynne Rienner, Boulder, CO, USA, 1989; Paul Harrison, *The Greening of Africa*, Penguin Books, London, UK, 1987, pp 87–97; David D. Rohrbach, 'The growth of smallholder maize production in Zimbabwe', PhD dissertation, Michigan State University, East Lansing, MI, USA, 1988.

²⁴*Op cit*, Ref 17.

²⁵Ellen Messer and Peter Heywood, 'Trying technology: neither sure nor soon', *Food Policy*, Vol 15, No 4, August 1990, pp 336–345.

²⁶David Pimentel and Marcia Pimentel, *Food, Energy and Society*, John Wiley, New York, USA, 1979, pp 134–135; Board on Science and Technology for International Development (BOSTID), *Postharvest Food Losses in Developing Countries*, National Academy of Sciences, Washington, DC, USA, 1977. Moreover, most published estimates of food losses take into account only losses that occur up to the retail level, thus ignoring losses that might occur between retail purchase and consumption (eg storing, cooking and preserving food at the household level), even though such losses may run as high as 10%; see US Panel on the World Food Supply, *The World Food Problem: A Report of the President's Advisory Committee, Vol. 2: Report of the Panel on the World Food Supply*, Government Printing Office, Washington, DC, USA, 1967, p 49. Few estimates address what is in effect a loss of food when individuals are afflicted by parasites or certain infectious diseases.

²⁷David Pimentel, 'Agroecology and economics', in M. Kogan, ed, *Ecological*
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farmers, who have to contend with the drastic devaluations of most currencies during the 1980s.²⁰

Even small policy interventions can wield a profound influence.²¹ Subsidization of agricultural inputs, for example, has proven particularly effective in some regions in Africa. Over 6000 farmers in the northwestern province of Cameroon purchased fertilizer at the officially subsidized rate (one-third the actual price) and recorded production increases, further enhanced by the use of higher yielding seed varieties, of 1.6–3.0 tons/hectare.²² Post-independence extensions of investments and preferential pricing policies to increasing numbers of small farmers in Kenya and Zimbabwe have generated remarkable upsurges in crop yields.²³ Both countries, of course, will set examples for other countries, which will need to replicate such factors as availability of credit, favourable prices, reliable and efficient marketing agencies, improved technologies, investments in feeder roads and requisite infrastructure in order to attain increases in agricultural productivity.

A recent review of the potential for increasing yields of crops in developing countries concludes that few, if any, 'technologies on the shelf' will make a difference in the 1990s.²⁴ Even agricultural biotechnology (ABT) is unlikely, within that time frame, to produce dramatic differences in the yields of crops important to the developing world. As Messer and Heywood suggest,²⁵ the impacts of biotechnology in overcoming hunger may have to await the next millennium.

Some gains may accrue from exploring combinations of biological, chemical and physical management programmes to limit loss of food to pests.²⁶ At all stages of the food system developing countries experience significant losses, including pre- and post-harvest losses of as much as 50% of potential production at the hands of pests alone.²⁷ Even in the US, some 37% of total potential crop production, or about US\$50 billion, succumbs to pests.²⁸ Recently, integrated pest management (IMP) has made some headway in countering this problem and new technologies are beginning to provide cost-effective storage options.²⁹

Reducing food poverty

The reduction of food poverty will necessitate the distribution, directly to the impoverished, of food, cash, or both; the provision of new opportunities for employment and income; and the expansion and increase of access to productive resources for self-provisioning populations. The task is formidable but surmountable.

Distributing food and cash

Untargeted food subsidies in the form of controlled prices, overvalued exchange rates, import controls, or outright doles are notoriously ineffective and unsustainable due to their high costs. Yet ample experience with food welfare programmes that rely on food subsidies, coupons, ration shops and feeding programmes demonstrates that careful targeting and rigorous application of such measures can go a long way toward reducing much of food poverty, particularly in urban areas.³⁰

Promising programmes and policies include:

- food distribution programmes, targeted by food, place, season, or vulnerable group (singly or in any combination) using food, food stamps, or food subsidies;

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Theory and Integrated Pest Management Practice, Wiley, New York, USA, 1986, pp 219–319.

²⁸M. Calderon *et al*, 'Wheat storage in a semi-desert region', *Tropical Science*, Vol 29, No 2, 1989, pp 91–110; M. Qasim Chaudhry, 'Development of an airtight polyethylene enclosure for integrated pest management of grains, stored at farm level in Pakistan', *Tropical Science*, Vol 29, No 3, 1989, pp 177–187.

²⁹Eg S. Navarro and E. Donahaye, 'Storage of emergency grain supplies', paper presented at the Faculty Development Workshop on Issues in International Food Security, Colgate University, Hamilton, NY, USA, 13–19 June 1988; Donahaye *et al*, *op cit*, Ref 28; Chaudhry, *op cit*, Ref 28; J.A. MacFarlane, 'Factors affecting insect pest management on wheat grain stored in tropical uplands', *Tropical Science*, Vol 29, No 1, 1989, pp 51–73.

³⁰For recent reviews, see Per Pinstrup-Andersen, ed, *Food Subsidies in Developing Countries: Costs, Benefits, and Policy Options*, Johns Hopkins University Press, Baltimore, MD, USA, 1988; Shlomo Reutlinger, 'Efficient alleviation of poverty and hunger: a new international assistance facility', *Food Policy*, Vol 13, No 1, 1988, pp 56–66.

