

Recommendation seven

Restore and conserve the natural resources essential for food security

The rural poor depend heavily on agro-ecosystems and natural ecosystems for their food and livelihood security. A high proportion of the food-insecure are rural smallholders who rely on natural resources to sustain food production, provide supplemental food and income, and serve as food safety nets. An estimated one-tenth of chronically food-insecure people globally, and roughly one-fifth of those in Africa, depend primarily on forests, fisheries, and rangelands for their food (Scherr 2003). Restoring and improving ecosystem functions and the services they provide are therefore key to building food security in rural areas.

The Task Force on Hunger emphasizes raising agricultural productivity in ways that protect and restore soil resources and minimize the tradeoffs with environmental protection. Our recommendation for agricultural production thus includes investing in soil conservation, agroforestry, and green manure and cover crop technologies, conservation tillage, integrated pest management, and natural pest control, among others. Because these technologies are described elsewhere in this report, they will not be presented as new interventions here. In this chapter, the task force recommends four interventions to secure and enhance other components of natural capital of the food-insecure while restoring and increasing their productive capacity. These include fields, forests, grasslands, wetlands, and water resources. The interventions are to:

1. Help communities and households restore or enhance natural resources.
2. Secure local ownership, access, and management rights to forests, fisheries, and rangelands.
3. Develop natural resource-based “green enterprises.”
4. Pay poor farmers for environmental services.

The focus of investments in natural resources should be on food-insecure rural communities

The priority focus of investments in natural resources should be on food-insecure rural communities that lack the means for restoring or improving their landscape. These investments should form a part of each nation's poverty reduction strategy, reflecting inputs from rural stakeholders. They should be designed to reduce both chronic and acute hunger, but at the same time meet other Goals. Special attention should go to working with low-income women to identify the resources and investments of greatest importance to them—and to mechanisms ensuring their greater access and management control.

To achieve maximum early impact, the task force recommends targeting investments to highly degraded areas where hungry people are most densely concentrated. Critical areas of this kind include:

- Highly populated semiarid highland environments (such as Tigray and Amhara in Ethiopia, parts of the African Rift Valley, northeast India, the dry Andes, and the Mesoamerican highlands).
- Highly populated semiarid agricultural and pastoral regions (such as the Sahel).
- Highly populated forest regions, where low-income households rely for their food and income on degraded forests (such as those in the Himalayan foothills, Mesoamerica, southwestern China, and Southeast Asia).
- Inland and coastal fisheries that are overfished, degraded, or polluted (such as the Caribbean, African coastlines and great lakes, and insular Southeast Asia).
- Dryland regions experiencing large-scale aquifer or surface water depletion (such as much of South Asia and southern Mexico).

Background

Degraded natural resources and reduced biodiversity directly threaten the food supplies and income of food-insecure people, leading to a vicious circle of poverty, environmental degradation, and hunger (DFID, EC, UNDP, and World Bank 2002). Some agricultural practices have negative effects on soil health, water resources, and biodiversity. Inefficient irrigation leads to salinization of the soil. Agrochemicals used in large-scale agriculture can cause pollution. Land-clearing and mono-cropping reduce biodiversity. As ecosystems become badly degraded due to pollution, poor management practices, or overuse, the productive capacity of the land becomes seriously compromised. Half of all agricultural land is considered to be significantly degraded. A fifth of irrigated lands are affected by salinization. Degraded rangelands threaten not only the livelihood of pastoralists, but also wildlife habitat, and dryland degradation can lead to desertification (Wood, Sebastian, and Scherr 2000).

Poverty, food scarcity, and population pressures fuel deforestation and the overharvesting of vegetation, stripping landscapes of their forest and plant

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cover and destroying riparian vegetation. The loss of soil cover and nutrients and the compaction of soil make it difficult for plants to reestablish themselves. The resulting decline in biodiversity and water retention increases the risks of drought, flooding, and erosion. It also results in reduced domestic and agricultural water supplies, falling water tables, dried-up springs and rivers, and deteriorating water quality (Penning de Vries and others 2003; Bridges and others 2001). Water scarcity already affects nutritional status, agricultural production, and livelihoods in many rural areas. It is predicted to increase sharply in dry areas in coming decades, especially in low-income countries where rural populations continue to rise.

More than a billion people around the world depend on fish as their primary source of animal protein. Freshwater and coastal pollution, destruction of mangroves that serve as marine nurseries, overfishing (particularly by large-scale commercial fishers), and unsustainable aquaculture practices are resulting in dramatic declines in fisheries and lost livelihoods and reduced protein consumption for the poor.

Environmental degradation increases the vulnerability of the poor and hungry. Natural systems are critical safety nets for poor and hungry people when disaster strikes. For example, more than a fifth of the household income of poor rural communities comes from forest products (Vedeld and others 2004). And this dependence increases in years when harvests fail or in times of economic crisis. Environmental degradation increases the vulnerability of people to hunger by reducing their access to food and farm inputs, fisheries, wild game and foods (including famine foods), and nontimber forest products for medicines. Women's domestic responsibilities for providing food, health-care, water, and fuel depend directly on the quality and availability of natural resources. As a result, they are often severely affected by resource degradation.

Communities do have considerable potential to manage their own resources, and local organization has been found essential for sustainable natural resource management. For example, at least 360 million hectares of forest are under some level of conservation management by communities—more land than is in formal protected areas (Molnar, Scherr, and Khare 2004). But the cost of restoring degraded land, forest, and water resources is frequently beyond the capacity of chronically poor communities. Reversing the trend toward degradation requires both community and national interventions, supported by the international community.

The international community has begun to recognize the human, economic, and environmental costs of land and resource degradation. Recent initiatives to address degradation include the Sustainable Land Management program of the Global Environment Facility, the UN Convention to Combat Desertification, resource rehabilitation projects of the International Fund for Agricultural Development, the United Nations Development Programme's Drylands Program, and the newly launched TerrAfrica program of the World

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Bank. Both China and India are undertaking national “greening” programs, while South Africa has large ecosystem rehabilitation programs.

Many development, relief, and conservation NGOs now integrate elements of land restoration, while farmer federations and community groups in places experiencing rapid degradation—such as parts of South Asia, East Africa, the Philippines, and the Andes—have organized themselves to restore key resources, as in the International Landcare movement. In most of these initiatives, the involvement of poor local communities is now recognized to be essential (Bridges and others 2001; Katon, Knox, and Meinzen-Dick 2001).

Even so, the funding for most of these programs remains grossly inadequate relative to the scale of the problem. Few poverty reduction strategies in low-income countries address natural resource restoration (Bojö and Reddy 2003). And in the design of these projects, more explicit attention needs to go to reducing hunger and malnutrition directly, by integrating elements of production, conservation, and nutrition (Bridges and others 2001).

Help communities and households restore or enhance natural resources

Each nation’s poverty reduction strategy and other poverty reduction programs should help local communities plan, implement, manage, and monitor investments to conserve and restore the degraded natural resources they depend on for their food and livelihoods. Plans should include strategies for coping with risks and disasters.

Community initiatives for environmental restoration may include strategies for rangeland rehabilitation, such as replanting, building windbreaks, stabilizing gullies, and managing common grazing lands (box 10.1). Water resources can be improved and recovered through watershed restoration, micro-watershed rehabilitation, village ponds, stream bank revegetation, and building vegetative filters and barriers to protect water quality. Biodiversity can be protected by establishing reserves, reforesting degraded areas, managing communal forests, and establishing fisheries. Communities can reduce disaster risks through forest fire control, dry-season fodder reserves, and cultivating famine foods.