³¹Guy P. Pfeffermann and Charles C. Griffin, *Nutrition and Health Programs in Latin America: Targeting Social Expenditures*, World Bank, Washington, DC, USA and International Center for Economic Growth, Panama City, Panama, 1989, p 10.

³²Judit Katrona-Apte, 'Food aid as communal meals for the urban poor: the comedur programme in Peru', *Food and Nutrition Bulletin*, Vol 39, No 2, 1987, pp 45–48.

³³Richard Franke and Barbara Chasin, 'The Kerala experiment: development without growth', *Technology Review*, Vol 93, No 3, April 1990, pp 42–51; Richard Franke and Barbara Chasin, *Kerala: Radical Reform as Development in an Indian State*, Institute for Food and Development Policy, San Francisco, CA, USA, 1989; K. Subbarao, *Improving Nutrition in India: Promising Policies and their Impact*, World Bank, Washington, DC, USA, 1989, pp 57–95.

³⁴John W. Mellor, 'A food and employment-oriented strategy: needs, problems, and opportunities (Keynote II)', in *The Emerging World Food Situation & Challenges for Development Policy*, International Food Policy and Research Institute, Washington, DC, USA, 1988.

³⁵Drèze, *op cit*, Ref 6; Roger S. Hay *et al*, *A Socio-Economic Assessment of Drought Relief: Report to the Inter-Ministerial Drought Committee*, The Committee, Gaborone, Botswana, 1986; V. Quinn *et al*, 'Crisis-proofing the economy: the response of Botswana to economic recession and drought', in A.G. Cornia *et al*, eds, *Adjustment with a Human Face, Vol 2: Country Case Studies*, Clarendon Press, continued on page 291

- community-organized mass-feeding programmes;
- food-for-work programmes that distribute commodities in return for labour to build, maintain, or improve agricultural marketing or transportation infrastructure.

Such programmes achieve targeting by choice of foods, eg by choosing for distribution or subsidy foods that are consumed primarily by the poor and hungry; by time, eg by limiting subsidies to periods of seasonal or anomalous shortfalls in food supply; by geography, eg by distributing food, coupons, or ration shops in poor neighbourhoods; or by vulnerable groups, eg by addressing the differential needs of mothers, children, the elderly, or others with special nutritional requirements.

Singly or in various combinations, such targeting methods can tap existing marketing networks to distribute food and thereby lower costs and increase participation. Mexico, for example, has added a tortilla programme, a milk programme, and a maize programme to its general food subsidy programme. Tortilla-only and milk-only coupons are available to qualified urban households through coupon shops located in low-income neighbourhoods. The maize subsidy, which applies only in rural areas, permits the rural poor to purchase maize at the going wholesale price.³¹ Community-organized mass-feeding programmes, such as the *comedores* of Peru, also provide examples of effective and inexpensive means to target and distribute food.³²

Targeting is easier to manage in urban settings in which it enjoys the added advantage of satisfying a large number of people in one or two fell swoops. It is more difficult to reach rural households on a sustained basis. The sheer logistics are daunting. Yet some successes stand out, particularly in Asia, where high population density and tight village organization facilitate the likes of ration shops in Kerala, Gujarat, and Tamil Nadu, India.³³ Some locales pool income-generating activities with schemes to increase agricultural productivity and provide wages or food in return for labour to construct agricultural infrastructure or to restore environmental resources.³⁴ By tapping the best lessons from the success stories in places as diverse as the state of Maharashtra in India and Botswana in Southern Africa, it should be possible to reduce food poverty.³⁵ In the short term, reduction would occur through direct supplementation, whereas over the longer term it would have to achieve sustained increases in agricultural productivity and income.

Creating employment and income

Providing opportunities to earn income can lead to substantial improvements in nutrition, since the very poor are apt to apply a large proportion of added income into food purchases. Promising programmes and policies include:

- cash-for-work programmes, guaranteed employment schemes and support for microenterprise employment;
- extension of credit, especially to women, for more diversified income activities;
- small-scale, diverse NGO-initiated food and income activities.

Food-poor households seek and survive with diversified forms of work, income and food sources. Sustained efforts to reduce food poverty call for the creation of jobs, saleable crops, products and services, and appropriate markets for those food-poor households that public-service employment often fails to reach. An exception has been Maharashtra's

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Oxford, UK, 1988, pp 3–28; Richard Morgan, 'Drought-relief programmes in Botswana', in D. Curtis *et al*, eds, *Preventing Famine: Policy and Prospects for Africa*, Routledge, London, UK, 1988, pp 112–120.

³⁶Hannan Ezekiel, 'Food aid potential and prospects (Background Notes, 4)', *op cit*, Ref 34; Hannan Ezekiel, 'Hunger and famine monitoring in Maharashtra', paper presented at the First Annual Hunger Research Briefing and Exchange, Brown University, Providence, RI, USA, 8 April 1988; M.R. Patil and E.B. Gujar, eds, 'EGS (Employment Guarantee Scheme) Number' (Special Issue), *Lokrajya*, Vol 319, No 12, 16 October 1983.

³⁷Michael Lipton and Richard Longhurst, *Modern Varieties, International Agricultural Research, and the Poor*, Consultative Group on International Agricultural Research (CGIAR) Study Paper No 2, World Bank, Washington, DC, USA, 1985; Mahabub Hossain, *Nature and Impact of the Green Revolution in Bangladesh*, Research Report 67, IFPRI, Washington, DC, USA, 1988; Eileen T. Kennedy and Bruce Cogill, *Income and Nutritional Effects of the Commercialization of Agriculture in Southwestern Kenya*, Research Report 63, IFPRI, Washington, DC, USA, 1987; Joachim von Braun, *et al*, *Nontraditional Export Crops in Guatemala: Effects on Production, Income, and Nutrition*, Research Report No 73, IFPRI, Washington, DC, USA, 1989.

³⁸Mahabub Hossain, *Credit for Alleviation of Rural Poverty: The Grameen Bank in Bangladesh*, Research Report 65, IFPRI, Washington, DC, USA, 1988.

³⁹Michael Lipton, *The Poor and the Poorest: Some Interim Findings*, World Bank Discussion Paper No 25, World Bank, Washington, DC, USA, 1988.

⁴⁰Aditee Nag Chowdhury, *Let Grassroots Speak: People's Participation, Self-Help Groups and NGOs in Bangladesh*, Manohar Publications, New Delhi, India, 1989, p 67; see also Norman Uphoff, *Local Institutional Development: A Case Book*, Kumarian Press, West Hartford, CT, USA, 1987.

⁴¹Reid *et al*, *op cit*, Ref 21.

⁴²Jeffrey Leonard, ed, *Environment and the Poor: Development Strategy for a Common Agenda*, Overseas Development Council, Washington, DC, USA, 1989, p 47.

⁴³R. Lal, 'Land degradation and its impact on food and other resources', in David Pimentel and Carl W. Hall, eds, *Food and Natural Resources*, Academic Press, San Diego, CA, USA, 1989, pp 85–140.

guaranteed employment scheme which, through its targeting at below minimum wage, provides a continuing source of work for the poorest of the poor and functions as a famine-prevention measure during times of food shortage.³⁶ The impacts of the green revolution in Asia and export-crop development in Africa are clearly mixed, but recent research suggests that, on balance, rural areas may have experienced a net increase in employment opportunities.³⁷ Similar claims attend the expansion of the 'informal' sector in the urban economy and related efforts to encourage microenterprises through voluntary initiatives or economic reorganization, as in China. The informal sector may be more likely than either the more formal industrial sector or the public sector to hire the hungry. Programmes such as the Grameen Bank in Bangladesh have extended, especially for women, self-sustaining sources of credit to start small businesses that produce handicrafts or provide services.³⁸ The Bangladesh Rural Advancement Committee (BRAC), the acknowledged pioneer of the target-group approach, engages the poorest of the poor – those whom Michael Lipton would label 'ultra poor'³⁹ – to 'participate in programmes designed by them, selected by them, and which are for their own benefit'.⁴⁰ Such programmes find some counterparts across the developing world, but all too often efforts do not directly target the food poor. Nonetheless, a host of non-governmental initiatives has sought to aid the informal sector, to solicit and provide outlets for saleable crops and consumer products, and to promote local initiative for the development of products and markets.⁴¹

Increasing and maintaining access to resources

For the self-provisioning population, maintaining access to natural resources and to the inputs needed for agriculture, herding, or fishing is becoming increasingly difficult in the face of growing population, increased competition for land and deterioration of the resource base. In addition to the efforts to increase agricultural productivity, promising programmes and policies include:

- agroforestry and other regenerative agricultural techniques to sustain productivity;
- improved water management and measures to control erosion, waterlogging and desertification;
- maintenance of common access to developed or privatized resources.

In much of the developing world the numbers of landless and land-poor households are increasing. Obvious remedies – redistribution to smallholders of land that is unused, little-used or in excessively large holdings, and migration and resettlement to sparsely occupied lands – have failed to take hold. The great post-war land reforms in East Asia have given way either to token land reform or, if substantial, a redistribution that has done little to improve the overall well-being of households (eg in Ethiopia and Nicaragua). Similarly, resettlement schemes, such as those in Brazil, East Africa and Indonesia, have proven costly, ineffective and unsustainable.⁴² Food-poor households, excluded as they are from all but the most marginal land, must cope with the relentless deterioration of their meagre resources and the loss of crucial access to common-property resources.⁴³

Nevertheless, various agroforestry and other agricultural techniques have demonstrated promising results in sustaining productivity, provid-

ing fuelwood, curtailing soil erosion, increasing food supply and generating income. Among these techniques are improved water-management schemes that allocate water more efficiently and serve to curb erosion, salinization, and sedimentation.⁴⁴ Some efforts to control or minimize erosion, waterlogging and desertification have been successful.⁴⁵ An increased awareness spotlights the crucial role of certain resources, including recessional flood plains, heavy soils and season grazing lands, in the self-provisioning of food-poor households. Thus river-basin planners in Africa contemplate controlled releases of flood waters in order to maintain seasonal access to important flood plains.⁴⁶

Diminishing food deprivation

The recognition that different groups have different nutritional needs is a prerequisite for diminishing food deprivation. A focus on meeting the differential needs and preventing and treating illnesses that reduce intake or retention of food puts the goal within reach. Indeed, concentrating on two of the most vulnerable groups, mothers and children, will alleviate a substantial part of prevailing food deprivation.