Investing in natural resources essential to food security offers important synergies with other actions to reduce hunger—and with other Goals. Natural resource investments can increase agricultural productivity by increasing the supply of natural inputs, protecting crop pollinators, and providing domestic water and fuel for cooking. Such investments can increase the availability of micronutrients, proteins, and calories from wild sources, while reducing the impact of natural climatic risks and disasters on food security. Watershed protection increases the availability and quality of water, and health benefits stemming from that. By reducing time required for collecting water, fuel, and food,

Box 10.1
Restoring
degraded
grasslands
in Kenya

Source: Meyerhoff 1991.

The Rehabilitation of Arid Environments Charitable Trust in Kenya has worked for more than 20 years on the rehabilitation of grasslands in the watershed of Lake Baringo. This Rift Valley lake is rapidly becoming an environmental disaster area. The lake has always been fairly shallow, and the land around it sparse grassland and savannah, best suited to nomadic pastoralism and wildlife. While nomadic land use was practiced in the past, the catchment is now used continually. As a result, overgrazing has severely affected the grass and trees, soil erosion has intensified, and silt is rapidly filling the lake, which is projected to become a swamp within two decades. The resulting decline in water quality has led to the collapse of the local fishing industry and threatens the local hippopotami.

The Trust has pioneered private and communal fields protected from grazing animals by electric or live fences. Local communities have recognized that intensive management of fields is the only viable alternative to the current destructive practices associated with communal management. After demarcating land for individual or group management, communities have applied contoured bunds and selective grass planting, transforming severely degraded terrain into productive land within three years. The restoration of grassland has created income-generating livestock grazing services. Once grass is reestablished, trees can be grown, expanding income-generating opportunities to include browse fodder, firewood, and honey. Rehabilitated areas are more resistant to drought and have attracted long-absent birds and insects. The success of this and other pastoralist projects has resulted in their incorporation into Kenya's national poverty reduction strategy.

investments in natural resource assets can free up girls' time to attend school, while increasing women's time for child care and farming and reducing caloric expenditures by pregnant and nursing mothers. Restored ecosystems can enhance natural biodiversity and environmental sustainability, for example, by incorporating wildlife habitat features (McNeely and Scherr 2003).

Experience has established some key principles for ensuring that natural resource investments benefit food-insecure households:

- It is critical to conduct community-based needs identification and planning processes, and to build ownership of investment strategies among all community members, including women and the landless.
- Initiatives should bring both short-term food security improvement and long-term sustainability gains.
- Projects should integrate action on water, forests, soils, and vegetative cover at the watershed or landscape scale.
- Initiatives for ecosystem rehabilitation should be coordinated with those promoting agricultural production, and plant species and management systems selected should contribute to food supply and local livelihoods.
- Community organizations responsible for resource restoration should be technically competent and accountable to their communities, including food-insecure groups.

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The Task Force on Hunger recommends that district and national governments, as well as NGOs, assist communities in developing natural resource investment plans by providing trained facilitators or advisors, conducting participatory mapping, coordinating cross-community visits to observe innovative approaches, monitoring indicators, and providing financial support. They can also help coordinate larger scale resource restoration plans, and build community and national capacity for natural resource management.

Financial and technical support will be needed to achieve investments in restoring degraded resources at the scale required. One mechanism that has worked well in many places is a matching grant program, in which communities receive assistance to put together a restoration plan, including the commitment of local resources. Most such programs are organized by government agencies, but NGO and private financing may also be used. External contributions can include cash payments, technical services, or food aid, which can be used to employ local workers in community investment projects.

Many types of resource restoration can be achieved through community action alone. But in other cases the scale of the problem or the effectiveness of solutions requires investment programs implemented in a coordinated fashion at a district, watershed, or ecosystem level. To ensure that such initiatives also address local problems effectively, they should be based on integrated cross-sectoral needs assessment. This assessment should include field-based, spatial analysis of the dependence on natural resources for food security and the degree of threat. Such assessments can be used to devise an effective strategy for allocating matching grant resources to local communities, as well as identify interventions that require large-scale, direct public investments.

Public investment priorities should reflect broad poverty reduction strategy priorities, but also the results of direct multistakeholder dialogue and negotiation among local resource users, managers, and off-site beneficiaries. Policy-makers can facilitate such investments by providing legislative authorization and an accepted process for action across jurisdictions—and for conflict resolution. District-level natural resource planning should be integrated into broader agriculture and land use planning.

Food aid, ideally from stocks produced by local or national smallholder producers, can be mobilized to pay farmers, herders, and forest dwellers to rehabilitate public resources. Participatory monitoring of resource conditions can provide a mechanism to assess the effectiveness of interventions and ensure accountability. Post-investment responsibility for management must be clearly designated.

There has been widespread decentralization of responsibility for natural resources from central governments to local governments and communities, which can facilitate local needs-based investment in resource restoration. But the process has rarely been accompanied by the necessary capacity building for planning, managing, or monitoring resource-related investments. Resource

Effective incentives often determine the success or failure of resource management programs

restoration on a scale that would contribute to meeting the hunger Goal will require targeted training of professional staff, local governments, technical assistance staff, community facilitators, NGOs, and community groups and their leaders. To be cost-effective, and effective on the ground, farmer and resource-dependent communities, conservation organizations, and public agencies should have joint initiatives for capacity-building.

Secure local ownership, access, and management rights to natural resources

The lack of ownership or access rights to natural resources (including land, forest products, water, fish stocks, or even large game animals in Africa) threatens the livelihoods of millions. The absence of credible, long-term land rights hampers many efforts to improve natural resource conservation and food production by creating a disincentive to invest in the resource base and manage it sustainably. Effective incentives often determine the success or failure of resource management programs. For example, farmers in the Philippines were given legal title to forest land for 25 years, with the stipulation that their rights would be renewed only if the forest was intact at the end of the contract period.

Exchanging information and lessons and accepting technical assistance from outsiders can help guide governments and stakeholders in formulating effective policies. Many countries have laws to enable rural communities and households to obtain such rights. For example, the percentage of locally owned or administered forests in the developing world has doubled in the past 15 years to a current level of 28 percent (box 10.2). This represents significant progress, but high institutional costs have severely hampered effective implementation and enforcement of land rights in many areas. Rural media campaigns should inform poor rural people of their land, forest, and water rights and of the processes they must follow to secure them. Legal support services are needed to enable the poor to bring claims where their rights are denied. Adequate public resources need to be allocated to monitoring large-scale commercial resource exploitation—and, where necessary, the enforcement of regulations that protect the environment and the rights of other resource users. The task force recommends that national governments enact, where needed, pro-poor land tenure and policy reforms to rationalize property rights and ensure effective implementation.

Community management and tenure are being adopted as governments decentralize and social movements assert the rights of indigenous people and other natural resource-dependent groups. An estimated 22 percent of developing country forests are now community owned or managed (White and Martin 2002), a proportion expected to increase significantly between now and 2015. Such arrangements offer local stakeholders greater control over land management and conservation decisions and create opportunities to access markets for environmental goods and services. The task force recommends

Box 10.2
Reducing poverty
and hunger
by allocating
forest rights to
communities

Source: White and Martin 2002; White, Martin, and Ellsworth 2003.

Low-income farmers and other rural people depend greatly on forest resources for food, fuel, grazing, construction materials, medicines, and raw materials for household use or sale. Globally, restricted forest access, tenure insecurity, and controls on forest use established by national governments are the most serious constraints to protecting and managing local forest resources to support local livelihoods and develop local forest enterprises. Colonial and post-colonial governments claimed most forests (and even trees on private land) for the state, as well as large deforested areas, degraded forest lands, and farmlands on steeper slopes.

Over the past decade, many countries finally established a legal basis for devolving the management of government-owned forest resources to poor rural and indigenous communities. This has been done under a variety of tenure arrangements, significantly enhancing the assets and food security of the poor.