Providing for special needs

The special nutritional needs of mothers and children frequently go unmet because overall household food supply is inadequate, because the differential needs are unrecognized, or because traditional practices or modern substitutes are deficient. Society has at its command numerous remedies for this intolerable situation. Promising programmes and policies include:

- encouragement of breastfeeding instead of infant formula;
- growth monitoring by mothers to identify the needs of infants and pre-schoolers for additional food for growth and development;
- supplemental feeding programmes at nutritional rehabilitation centres, health centres, or schools, or in the form of take-home food and commodities;
- nutrition education to help mothers meet special needs by using available food resources such as low-bulk, nutrient-dense foods for weaning children.

Examples of such measures abound. Research by Sara Millman has shown that the prevalence of breastfeeding is stable or even increasing in many developing countries, perhaps as a result of ongoing promotional efforts.⁴⁷ A recent assessment by the World Health Organization corroborates the validity of heeding anthropometric indicators in addressing nutritional deficiencies in infants and children.⁴⁸ Thus innovative programmes combine growth monitoring with supplemental feeding to detect and reverse wasting and stunting in children subject to recurrent bouts of illness and difficult weaning transitions.

Notable success has attended the targeted supplemental feeding programmes combined with extensive growth monitoring in Tamil Nadu, India and the community weighing adopted by villagers in Iringa, Tanzania.⁴⁹ Community-based growth monitoring, although somewhat difficult to organize and sustain, provides a potent tool for local empowerment and education, particularly when it enlists mothers.⁵⁰ Supplemental feeding programmes by themselves have had very mixed

⁴⁴Vashek Cervinka, 'Water use in agriculture', in Pimentel and Hall, *op cit*, Ref 43, pp 141–162.

⁴⁵Kenneth Tull, Michael Sands, and Miguel Altieri, *Experiences in Success: Case Studies in Growing Enough Food through Regenerative Agriculture*, Rodale Institute, Emmaus, PA, USA, 1987; Harrison, *op cit*, Ref 23; Board on Science and Technology for International Development (BOSTID), *Agroforestry in the West African Sahel*, National Academy Press, Washington, DC, USA, 1983; BOSTID, *Environmental Change in the West African Sahel*, National Academy Press, Washington, DC, USA, 1983; B.T. Kang *et al*, *Alley Cropping: A Stable Alternative to Shifting Cultivation*, International Institute for Tropical Agriculture (IITA), Ibadan, Nigeria, 1984.

⁴⁶Michael Horowitz *et al*, 'Management of an African floodplain: a contribution to the anthropology of public policy', in *Proceedings of the Conference on People's Role in Wetland Management*, Center for Environmental Management, University of Leiden, The Netherlands, in press.

⁴⁷Sara Millman, *Breastfeeding in 18 Developing Countries*, Family Health International, Research Triangle Park, NC, USA, 1987. See also Millman, *op cit*, Ref 2.

⁴⁸*Global Nutritional Status: Anthropometric Indicators, Update 1989*, Nutrition Unit, Division of Family Health, WHO, Geneva, Switzerland, 1989.

⁴⁹Alan Berg, *Malnutrition: What Can Be Done?*, Johns Hopkins University Press for the World Bank, Baltimore, MD, 1987; *The State of the World's Children, 1989*, Oxford University Press, New York, USA, 1989, p 66; *The Joint WHO/UNICEF Nutrition Support Programme in Iringa, Tanzania: 1983–1988 Evaluation Report*, Government of the United Republic of Tanzania, World Health Organization, and the United Nations Children's Fund, Dar es Salaam, Tanzania, October 1989.

⁵⁰Mashid Lofli, 'Growth monitoring: a brief literature review of current knowledge', *Food and Nutrition Bulletin*, Vol 9, No 2, 1988, pp 45–48.

results. School-based programmes, favoured for ease of administration and distribution, do not address the needs of the most vulnerable children: infants and pre-schoolers, the poorest families, the sickest children and others with low or no school attendance.⁵¹ Effective nutrition education programmes call for an environment of empowerment for mothers and some suitable level of economic well-being.⁵² On the whole, successful programmes are dependent on strong political commitment, from administrative agencies and recipients alike, and on a sustained flow of adequate resources.

Preventing nutritional disease

Even when caloric needs are met, people may experience nutritional deficiencies. In general, the sufficiency of calories in traditional diets serves to meet protein needs: diets that are undergoing rapid change may omit important sources of protein. Although the diets of many people betray marked deficiencies in iron, vitamin A, and iodine, such gaps are relatively easy to close. Promising programmes and policies include:

- provision of missing nutrients in pills, capsules, or injections;
- fortification of foods to provide iodine, iron (folic acid) and vitamins, especially vitamin A;
- nutrition education and garden projects to encourage greater use of low-cost sources of nutrients.

Selected regions and countries have made major progress in eliminating two of the three major nutritional-deficiency diseases: iodine deficiency disorders – marked by goiter, mental impairment, and, in the extreme, cretinism – and vitamin A deficiency disease. The Chinese government, for example, routinely provides iodized salt to most areas endemic with disease and injections of iodized oil for inhabitants of more remote mountain and desert regions.⁵³ A capsule taken two or three times a year can protect a child from vitamin A deficiency throughout the pre-school years. Fortification with vitamin A of such standard condiments as monosodium glutamate in the Philippines and sugar in Central America is an alternative strategy. Moreover, mounting evidence attests that vitamin A therapy dispenses wide-ranging benefits beyond eye protection.⁵⁴ Iron supplementation, which requires daily administration, has presented more of a challenge.⁵⁵ Protein supplements have lagged, not because they are not feasible technologically but because they have so far not proven cost-effective. Even with subsidies they are often too expensive for the poor. Garden plots and education may provide alternative routes to low-cost nutritional improvement, but the jury is still out on demonstrable benefits.⁵⁶

Preventing infectious disease

Malnutrition and disease, especially in children, are inseparable.⁵⁷ In particular, the ingestion, absorption, or retention of food fall prey to two sets of diseases: the diarrhoeal diseases, particularly among children but including cholera among adults, and the high-fever diseases including malaria and measles. The eradication of such diseases is a feasible objective for the 1990s. Promising programmes and policies include:

- immunization against childhood diseases;
- oral rehydration therapy to limit the damage done by diarrhoea;
- integrated health, nutrition and sanitation programmes.