- In Viet Nam the government has allocated millions of hectares of forest land (much of it with depleted forest cover) to households and cooperatives. Field studies show that the allocation of forest rights to households has led to significant increases in income combined with more sustainable land management practices.
- In the Philippines more than 21 million people living in upland “forest zones” achieved acceptance as legitimate forest managers in 1997.
- In Madhya Pradesh, India, more than 1 million households were granted rights to co-manage more than 600,000 hectares of dry forests, enabling them to earn income from timber sales. This has generated local employment for the landless and restored water tables, wildlife populations, and biodiversity.
- In Sumatra, Indonesia, securing forest rights for forest-dwelling communities has enabled them to keep their indigenous and highly profitable complex agroforests, which support 75 percent of the large mammal and bird diversity found in primary forest.

International support can help countries accelerate the transfer of ownership or use rights to local people. Such transfers protect people’s capacity to improve their food and livelihood security, while safeguarding the environmental services that forests provide.

that donors assist national governments in developing and enforcing new regulations or in fully implementing forest tenure reforms by financing mapping, legalization, training, and community capacity building.

Where resources remain legally in public lands, local communities should be engaged in co-management—to ensure their access to critical resources for food security, to share in income generated by the resource, and to secure local support for resource protection.

While initiatives in forestry are most widespread, there are also growing examples of successful community co-management of fisheries in Cambodia, Indonesia, India, the Philippines, and the Shetlands. New models are recognizing and supporting pastoral and mobile people’s capacity to manage rangelands sustainably, as in eastern and southern Africa and Mongolia. Aggressive efforts to scale up successful community and comanagement models should be designed as an integrated approach to achieve multiple Goals in resource-dependent communities.

Income-earning opportunities must be developed on a much larger scale

Develop natural resource-based “green enterprises”

For food-insecure communities in rural areas, enterprises based on sustainable management of natural resources—“green enterprises”—can present valuable opportunities to generate income and strengthen livelihoods while also establishing incentives to conserve. There is considerable potential for the small-scale commercialization of natural medicines, nontimber forest products, sustainably grown or certified timber, and other natural products. In southern Mexico, the Project for Conservation and Sustainable Development of Forest Resources in Mexico funded by the World Bank has helped indigenous forest communities establish dozens of market-oriented enterprises. In parts of India, successful enterprises use public forest resources, greatly increasing the income of landless people (Scherr, White, and Kaimowitz 2004).

To be successful, green enterprises require a combination of conservation, business, and management skills. Access to markets—in proximity, information, and contacts—is also key. Experience in Africa over the past decade has demonstrated that enterprises based on harvesting and processing of products from natural resources have the greatest potential for communities that are within 100–150 kilometers of urban markets (USAID and WRI 2002).

In addition to creating income, markets for nontimber forest products can create assets for community forest conservation and better monitoring of controlled extraction (Scherr, White, and Kaimowitz 2004). The returns from nontimber forest products can help sustain community conservation systems. Income-earning opportunities must be developed more comprehensively and on a much larger scale to support these initiatives (Molnar, Scherr, and Khare 2004).

Most critically, communities require access to technical and business support for commercial enterprises for sustainably managed wild raw materials and processed products. Regional and national enterprise support services and capacity building at subsidized cost are critical; business and technical experts in these services must understand the economics and management of community enterprises. Key elements include realistically assessing market opportunities and linking community enterprises and potential wholesale and retail buyers.

Sustainable levels of harvest and “best management practices” for sustainable enterprises must be jointly determined by communities and enterprise managers, with input from conservation professionals. Management plans should be designed to ensure access to the resource for the food-insecure, and to provide employment for workers from food-insecure households. Third-party systems certifying sustainable management of natural resources (such as the Forest Stewardship Council and Marine Stewardship Council) should accelerate the development of simplified modalities for low-income communities (Scherr, White, and Kaimowitz 2004).

Sustainable green enterprises can be obstructed by legal and regulatory frameworks that limit poor producers’ access to resources and markets, often

Programs providing payment for environmental services can offer economic benefits for poor rural communities

to protect public or private monopolies or to finance government agencies. The task force recommends that governments work with communities to reform these regulatory frameworks, so that they provide clear local incentives for sustainable use and to encourage green community enterprises. Participatory monitoring strategies should be used to enable more nimble responses to potential environmental threats and assist public agencies to control destructive or illegal harvesting by large-scale, nonlocal business operations.

Pay poor rural communities for environmental services

Protecting and restoring natural resources holds benefits not only for food but also finance as a source of income for the poor and hungry. Private companies, municipal water and electricity utilities, downstream irrigation users, and conservation agencies have become willing to contract with rural communities to conserve, manage, and restore critical natural resources for ecosystem services. Examples include sequestering carbon, conserving biodiversity, and protecting watersheds, public forests, and conservation areas. In many parts of the developing world, international organizations are supporting pilot programs, such as the Global Environment Facility, the International Union for the Conservation of Nature, and the Convention on Biological Diversity.

Programs providing payment for environmental services are generally at an early stage of development. But they hold significant potential for poor and hungry rural communities who reside in areas of high biodiversity value and critical watershed, as well as in degraded areas requiring resource restoration (Landell-Mills and Porrus 2002). Opportunities include:

- Payment for biodiversity protection, including conservation-based land uses or management practices, biodiversity monitoring or stewardship services, species conservation, outsider access for sustainable harvesting or bio-prospecting, and the development of eco-labeled products (Jenkins, Scherr, and Inbar 2004).
- Payment for watershed protection or restoration by downstream water users. These payments can contribute much to local incomes while providing conservation incentives. The benefits of such programs to poor and hungry communities depend, however, on the payment system. Care should be taken to ensure that payments go to the poor (including the landless) or their organizations—and that poor people do not lose rights for land and water use critical to their livelihoods (Rosa, Kandel, and Dimas 2003).
- Future markets for carbon sequestration hold significant potential for poor farmers—with the right rules and protections. Options include reforestation and afforestation funded under the Clean Development Mechanism of the Kyoto Protocol (box 10.3), land use practices funded by investors outside the Kyoto system, and voluntary payments by carbon-emitters to achieve carbon neutrality. Because carbon emis-

Property rights and national legal frameworks need to be strengthened

sion reductions and sequestration anywhere in the world can benefit the global carbon balance, we argue there should be a special effort to direct international carbon finance toward investments that also restore or protect resources critical for food security and poverty reduction.

Since many ecosystem services are public goods, government intervention is usually required to create a functioning market. This may entail paying directly for a service, establishing property rights, or establishing regulations that set caps and govern trading schemes. Government intervention is usually also required to overcome the primary obstacles to ecosystem market development: high transaction costs between buyers and sellers, and the lack of specialized market institutions. To establish effective markets, policymakers also require objective technical advice, useful analytical models, and accurate data. In most developing countries, property rights and national legal frameworks need to be strengthened to allow for effective market development.

If properly designed, the Clean Development Mechanism could offer hundreds of millions of dollars each year for investments with poor rural communities for forest establishment, agroforestry, biomass energy development, and ecosystem restoration (Smith and Scherr 2002). Farmers in humid or sub-humid tropical areas will have an advantage, as they can sequester 10 times

Box 10.3
Tapping the Clean Development Mechanism to improve farming systems

Source: Smith and Scherr 2002.

Under the Clean Development Mechanism of the Kyoto Protocol, carbon offset “credits” produced by energy and forestry projects in developing countries can be purchased by businesses to offset their obligations to reduce carbon emissions under the Protocol. Developed countries can only use such deals to offset a limited portion of their carbon obligations, but this still represents a potential private financial flow of \$300 million a year. These resources could be used in ways that sharply reduce rural poverty—for example, through community-based carbon trading deals for small-scale forest plantations, regeneration of degraded forests, ecosystem restoration, and agroforestry. Carbon projects could also finance land and forest-improving investments by poor rural producers, and restore ecosystem services on millions of hectares of heavily populated forest and farmland.

Community-friendly forest carbon projects are unlikely to take root without proactive attention in the Clean Development Mechanism rules and in the approaches of developing countries and project designers. It is critical that key steps be taken to:

- Make all types of forestry and agroforestry projects with significant benefits for local communities eligible for the Clean Development Mechanism.
- Reduce risks for local communities by requiring social impact assessments and formalizing community tenure rights.
- Reduce the cost of managing community projects by finding intermediaries to market carbon offsets from multiple producers and by making community-based forestry projects eligible for the low-cost “fast-track” approval process.
- Reduce risks and costs for investors, by developing portfolios that spread risks across projects, and by using insurance approaches that are suitable for poor rural communities.

**Payment
systems must
enable strong
community
input**

more carbon per hectare than those in temperate zones. There are even opportunities in dry areas. Opportunity costs are low, and investments to increase soil organic matter and vegetative cover can catalyze improved agricultural productivity and diversified income sources. At current prices for sequestered carbon, the transfer payments to individual farmers are rather modest—perhaps \$30 a year per family. Even so, this is an evolving market. The task force encourages developing country governments to participate actively in Clean Development Mechanism negotiations to gain benefits for their farmers and landscapes. And it recommends that the international community engage in high-level negotiations to ensure that multilateral environmental agreements are integrated closely with strategies to achieve the Millennium Development Goals.

At the same time, it is essential for countries to establish the legal and regulatory framework for ecosystem service markets in ways that are pro-poor. Payment systems must enable strong community input into proposed interventions, to ensure that payments go to the poor (including the landless) or their organizations, and that poor people do not lose rights for land and water use critical to their livelihoods. Ecosystem service payment systems and projects should be designed explicitly to address hunger and poverty reduction (see box 10.3).

*Help communities
and households
restore or enhance
natural resources*

Actions needed to implement recommendation seven

Assist communities in developing natural resource action and investment plans by providing trained facilitators or advisors, participatory mapping, cross-community visits to observe innovations, and indicators and monitoring. Planning, participation, and ownership of the plans by the community—including women and the landless—are critical. They should be integrated with farming plans and built on local access and control of resources. District governments and NGOs should coordinate planning, with support from state-level ministerial planning groups and local user organizations. By 2008 plans should be in place for 5 million households in 10,000 communities, rising to 10 million households by 2012.

Target natural-resource dependent communities and households, especially those facing hunger and food security threats. Engage in dialogue among resource users, managers, and off-site beneficiaries. Establish legislative authorization and processes for action across jurisdictions. Provide financial and technical support for investments to restore degraded resources. Establish matching grant programs for community plans, using cash, expertise, and food aid. Build these into poverty reduction strategies as “National Sustainability Funds.” Mobilize food aid to pay farmers, herders, and forest dwellers to rehabilitate resources.

Secure local ownership, access, and management rights to forests, fisheries, and rangelands

Create new legislation to provide resource tenure or co-management rights, where needed, with attention to land rights for women. Implement devolution of forest or fisheries resource tenure where the legal framework for community rights already exists.

Conduct public information campaigns on community resource rights. Build coalitions of national and district governments, legislators, rural and environmental ministries, forest and fisher community organizations, and journalists. Aim for 2006 public campaigns, 2007 legislation and implementation, and 2015 achievement of targets for the devolution of land rights.

Develop natural-resource-based green enterprises

Reduce the regulatory costs and market barriers for low-income producers to commercialize natural resource products and services. Provide technical and business support to community-based commercial enterprises, including experts who understand economics and management of community-based enterprises. Implement community monitoring to assess sustainable levels of harvest and potential markets—and provide local input into identifying “best management practices.”

Key actors include national legislators, regulatory agencies, community-based enterprises, and the private sector. By 2006 fund green enterprises through poverty reduction strategies and identify necessary regulatory reform through community consultation. By 2007 implement regulatory changes. By 2010 expand green enterprises to benefit 5 million households worldwide, reaching 10 million by 2015.

Pay poor farmers for environmental services

Mobilize pro-poor design of legislation and international agreements on payments for ecosystem services, such as biodiversity conservation and watershed protection. Involve communities in dialogue on developing laws and regulations. Public rural development agencies and NGOs should help implement programs. Use payments to catalyze transitions to improved land-management systems. Use diverse mechanisms to reward good managers.

Put in place carbon trading schemes between carbon-emitting industries and low-income farmers and resource-dependent communities, based on the Clean Development Mechanism of the Kyoto Protocol and other carbon trading agreements. In 2006 countries should enact national legislation (as needed) to establish payments for ecosystem services with pro-poor provisions, and develop a strategy for accessing carbon trading finance at preselected sites.

Implementing the recommendations of the Task Force on Hunger

There have been many plans to end hunger, but few of them have been effectively or efficiently implemented. The reasons for this gap between action and results fall into two broad categories. One is the lack of resources, the second a combination of political, social, technical, or institutional factors. Both reasons are affected by human, technical, or institutional capacity. Previous chapters of this report have addressed many of the constraints to hunger-alleviation efforts that relate to insufficient resources, program, and policy design. This chapter lays out key principles for national and local implementation of the Task Force on Hunger recommendations as well as possible entry points in the fight against hunger.

The centerpiece of the task force's recommended implementation strategy is the creation of national strategies for the elimination of hunger, strategies that should be integrated into existing policy frameworks, such as the poverty reduction strategies. Key elements for effective execution include community-level leadership, active participation of donors and the private sector, and broad capacity building efforts at all levels. Where possible, hunger reduction initiatives should generate multiple benefits, and several examples of such "synergistic" programs are presented at the end of the chapter as suggested starting points for broader national efforts.

Setting priorities for interventions

For seven recommendations in this report, there are 40 proposed interventions. Clearly, not every intervention will be appropriate for every setting. An important first step at the national level will be for governments to work with communities to identify the priority interventions for the conditions that prevail locally. Local participatory problem analysis and planning should form an integral part of identifying the most important interventions. In some

**Many
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investments
to build
capacity at
all levels**

cases, it will be easier to determine which interventions correspond to certain groups of hungry people—such as expanding nonfarm income opportunities for the urban poor and the rural landless. In other cases, more analysis will be required—particularly at the subnational level—to identify typologies of hunger, identify hotspots more precisely, and work with communities to target them with appropriate interventions.

Typologies of hunger for the different regions will need to be refined, revised, and clarified at the country level (table 11.1). The task force recommends that further work should be carried out to characterize who the hungry are at subnational levels and assist in ranking key interventions for the different groups. Defining typologies of hunger will require reliable, up-to-date information, and donors should be ready to assist countries with the surveys and studies needed. Once the data are available, various participatory decision-making methods can be applied to identify top priorities for action and determine the costs associated with these interventions. The task force sees gender equality, governance, capacity building, and environmental sustainability as cross-cutting issues in all regions, to be fully integrated into all interventions.

Strengthening capacity for scaling up

Past failures in hunger-elimination efforts—and the limited scaling up of successes—are often attributed to the lack of capacity in developing countries. Many of the interventions in this report will require investments to build capacity at all levels, from national to local, in order to scale up. To overcome capacity constraints and achieve rapid progress toward the hunger Goal, donors and country governments will need to make long-term commitments to invest in strengthening human, technical, managerial, and institutional capacity at all levels. Monitoring and evaluation systems need to be built into all capacity building interventions to ensure real-time learning and course correction as needs arise.

Past models of donor assistance have often inadvertently furthered a vicious cycle of dependency and low capacity. Donors have controlled most aspects of their programs, from design and oversight to evaluation. The lack of local participation often led to poorly designed projects that did not fit local priorities or practices and could not be replicated at a larger scale. While local counterparts were trained to participate, they did not have true ownership or participation in most projects. When donors withdrew, local partners lacked the institutional support to lead the projects. This led to a dependency on new projects and sustained ineffectiveness of institutions (Berg 1993; Fukuda-Parr, Lopes, and Malik 2002). This trend is now changing, and many donors now emphasize local ownership of development processes.