⁵¹Beryl Levinger, *School Feeding Programs in Developing Countries: An Analysis of Actual and Potential Impact*, AID Evaluation Special Study No 30, Agency for International Development, Washington, DC, USA, 1986.

⁵²Robert C. Hornik, *Nutrition Education: A State-of-the-Art Review*, ACC/SCN State-of-the-Art Series, Nutritional Discussion Paper No 1, Administrative Committee on Coordination, Subcommittee on Nutrition, United Nations, Geneva, Switzerland, January 1985.

⁵³Basil S. Hetzel, *The Prevention and Control of Iron Deficiency Disorders*, ACC/SCN State-of-the-Art Series, Nutritional Policy Discussion Paper No 3, Administrative Committee on Nutrition, Subcommittee on Nutrition, Food and Agriculture Organization of the United Nations, Rome, Italy, 1988.

⁵⁴Keith P. West, Jr and Alfred Sommer, *Delivery of Oral Doses of Vitamin A to Prevent Vitamin A Deficiency and Nutritional Blindness: A State-of-the-Art Review*, ACC/SCN State-of-the-Art Series, Nutrition Policy Discussion Paper No 2, Administrative Committee on Coordination, Subcommittee on Nutrition, United Nations, Rome, Italy, 1987.

⁵⁵E.M. DeMaeyer, *Preventing and Controlling Iron Deficiency Anemia through Primary Health Care: A Guide for Health Administrators and Programme Managers*, World Health Organization, Geneva, Switzerland, 1989.

⁵⁶Rajammal P. Devadas, 'Currently available technologies in India to combat Vitamin A malnutrition', in West and Sommer, *op cit*, Ref 54, pp 97–104; John B. Mason, 'Introduction and policy implications', in West and Sommer, *op cit*, Ref 54, pp 2–17.

⁵⁷For a timely review, see Andrew Tomkins and Fiona Watson, *Malnutrition and Infection: A Review*, ACC/SCN State-of-the-Art Series, Nutrition Policy Discussion Paper No 5, Administrative Committee on Coordination, Subcommittee on Nutrition, United Nations, Geneva, Switzerland, October 1989.

Programmes to immunize infants and to provide access to oral rehydration therapy (ORT) to treat diarrhoeal disease promise to limit the nutritional impact of disease in small children.⁵⁸ Integrated programmes that acknowledge the reality of the need to work simultaneously to improve health, nutrition and sanitation exist in many locales. Efforts to institute integrated programmes on a large scale have not fared well, however, and in the face of social retrenchment, have been difficult to sustain. On the other hand, the conflict between advocates of targeted interventions and those of integrated programmes may be somewhat overblown.⁵⁹ Most integrated programmes set key targets as entry points to communities whereas targeted programmes often use the existing health or nutrition infrastructure, including integrated programmes, as their delivery system.⁶⁰

Reducing abuse and neglect

Interventions that seek general improvements in the status of specific vulnerable groups may also serve to diminish food deprivation within households. Thus in South and Southeast Asia programmes that seek to increase women's entitlement to food resources by promoting and funding crafts, cooperatives, trade associations and gardening also help to redress the imbalance of food availability and distribution within households.⁶¹ Similarly, feeding programmes aimed at meeting children's special needs may make up for within-household deprivation of children.

A comprehensive programme for the 1990s

Progress in the 1990s also requires strong efforts to prevent further aggravation of the conditions of the hungriest and the poorest. Potentially harmful trends, in the global economy, in the growth of population, and in the environment could swell the numbers of hungry during the next decade and beyond. Sara Millman has set the context in which hunger continues to thrive in a world of plenty.⁶² In tandem with an indisputably shameful record of abuse, neglect and indifference is an impressive slate of opportunity, some 26 promising programmes and policies that have the makings of a comprehensive and achievable programme for the current decade. For the most part, these promising programmes and policies do not require further research or pilot development and can be immediately expanded and implemented, even in the absence of broader progress. The array of 26 promising programmes and policies suggests at least seven of the multiple aspects of hunger that a comprehensive programme to overcome hunger in the 1990s might tackle:

1. *Virtual elimination of famine deaths.* An attainable target by the year 2000 is the virtual elimination of deaths due to famine among the 15–35 million people at risk of famine in any year through improvement of early-warning and response systems and international efforts to provide safe passage of food in zones of armed conflict.
2. *Overall food sufficiency.* Of the 49 countries in which, in 1986, the total dietary energy supply, including imports, was less than nutritionally required, half to two-thirds could achieve overall food sufficiency with modest increases in food production above the rate of population growth and major reductions in food losses.

⁵⁸*The State of the World's Children 1989*, op cit Ref 49, and *The State of the World's Children 1990*, Oxford University Press, New York, USA, 1990.

⁵⁹L.C. Chen, 'Ten years after Alma Ata: balancing different primary health care strategies', *Tropical and Geographic Medicine*, Vol 40, No 3, 1988, pp 22–29.

⁶⁰Nevin S. Scrimshaw, 'Integrating nutrition into programmes of primary health care', *Food and Nutrition Bulletin*, Vol 10, No 4, 1988, pp 19–28; WHO, *Guidelines for Training Community Health Workers in Nutrition*, 2 ed, WHO, Geneva, Switzerland, 1986; Joint WHO/UNICEF Nutrition Support Programme, *Nutrition Learning Packages*, WHO, Geneva, Switzerland, 1989.

⁶¹Martha A. Chen, *A Quiet Revolution: Women in Transition in Rural Bangladesh*, Schenkman, Cambridge, MA, USA, 1983.

⁶²Millman, op cit, Ref 2.

^a Based on estimates from Millman, *op cit*, Ref 2, and increased by 11% to allow for growth to the midpoint of 1995 and assuming no improvement in the current situation.

^b Approximations based on Kates *et al*, *op cit*, Ref 16; Robert W. Kates *et al*, *The Hunger Report: Update 1989*, World Hunger Program, Brown University, Providence, RI, USA, 1989; US Department of Agriculture/Economic Research Service, *World Food Needs and Availabilities*, various issues, Summer 1988–Winter 1990, US Government Printing Office, Washington, DC, USA; Reutlinger, *op cit*, Ref 30; John W. Mellor, *Ending Hunger: An Implementable Program for Self-Reliant Growth*, IFPRI, Washington, DC, USA, 1987; *State of the World's Children 1989*, *op cit*, Ref 49; Hetzel, *op cit*, Ref 53; West and Summer, *op cit*, Ref 54; World Food Programme, personal communication, 1989; Charles Carpenter, personal communication, 1989.

Table 1. Illustrative annual costs of seven options.

Options	Prevalence of at-risk population (millions) ^a	Achievable range of reduction (%)	Annual cost per capita ^b (US\$/person)	Total annual cost (US\$/billion)
Famine deaths	25	80–95	25	0.55
National food insufficiency	1750	50–66	6	6.09
Urban food poverty	125	50–66	20	1.45
Rural food insecurity	375	33–50	25	3.89
Disease–undernutrition nexus	555	80–95	1.63	0.79
Childhood wasting and stunting	185	50–66	12	1.29
Iodine and vitamin A deficiencies	1200	80–95	0.57	0.60

3. *Major reduction in urban food poverty.* Food welfare programmes, given targeting and effective application, could reduce by half or more by the end of the decade the 150 million people projected to live in urban households too poor to meet the most minimal standard of dietary energy.
4. *Substantial improvement in rural food security.* Increasing agricultural production and creating new income and work activities could, by the end of the decade, reduce by a third to a half the 450 million people projected to live in rural households too poor to meet the most minimal standard of dietary energy.
5. *Breaking the disease–undernutrition nexus.* Immunization and low-cost treatment of diarrhoea promise to limit the impact of disease on nutrition for most young children by the year 2000.
6. *Halving childhood wasting and stunting.* Sustained breastfeeding, expanded supplemental feeding and growth monitoring, in combination with limiting the effects of childhood illness and undernutrition, could reduce the common forms of childhood wasting and stunting by half.
7. *Virtual elimination of iodine and vitamin A deficiencies.* Through the use of current techniques of salt iodization and oil injections, most of the 190 million cases of goiter could be eliminated by the end of the century. A capsule given two or three times a year to the 280 million children at risk of vitamin A deficiency could virtually eliminate the disease in the crucial years between 1–4 years of age.

Overall, these seven options offer an attainable target for the 1990s.

But each option exacts its own toll. The populations at risk, the costs of implementation and the prospects for achieving results over the course of a decade vary considerably. As an illustration of the magnitude and range of such populations, costs and achievable reductions, Table 1 provides some very rough and tentative, but nevertheless plausible, estimates. These range from a high of US\$25 per person to provide famine relief or to build rural infrastructure through a food-for-work programme, to US\$0.57 to provide Vitamin A or iodine supplementation needed to prevent blindness or goiter.

The cost estimates betray considerable overlap because different forms of hunger often occur in the same hungry households. Thus the various costs are not simply additive. For example, the children of families emerging from urban food poverty may not require supplemental feeding, yet they will require immunization against infectious disease and may or may not require vitamin A supplementation. For some options the costs are already partly met in current national and international expenditures; for others, by the nature of the option, the costs are unmet.

In short, these seven options are both 'focused' and 'comprehensive'. Other opportunities surely exist, and they all merit consideration, indeed scrutiny, for their relevance, feasibility, targeting potential, prospects for regional implementation, and – perhaps most critically – overlaps and linkages that might impede or buttress ongoing attempts to overcome hunger. Ending food deprivation among children, for example, cannot succeed without the concomitant alleviation of the underlying food poverty in their households. Conversely, significant reduction of household food poverty should benefit children and other household members enduring food deprivation and could render targeted nutritional and health interventions more effective, or at least less essential.