National capacities for implementing hunger reduction strategies need to be built very quickly to achieve the Goal by 2015. Capacity strengthening should be based on ensuring the provision of information (including public

Table 11.1
Regional profiles and
priorities for investment

	Sub-Saharan Africa	East Asia and the Pacific	South Asia	Latin America and the Caribbean	Central Asia and Eastern Europe	China
Overall trends in status of preschool underweight children	Highest number of countries with increasing rates of malnutrition	Making the best progress of all developing regions	High rates of underweight prevalence, falling slowly. Total number of underweight children extremely high	Moderate levels, increasing in some countries	Moderate levels, increasing in some countries	Rates moderate, falling rapidly. Overall numbers still high
Depth of the problem	About 32 million preschool-age underweight children (23% of the world's total preschool-age underweight population)	About 17 million preschool-age underweight children (13% of the total world's preschool-age underweight population)	About 76 million preschool-age underweight children (57% of the total world's preschool-age underweight population)	About 4 million preschool-age underweight children (3% of the total world's preschool-age underweight population)	About 1.5 million preschool-age underweight children (1% of the total world's preschool-age underweight population)	About 3.1 million preschool-age underweight children (2.3% of the total world's preschool-age underweight population)
Who are the hungry	Smallholder farmers, landless, victims of conflict and extreme climate events victims, resource dependent rural populations	Urban and rural poor	Women and infants in poor households, marginal groups	Urban poor, indigenous populations, marginal groups	Urban and rural poor	Rural poor, especially in western and central provinces
Insufficient agriculture production	Primary reason for hunger	Potential future risk. Productivity increases need to keep pace with growing demand	Potential future risk. Productivity increases need to keep pace with growing demand	Very important reason in the Andean region	Not important: largely food import dependent	Not important. Producing enough food
Poor nutritional status of vulnerable groups	Very important reason	Important reason	Very important reason	Very important reason	Important reason	Important reason
Lack of productive safety nets	Very important reason	Important reason	Very important reason	Very important reason	Less important	Less important
Lack of access to markets and inadequate income levels	Important determinant of hunger, both markets and income	Moderately important determinant of hunger, particularly income	Important determinant of hunger, particularly income	Primary reason for hunger, mainly income	Primary reason for hunger, mainly income	Important determinant of hunger, mainly income
Lack of basic infrastructure	Very important determinant of hunger	Less important	Important	Less important	Less important	Not important anymore
Natural resource degradation	Very important determinant of hunger and poverty, affecting agricultural productivity, water supply, and wild foods and products	Moderately important determinant of rural hunger and poverty	Very important determinant of poverty, affecting agricultural productivity and wild foods for the landless	Moderately important overall; very important determinant of hunger and poverty in mountain and forest communities	Moderately important, through impacts on water quality and agricultural productivity	Very important determinant of poverty and lost agricultural productivity (soils, forests, water)

The lack of a comprehensive and integrated approach has limited the success of many development projects

awareness and exchanges of knowledge among participants in the strategy), the integration of all relevant institutions and players into planning and implementation, and the participation of people, communities, the private sector, and governments (UNDP 2004b). The full participation of a range of actors in the development of national hunger reduction strategies will help to build the capacities needed for effective implementation and scaling up (Dobie 2002).

To scale up hunger reduction strategies, the task force recommends that promising approaches and projects be systematically identified and that major capacity-building efforts be undertaken at all levels. Support for community-based organizations is especially important, due to their capacity for low-cost, high-impact initiatives and the potential for exponential replication of community-based programs, as seen in the rapid spread of women's self-help groups in India. Indeed, the task force views the transformative power of such organizations as one of the most important driving forces in global efforts to meet the hunger Goal. By helping expand the skills, rights, and resources of such groups, governments and donors can enhance their impact.

Refining national hunger strategies

Many development projects aim to improve agricultural production, nutrition, market linkages, clean water, healthcare, or gender equality—but they rarely address all these aspects simultaneously. The lack of a comprehensive and integrated approach has limited the success of many efforts. To mobilize a coordinated and effective effort for eliminating hunger, governments should refine and revise their national strategies, drawing from the recommendations of this report and the FAO's Special Program for Food Security. National poverty reduction strategies, or where applicable, PRSPs, should be built into existing policy processes and reflect a broader need by governments to undertake policy planning for all of the Goals. Key ingredients of such enhanced strategies include the following:

Broad participation. Preparation and implementation of a national strategy to meet the hunger Goal should be undertaken with the full participation of key stakeholders. Consultation is not adequate. The capacities for implementation will be developed only if stakeholders directly contribute to the design of the enhanced strategy and are empowered as partners in its implementation. Key stakeholders include the ministries of agriculture, health, social services, environment, water, transport, commerce, planning, and finance and the government body responsible for food aid. They also include representatives of civil society, the private sector, banks, and other financial institutions, and the donor community, including multilateral and bilateral institutions.

Developing a national MDG-based poverty reduction strategy to meet all the Goals—including the hunger Goal—will require a lead coordinating agency. It will also require considerable investments in capacity building in

**Translating
global and
national
commitment
and funding
into local
action
remains the
greatest
challenge**

developing and donor countries alike to improve planning and coordination across various sectors. Multilateral organizations, donor agencies, and major NGOs should assist in development of the hunger Goal strategy by providing advice and access to information. The full involvement of all stakeholders—including different government sectors, donors, multilateral organizations, civil society, and the private sector—in developing this strategy will help to ensure their full ownership of the final strategy and its implementation.

Thorough analysis. The strategy should be founded on sound analysis of the scope and typologies of hunger at the national level, on knowledge of lessons learned from existing hunger elimination efforts, particularly in identifying the elements of success in effective programs, and on strategies for scaling up that will be effective in the local context.

Sound policy design and integration into existing processes. Hunger Goal strategies must be fully integrated into the country's national poverty reduction strategy or where applicable, PRSP. The UN Millennium Project recommends that governments undertake a comprehensive needs assessment and costing of the requirements to meet the Millennium Development Goals, to be reflected in the poverty reduction strategy or other national process.

Monitoring and public reporting. Once a national strategy for reducing hunger is incorporated in the poverty reduction strategy or PRSP, and funds are allocated through a related medium-term expenditure framework, the responsibility for implementation will be devolved to line agencies, NGOs, and communities. The Task Force on Hunger recommends a participatory and transparent monitoring process, overseen by a coordinating agency, to track progress toward meeting the Goal.

Securing financing for implementation

Antihunger plans can be financed from a combination of existing public sector resources, official development assistance, private sector investment, and contributions from a variety of private organizations. Governments should work to create dialogue, buy-in, and effective donor coordination in support of their national strategies. Costs and financing strategies will vary significantly depending on the nature and scale of interventions. An initial estimate prepared by the UN Millennium Project outlines the costs of selected agricultural and nutritional interventions related to the hunger Goal for three African countries (table 11.2). The calculations were based on estimated costs of a select array of interventions in agriculture and nutrition (table 11.3).

National hunger reduction strategies should form part of a comprehensive national plan for meeting all the Goals. Though some cost savings can be achieved by designing complementary programs, this will require signifi-

Table 11.2
Estimated costs of
hunger interventions
for Ghana, Tanzania,
and Uganda, 2006–15
Dollars

Source: UN Millennium
 Project 2004.

	Ghana		Tanzania		Uganda	
	Total annual cost (average)	Per capita annual cost	Total annual cost (average)	Per capita annual cost	Total annual cost (average)	Per capita annual cost
Agriculture	66,306,151	2.64	304,668,044	6.89	88,942,219	2.55
Nutrition	29,932,450	1.18	62,159,924	1.43	41,011,968	1.13
Total	96,238,601	3.82	366,827,969	8.31	129,954,187	3.68

Table 11.3
Proportional costs
of select antihunger
interventions
Percent

Source: UN Millennium
 Project 2004.