Required resources

As Susan George and Raymond Hopkins argue,⁶³ a systematic assault on the hunger problem in the 1990s inevitably will require additional resource flows, both as money and as food aid, from the rich to the hungry and poor – and a limitation of flows in the opposite direction. But even more important are the needs for renewed social energy and political will, the creative use of indigenous knowledge, local institutions, and underutilized resources, changes in development strategies and increases in the level of public support.

Summing across all of the options detailed in the foregoing discussion, gives a total of almost US\$15 billion, some proportion of which is already being spent by international agencies and governments. Thus, a realistic programme to combat hunger in the 1990s might require US\$5–10 billion per year in new funds, or about a 10–20% increase in current foreign-aid disbursements.

On the encouraging side is the potential for a substantial reduction in annual military expenditures of nearly US\$1 trillion worldwide, as great power rivalry and conflict diminish and serious efforts are made to resolve regional disputes. A reduction of 1% in these annual expenditures could more than fund a comprehensive programme to overcome hunger in the 1990s. Other new sources of funds could include the 'swapping' of actions against hunger in exchange for outstanding debts, the redirection of existing development expenditures by identifying poor *people* rather than poor *countries* as the relevant target of interventions, and the linking of ongoing and planned efforts to overcome hunger with those to improve public health and health care, reduce the toll of natural hazards and promote sustainable environmental development.⁶⁴ Competing for funds in the 1990s may be efforts to cope with global environmental problems or to assist Eastern Europe in restructuring its economies. But in the final analysis, a renewed effort to overcome hunger will depend on the ability of the international community to develop a political vision and a sense of mission around which additional resources of all kinds can be mobilized. Each of these options embodies specific, practical objectives for overcoming hunger. Taken together, they address the many different and intertwined aspects of hunger.

Institutions and policies

Overcoming hunger in the 1990s implies a greater utilization of the full range of institutions in society both to improve the coverage of various

⁶³Susan George, 'Disarming debt: we could, but will we?' *Food Policy*, Vol 15, No 4, August 1990, pp 328–335. Raymond Hopkins, 'Increasing food aid: prospects for the 1990s', *Food Policy*, Vol 15, No 4, August 1990, pp 319–327.

⁶⁴See, for example, WHO, *From Alma-Ata to the Year 2000: Reflections at the Midpoint*, WHO, Geneva, Switzerland, 1988; UN General Assembly, 'International decade on natural disaster reduction: resolution 42/169', reprinted in *UNDRO News*, No 2, 1988, pp 24–25; National Research Council (US), *Confronting Natural Disasters: An International Decade for Natural Hazard Reduction*, National Academy Press, Washington, DC, USA, 1987; World Commission on Environment and Development, *Our Common Future*, Oxford University Press, Oxford, UK, 1987.

Table 2. Range of projected annual food aid requirements for the 1990s.

Amount	Requirement
10 MMT	Actual delivery of food aid, 1987–88
20 MMT	Estimated aid to meet needs for food-price stabilization, 1990; also low end of estimates of food aid for 1995
30 MMT	Average value of needs for food-price stabilization, 1995–2000
40 MMT	High end of estimates of needs for food-price stabilization, 1995–2000
50 MMT	Food aid for food-price stabilization plus hunger/nutritional adequacy, 1995–2000

Source: Board on Science and Technology for International Development (BOSTID), *Food Aid Projections for the Decade of the 1990s*, BOSTID, Office of International Affairs, National Research Council, Washington, DC, USA, 1989 (available from National Academy Press, Washington, DC, USA).

programmes and to provide greater flexibility in systems of delivery. NGOs, since they often have an explicit commitment to reach the disadvantaged in society and an operational capability to adjust their programmes to suit the needs of special groups, are particularly important in the context of reaching the hungry and poor. These private and voluntary agencies are also beginning to play a key role as deliverers of services such as health and education in countries in which such arrangements were once considered impossible.

Building development action upwards becomes more difficult if governments and donors insist on plans produced primarily to suit their own operational modes. Development, as one observer has noted, is 'a tapestry to be woven, not a blueprint to be followed'.⁶⁵ Instead of being solely directive, governments might be expected to provide support for people and their institutions to solve their own problems. The nature of support will vary but may include information, education, credit or technical assistance, and macroeconomic policies that balance growth with equity and provide for investment in infrastructure.⁶⁶ Akin Mabogunje⁶⁷ reports on one exemplary effort to create an enabling environment: Nigeria's Government for Food, Roads, and Infrastructure, in aid of stimulating a variety of local groups to increase food production and to undertake development projects, has provided encouragement and support to local governments, women's groups and ethnic community associations. In another setting, local institutions take the initiative in managing food production and coping with food shortages.⁶⁸ Activities of both types, can make some inroads on reducing hunger. Overcoming hunger in the 1990s will, of course, require some central direction of nationwide programmes such as mass immunization campaigns. The challenge to governments and donors is to conduct such programmes with the necessary attention to technical detail and still encourage local households and communities to become effective participants in diagnosing and addressing their own problems.

Food aid

Food aid can help hungry people in several ways: as food distributed to meet nutritional needs, as wages, as monetary or labour wage components of development projects, or as stabilizers of basic food prices. Food aid can also hurt hungry people if it discourages needed investment in agriculture, lowers prices paid to poor farmers, or serves as a political weapon against the best interests of the hungry.