	Ghana	Tanzania	Uganda
Agriculture	69	83	68
Improving soil health	15	18	35
Improved seeds	4	4	8
Small-scale water management	27	46	4
Extension	3	3	5
Research	20	11	16
Nutrition	31	17	32
School meals	17	7	17
Supplementation and fortification	14	10	15
Total	100	100	100

cant new budget commitments across all sectors. We present here an estimate of average annual costs for achieving the Goals in five countries (table 11.4). The estimates do not include the costs of interventions that are related (and necessary) to achieving the Goals, such as transportation infrastructure, information and communications technology, environmental sustainability, and interventions for slum dwellers.

Implementation at the local level

Translating global and national commitment and funding into local action remains the greatest challenge to achieving the Goals. Without local action, efforts to achieve the Goal will remain top-down, supply-driven, and ineffective. Reaching the target of halving hunger by 2015 will require the engagement of a very large number of affected people. Such an approach requires large investments in retraining experts and politicians in the skills required to become advisors and facilitators of community-led processes. It requires heavy investment for large numbers of facilitators to work with communities in defining locally specific solutions to hunger. It also requires complementing community actions with well targeted safety nets to ensure access to adequate food for those unable to meet their own requirements. These changes require a considerable shift—and may in the initial stages require more time—but investing in them is essential.

Table 11.4
MDG investment needs and MDG financing gaps in Bangladesh, Cambodia, Ghana, Tanzania, and Uganda (2006–15)
2003 US\$ per capita

Note: Results describe MDG investment needs without expenditures for capacity building. Due to a lack of data, several groups of interventions have not been included: large infrastructure projects for energy, water management, and transport; interventions to ensure environmental sustainability; and higher education and strengthening of national research systems. It is estimated that at least another \$10 per capita (averaged over the full period) will be required to finance these investments, as indicated in the table. Refer to UN Millennium Project (2005) for more details.

a. For MDG interventions not yet included in needs assessment (such as large infrastructure projects, higher education, environmental sustainability).

b. 2002 value calculated as net official development assistance minus technical cooperation, debt relief, aid to NGOs, emergency assistance, food aid using data from OECD-DAC (2002).

Source: UN Millennium Project 2005c.

MDG investment needs	Bangladesh			Cambodia			Ghana			Tanzania			Uganda		
	2006	2010	2015	2006	2010	2015	2006	2010	2015	2006	2010	2015	2006	2010	2015
Hunger	2	4	8	4	7	13	3	5	12	4	7	14	3	5	10
Education	11	17	25	15	19	22	17	19	22	11	13	17	14	15	17
Gender equality	2	3	3	2	3	3	2	3	3	2	3	3	2	3	3
Health	13	19	30	14	21	32	18	24	34	24	33	48	25	32	44
Water supply and sanitation	4	5	6	3	5	8	6	7	10	4	5	12	2	3	9
Improving the lives of slum dwellers	2	3	4	3	3	4	2	2	3	3	3	4	2	2	3
Energy	20	19	20	9	13	23	13	15	18	14	15	18	6	10	19
Roads	12	21	31	12	21	31	11	10	10	13	21	31	13	20	27
Other ^a	8	9	13	8	9	13	8	9	13	8	9	13	8	9	13
Total	74	100	140	71	101	148	80	94	124	82	111	161	75	100	143
<i>Source of financing</i>															
Household contributions	8	10	14	9	13	18	9	11	15	9	11	17	8	9	14
Government expenditures	23	33	49	22	30	43	19	27	39	24	32	46	27	35	48
MDG financing gap	43	56	77	40	58	87	52	57	70	50	67	98	41	56	80
Shortfall ODA for direct MDG support over 2002 level	42	55	75	22	40	69	36	41	54	35	52	83	29	44	68
For comparison: ODA for direct MDG support 2002 ^b	1			18			16			15			12		

Box 11.1
The Hunger
Project's
"epicenters"
for grassroots
empowerment

Source: The Hunger Project
2004.

The Hunger Project, an international NGO, has implemented a low-cost, people-centered strategy for grassroots mobilization to end hunger in rural African communities with demonstrated success. Its "epicenter" strategy is anchored in community leadership and empowerment at the grassroots level, catalyzed by international staff and implemented by national staff working with local governments and national political leaders.

The Project's process for mobilizing communities starts with selecting a community that is ready to mobilize on a self-reliant basis and that can serve as a catalyst in the region. The Project builds support from local village leaders, and organizes locally led workshops for residents to identify their hunger-free vision for the village and commit to a near-term plan of action toward achieving it. Workshop discussions emphasize overcoming resignation and dependency to build self-reliance. The Project identifies residents with the enthusiasm and commitment to serve as "animators," mobilizing the community toward its goals. It encourages the formation of community-led committees to address basic needs in the village, with equal representation of men and women, and links these to external resources (political, technical, and institutional).

Villages build a community center, which houses a school, health center, food processing and storage facility, rural bank, and meeting room for adult classes in literacy, agricultural techniques, health, and nutrition. The Project emphasizes local resources and income-generating activities rather than external investment to build self-reliance from the start.

Community members, by working together, can devise cost-effective and well targeted strategies to address the underlying causes of hunger through managing natural resources, generating income, reducing vulnerability, and providing critical services (Meizen-Dick and di Gregorio 2004) (box 11.1).

Experience with agricultural improvement programs suggests some key elements in expanding and exchanging local knowledge through hunger reduction programs:

- Participatory rural appraisal is an effective way of engaging the community and harnessing its knowledge to identify community needs, leadership strengths or gaps, and shared productive assets.
- Hands-on field training is an effective technique for transferring knowledge. Knowledge transfer to the community or individuals is critical to success.
- Training local leaders, including women leaders, as facilitators can be highly effective. They understand the local context, are based locally, and have the community's trust.
- "Participatory technology development" allows men and women farmers to experiment with new technologies before applying them broadly, thus reducing risk and increasing understanding.
- Greater gains will be achieved by first disseminating new "entry point" techniques that produce rapid results and are adopted by others. Spreading the idea to others through field trips and knowledge exchange can be highly effective.

**Domestic
and foreign
companies
have become
more
important and
influential
partners**

Village leaders, including both men and women, and other village participants can be assisted in developing meaningful local monitoring methods and trained in appropriate formal and informal monitoring systems. Evaluations should be participatory and transparent, with results made promptly available and program adjustments made accordingly.

Engaging the private sector

Another key component to implementing the recommendations at the local level is the involvement of the private sector. Domestic and foreign companies have become more important and influential partners in many developing countries as a result of privatization and market liberalization, and most organizations have an interest in the future progress of these countries. At the same time there are growing demands for private industry to be more transparent and more accountable for their economic, social, and environmental impacts wherever they operate.

The private sector can address the challenge of halving hunger in the following ways:

Providing affordable products and services. Food and beverage companies can develop new products that combat nutritional deficiencies and are affordable to low-income families. Utility companies can participate in public-private partnerships to increase access to clean water, energy, and telecommunications. Energy companies can support efforts to develop renewable energy sources, particularly for rural communities. Financial services companies can develop banking and insurance services for the poor, including microcredit.

Building local business linkages and employment opportunities. Manufacturing, food and beverage, and consumer goods companies can source raw materials from local suppliers whose business practices benefit the poor or the environment. Agribusiness companies can work with small farmers and their cooperatives along global supply chains to provide credit and improve rural productivity, quality, and food security.

Building local capacity. Companies can help develop integrated community investment initiatives that focus on local institution and capacity building, as well as wider regional approaches. For example, Instituto Ethos—a Brazilian association of more than 900 businesses interested in corporate social responsibility—is working with the government’s Zero Hunger program to engage business in the eradication of hunger. Companies can also support social entrepreneurs by volunteering the expertise of their employees for training and assisting with projects.