Total food aid deliveries to 95 countries in 1988 included 12.2 million tonnes (MMT) of cereal food and 1.3 MMT of non-cereal food, representing about 10% of the development aid of countries in the Organization for Economic Cooperation and Development (OECD). Sub-Saharan Africa received about one-third of total cereal food aid,

⁶⁵J.O. Field, 'Implementing nutrition programs: lessons from an unheeded literature', *Annual Review of Nutrition*, Vol 5, 1985, pp 143–172.

⁶⁶For recommendations on constructing a framework for NGO-government collaboration, see Michael Calavan, 'Appropriate administration: creating a "space" where local initiatives can grow', in R. Gorman, ed, *Private Voluntary Organizations as Agencies for Development*, Westview Press, Boulder, CO, USA, 1984.

⁶⁷Akin Mabogunje, 'Mobilizing Nigeria's grassroots for increased food production: reaching out from the centre', *Food Policy*, Vol 15, No 4, August 1990, pp 306–312.

⁶⁸See Goran Hyden, 'Responses from below: a tale of two Tanzanian villages', *Food Policy*, Vol 15, No 4, August 1990, pp 299–305.

whereas the Asian and Pacific region and the Middle Eastern and North African region each received about one-quarter and Latin America and the Caribbean received the remainder.⁶⁹ Emergency food aid made up the greatest part of total food aid to sub-Saharan Africa, but the bulk of food aid is not targeted on hungry people. Although almost US\$3 billion was spent on food aid in 1987, current commitments fall short of the amounts needed to stabilize food prices in the near-term.

Estimating future needs for food aid is difficult for both methodological and political reasons, but recent demand-based estimates for the decade 1990–2000 indicate a range of food aid needs of 10–50 MMT per year to provide for emergency famine aid, stabilization of prices, and for meeting the unmet nutritional needs of the food-poor (Table 2).⁷⁰ The current level of food aid, at about half of the near-term stabilization needs, reflects political priorities on the part of the industrial countries. A doubling of food aid is feasible without distorting global supply or price conditions during the 1990s.⁷¹ Meeting estimated nutritional needs, however, would require an additional doubling as well as a targeted distribution within recipient countries to ensure that those at risk have access to food, since they are least able to purchase it in the market, even at stable prices. With great uncertainty surrounding the political willingness of donor countries to increase food aid to these levels, innovative and more creative uses of such aid to help vulnerable groups in society are necessary. But overcoming hunger for as many as half of the world's hungry can be supported in important ways by at least a doubling of well-targeted food aid in the 1990s.

Public support

Overcoming hunger in the 1990s also implies the mobilization of public support for this cause both in developed and developing countries. In most countries, the hungry and the poor do not have natural allies in their governments. Their needs are considered and their voices heard only to the extent that they are mobilized into their own organizations or that their cause is adopted by others. The last decade has witnessed a slow emergence of new public voices for the hungry and impoverished. In rich countries these have been based in churches, development organizations and populist groups. Sam Harris reports⁷² on the activities of one such group. Groups of this kind have mobilized constituencies for the hungry, utilized the mass media, and developed long-term relationships with governments.⁷³ In developing countries opportunities for influence have been different, including less of a role for mass media and lobbying efforts and more of a role for political and religious expression and organization.

These emerging voices need to be strengthened, particularly in countries where the voice of the hungry is faint. Use of the media (eg newspaper features and radio and television documentaries and debates) forms an important part of the strategy to achieve this objective.⁷⁴ So do crossnational networks of concerned citizens and organizations that can participate in and influence national governments as well as international agencies.⁷⁵ By placing political leaders at all levels under constructive pressure to consider hunger as an inescapable global concern of the 1990s, individuals and organizations can make a lasting contribution toward the emergence of a new political vision and a renewal of social energy to ensure a place at the table for the hungry of the world.

⁶⁹It is noteworthy that 15 countries (Bangladesh, Bolivia, PR China, Egypt, El Salvador, Ethiopia, India, Indonesia, Jamaica, Morocco, Mozambique, Pakistan, Sri Lanka, Sudan and Tunisia), each of which received upwards of 200 000 tonnes of cereal, accounted for 70% of total food-aid deliveries. Bangladesh, Ethiopia and Egypt each received more than one million tonnes, thereby accounting for close to one-third of 1987 deliveries. See WFP/CFA, *op cit*, Ref 7, p 6.

⁷⁰These crude estimates synthesize the results of modellers' assumptions about future food supplies, abilities of countries to import food and demand based on projected population and per capita GNP. The independent projections by six teams of specialists show remarkable convergence. See BOSTID, *op cit*, source to Table 2; Hopkins, *op cit*, Ref 62.

⁷¹*Ibid.*

⁷²Sam Harris, 'Mobilizing opinion: achieving results', *Food Policy*, Vol 15, No 4, August 1990, pp 313–318.

⁷³Results (see Sam Harris, *op cit*, Ref 72) is one example. Other US-based organizations include Bread for the World, a Christian-based lobby; Interaction, a coalition of development organizations; and The Hunger Project.

⁷⁴Paul Harrison and Robin Palmer, *News Out of Africa: Biafra to Band Aid*, Hilary Shipman, London, UK, 1986; N. Ram, 'An independent press and anti-hunger strategies', paper presented at the seminar on Food Strategies, World Institute for Development Economics Research (WIDER), Helsinki, Finland, 21–25 July 1986; S. Reddy 'An independent press working against famine: the Nigerian experience', *Journal of Modern Studies*, Vol 26, No 2, 1988, pp 337–345.

⁷⁵Berg, *op cit*, Ref 49.