The combination of three interventions may constitute an effective new approach

Supporting public efforts to build the domestic private sector and attract foreign investment. Companies can build effective business associations and support structures, lobbying governments and helping to build capacity for necessary regulatory and financial reforms—such as providing the poor with access to property rights and increasing market access for small farmers. Financial service, legal, and accounting firms can help to build institutional structures and promote good standards of corporate governance.

Advocating for fairer access to OECD markets and eliminating the OECD’s adverse agricultural subsidies. The private sector can help advocate for pro-poor trade policy reform. For example, the World Economic Forum brought together major agribusiness and food companies, NGOs, and UN agencies on a task force to advocate for agricultural policy reform.

Synergistic entry points to overcoming hunger

Presented here are brief profiles of three local-level initiatives that can serve as “entry points” in the battle against hunger, generating synergistic benefits for community hunger alleviation efforts. All three of these programs need to be tailored to local conditions and combined with policy changes, regulatory reforms, and incentives at the national to local levels. They include:

- Community nutrition programs.
- Homegrown school-based feeding programs.
- Investments in soil health and water resources.

In fact, the combination of these three interventions may constitute an effective new approach in rural areas where chronic malnutrition is high and agricultural productivity is low. Community nutrition and homegrown school feeding programs can be initiated in tandem with the basic investments in soil and water, generating increased local production that will have a ready market in the homegrown programs.

Community nutrition programs

An important synergistic approach to combating hunger is the community-led nutrition program. Rather than producing a blueprint for community nutrition programs that can be applied uniformly in all countries and regions, the task force recommends that programs be designed on the basis of local epidemiology, underlying causes of malnutrition, and existing programs. The strategy must first determine the causes of poor nutrition in the program area and define interventions accordingly. Factors include:

- Low food availability—poor nutrition caused by household food insecurity, limited access to food, intrahousehold food allocation, or lack of early breastfeeding and complementary feeding.

It is essential to build local capacity for implementation

- Poor health and sanitation—causing diarrhea and other diseases that “leach” nutrients out of the child’s system.
- Poor maternal knowledge and caring practices—where the caregiver has access to some resources—such as breastmilk or access to immunization services—but is not empowered to make the right feeding or healthcare decisions.

The design of community nutrition programs should focus on five principles. First, focus on high-priority target groups, such as pregnant and lactating women and children under five, to concentrate impact in these groups. Second, build community involvement and commitment to get organized and empowered to address malnutrition. Third, allow communities and local governments to choose among a range of interventions and select those most relevant. Fourth, in choosing interventions, address the underlying determinants of malnutrition: household food security, health interventions and a healthy environment, and maternal and caregiver caring capacities. Fifth, use local procurement of food to the greatest possible extent because it provides important economic and social synergies through nutritionally balanced meals, produced locally and suited to local tastes.

The choice of interventions will vary significantly by community, region, and country. Where the health systems are strong, the focus should be on improving household access to food and intrahousehold food allocation patterns. Where rates of breastfeeding are declining, the major focus and intervention should be on infant feeding. Where gender inequalities are a key determinant, equality and empowerment will be the best entry point. Other countries are starting with a focus on micronutrient fortification and supplementation.

To make such programs sustainable, it is essential to build local capacity for implementation. Community-driven approaches require empowering and enhancing village-level capacities to recognize and respond to malnutrition problems—and supporting these efforts through government systems of paraprofessional nutrition extension workers. These approaches have two main elements.

The first is to appoint and train community nutrition extension workers, who complement the work of agricultural extensionists and village-level work on agriculture. Ethiopia is undertaking a large-scale government initiative to invest in training community health and nutrition workers, who will work alongside their agricultural extension counterparts in key areas of the country. Another example is Thailand, which has successfully integrated community actions with national policies and programs to generate sustained nutritional improvements nationwide (box 11.2). The task force recommends that community nutrition extension workers should be trained and deployed in large numbers, closely coordinated with agricultural extension programs.

The second element of the community-driven approach is the promotion of mother- and baby-friendly initiatives to build community awareness

Communities must ensure an enabling environment for mothers to feed and care for their children

and support for breastfeeding, and child and maternal health. This approach empowers communities by training village volunteers who can identify families or individuals most in need of assistance, and enhance their coping strategies through nutrition education, health referral, and the promotion of good practices. The idea is to ensure an enabling environment for mothers to feed and care for their children and to have access to adequate nutrition and care themselves. For women who work outside the home, this requires that their employers be educated and encouraged to support breastfeeding at work—for example, by providing time and space for breastfeeding and other maternity benefits.

To achieve this, village self-help or support groups are trained to offer mothers and fathers nutrition and health education (box 11.3). The subjects covered include a good maternal diet during pregnancy, the benefits of exclusive breastfeeding for six months (including immediate post-natal access to colostrum), the hazards of bottle-feeding, the appropriate forms and uses of complementary foods after the first six months, the importance of good hygiene and environmental health, and the encouragement of greater uptake of government health services (including vaccination, folate distribution, and family planning). Support from paraprofessional health and nutrition extension workers is important, as is regular mother-to-mother support at the home.

There are encouraging signs that the value of these approaches is beginning to be appreciated in government circles. According to a statement endorsed by ministers of health and other government representatives meeting in New Delhi in September 2004, “Mother and child-centered investments are fea-

Box 11.2
A success story from Thailand

Source: Swaminathan 2001.

Thailand has shown remarkable progress in reducing maternal mortality as well as the incidence of low-birthweight children through its Community Volunteer Corps for Household Nutrition Security. Key elements of this program:

- Eliminating severe, moderate, and mild protein-energy malnutrition.
- Monitoring growth among all preschool children and providing food supplements where needed.
- Mainstreaming nutrition in health, education, and agricultural policies.
- Retraining and retooling existing staff and mobilizing community volunteers. One volunteer was chosen for every 10 households.
- Encouraging breastfeeding and organizing school lunch programs.
- Promoting home gardening, consumption of fruits and vegetables, aquaculture, and food safety standards.
- Introducing an integrated food safety net with emphasis on household food and nutrition.

The positive impact of the Nutrition Security Compact is evident from the decline of maternal mortality from 230 per 100,000 live births in 1992 to 17 in 1996 (Philip 2000).

Box 11.3
Mother-friendly
and baby-friendly
communities

Source: UNICEF 2004.

Innovative activities in The Gambia show that building capacity, knowledge, and motivation at the community level can result in significant and sustainable improvements in nutrition at minimal additional cost.

With a view to improving maternal well being, pregnancy outcomes, and infant feeding practices, the program in The Gambia pursues an integrated approach that builds on widely known baby-friendly hospital initiatives, supported by the United Nations Children's Fund and WHO. The approach is to establish mother-to-mother support groups that become family self-help and support groups, including men.

Five women and two men are identified by each community to be trained as volunteers to implement and monitor the activity. Where available, traditional birth attendants are included in the group. Local problem analysis leads to a 10-step plan, which includes ensuring that families act on nutrition and health advice, that mothers are encouraged and given time and space to pursue exclusive breastfeeding for the first six months, that workplaces in the village and on farms provide shelter for small children accompanying mothers to work, and so on. When all 10 steps have been achieved, it falls to the government to recognize such efforts by awarding mother- and baby-friendly community status to successful villages.

sible and cost-effective and clearly underpin national economic growth. Many policy and program instruments exist for preventing malnutrition, but to implement them it is essential to ensure outreach of services and resources to remote, rural areas where populations prone to malnutrition are concentrated" (Delhi Declaration 2004).

Examples of countries that have used this community-led framework to address malnutrition successfully include:

- In the Iringa project Tanzania focused on growth promotion, reducing women's workloads, and community-driven actions.
- In an integrated nutrition project India's Tamil Nadu focused on monitoring growth and promoting and targeting short-term supplementary feeding for children and pregnant women.
- Bangladesh used growth monitoring and feeding to change maternal behaviors and added a strong focus on micronutrient supplementation and salt iodization.
- Honduras also focuses on behavior change for mothers.

Homegrown school-based feeding programs

A second synergy trigger recommended by the task force is promoting homegrown school-based feeding programs as an effective way of creating agricultural, educational, and market benefits and addressing gender inequality in chronically hungry communities. Nutritious food offered at school will attract hungry children to attend school and improve both attendance and school performance. Providing take-home rations will also offer economic incentives for families to send their children to school.

The task force recommends that interventions for the chronically hungry should be undertaken with locally produced foods

In a recent publication, Ahmed and Caldes (2004) show that governments in some developing countries have used homegrown school feeding programs to stimulate the demand for local produce, increase agricultural growth, and create jobs with impressive results. Some examples:

- China's National Milk Program, launched in 1999 to increase dairy product consumption by school children, creates 233 new jobs in the dairy industry for every 100,000 children who join the program. Participating Chinese dairy farmers earn an additional \$400 a year from milk sales for every dairy cow added to their herds.
- Thailand's School Feeding Program, started in 1985, included a national milk scheme. Thailand depended greatly on imported dairy products before 1985. But domestic production then rose from 120,000 liters a day in 1985 to 1,550,000 liters a day in 2001. An estimated 250,000 jobs have been created in the dairy industry.
- When Guatemala shifted its school feeding procurement from central industrial suppliers to local producers and involved local families in the preparation of school meals, markets in the areas covered by the program developed significantly.

The literature indicates, however, that many potential synergies of homegrown feeding programs have either not occurred or been fully documented. The task force, based on the extensive field experience of its members, strongly recommends that such interventions for the chronically hungry be undertaken, as much as possible, with locally produced foods. It is our belief that this will provide major synergies related to multiple Goals, such as the following:

Education. There is substantial evidence that school feeding programs can have a positive effect on students' cognitive functions, increase enrollment and retention, improve attendance, lower repeater and dropout rates, and improve exam performance. In addition, school meals improve students' cognition, short-term memory, verbal fluency, and ability to concentrate (Janke 1996). This measurably improves their educational performance, when compared with students in schools without meal programs. Education, especially for girls, will broaden their options, teach them about nutrition, and offer the best tool for overcoming poverty and hunger (WFP 2001b, Ahmed 2004).

Education gender gap. School meals increase school attendance by girls and help keep them in school. A program in Bangladesh increased girls' enrollment by 44 percent in contrast to 28 percent for boys (Ahmed and del Nimmo 2002). Research shows that educating girls can help delay marriage, reduce family size, create greater spacing between births, boost earning power, and improve the nutritional status of girls' future children. Some 44 percent of the decrease in child malnutrition between 1970 and 1995 is attributable to increased women's education (Smith and Haddad 2000).

School feeding can alleviate short-term hunger, especially in times of crisis

Child mortality. The effects of improved education for girls are reflected in the welfare of the next generation: each added year of schooling for a mother results in a 5–10 percent decrease in child mortality among her children (WFP 2001a). Through nutritional education and school gardens, the programs can provide important knowledge and skills to students, particularly adolescent girls soon to become mothers. Feeding programs can strengthen children's immune systems, reducing their vulnerability to malaria and other widespread diseases.

Nourishment through nutritious foods. School feeding can alleviate short-term hunger, especially in times of crisis. The nourishment these programs provide is significant. In Peru school breakfasts increased children's energy intake by 2 percent, their protein intake by 28 percent, and their iron content by 4 percent (Jacoby, Cueto, and Pollitt 1996). Such programs have also proved effective in delivering micronutrients to children. For example, studies in the Philippines have demonstrated the potential to reduce vitamin A deficiencies among children by providing them with buns made from fortified flour in schools (Solon 2000).

Poverty. Poor, food-insecure families rely on their children to help with farm work, to collect and carry firewood and water, to care for younger siblings, and to help with cooking and food preparation (WFP 2004c). Homegrown feeding programs can help alleviate this burden, and through local sourcing provide farmers with reliable income for their produce, creating opportunities for cottage industries engaged in small-scale processing of added-value products, such as oil, sugar, and fruit drinks. The programs can also become a coping mechanism, providing a reliable source of food that reduces the need for costly risk-mitigation strategies, such as depleting productive assets.

HIV/AIDS. School feeding works as an effective tool and intervention in the HIV/AIDS crisis. Food-assisted literacy and trade-skills training help orphans get some education. Recent studies have also shown that one of the first responses of an HIV/AIDS-affected household is to pull children out of school to help support the family. Foster families and other facilities providing shelter to orphans find their resources stretched thin. Because of family responsibilities and dire poverty, orphans often cannot afford to attend formal school full time. Food assistance and literacy training are two basic investments that can make a significant difference for their futures (WFP 2004c).

Conflict. In times of conflict and crisis, keeping schools open and offering school feeding programs have helped to divert children from child labor or child soldiering. Schools provide children with a sense of normality, unbroken

**Homegrown
school
feeding
programs
can provide
a powerful
incentive to
local farmers**

routine, and friendly and structured environment at a time of turmoil (Ahmed and Caldes 2004).

Agricultural markets. Homegrown school feeding programs can provide a powerful incentive to local farmers to produce and sell more food. A guaranteed price gives farmers greater incentives to obtain credit to make investments in soil health, water management, and higher quality seeds. If scaled up, this approach could generate significant agricultural demand. But there are few examples of school feeding programs designed to benefit local agricultural production.

In a recent study commissioned by the Task Force on Hunger, Ahmed and Sharma (2004) concluded that if school feeding programs with locally produced foods are successful in inducing farmers to adopt modern technology in maize production, then they have the potential to substantially benefit producers and consumers throughout Sub-Saharan Africa. The authors assumed that 50 million primary school-age children (about half the total population) would receive homegrown school feeding. They estimated that in aggregate terms, the supply for maize shifts by 30 percent (translating into a 26.6 percent increase in production from the 2003 baseline), and the demand curve by 20.1 percent.

The greater shift in supply results in a net 7 percent decrease in the unit cost of maize from the 2003 baseline price. But the total cost of production increases by 17.8 percent—mainly due to a 26.6 percent increase in total maize production from the 2003 baseline. The 26.6 percent increase in maize production (9.09 million metric tons) will satisfy the additional maize demand of 7.4 million metric tons for homegrown school feeding.

The total incremental benefits of homegrown school feeding on maize production are potentially worth about \$1.6 billion a year in 2003 prices. Of this total, 57 percent would go to consumers, and 43 percent to producers. With the high variability among African countries in development level, market conditions, infrastructure development, political and economic situations, and prices, the authors had to make several assumptions about commodity prices, demand and supply elasticities, maize production market surpluses, and numbers of beneficiaries. But maize or another staple cereal is only part of a balanced homegrown school meals program, so the benefits to local food demand are likely to be higher.

It bears mentioning that there is no single standard for school-meal rations. Normally rations are designed to provide between 400 and 1,200 kilocalories a day. But they vary by gender, age, cultural preference, and location. For example, sorghum is the dominant cereal in Sudan, but depending on the potential for local purchase, other cereals such as millet or wheat are sometimes used. In addition, the number of products used in homegrown school feeding

Homegrown feeding can be fully incorporated into broader community programs

varies widely, and there is no standard share of total calories from the main cereal (Webb 2005).

The local procurement of food in food delivery programs provides important economic and social synergies through nutritionally balanced meals, produced locally and suited to local tastes. Depending on local circumstances, dietary habits and culture, a meal providing approximately 2,000 kilocalories a day could consist of a carbohydrate base (maize, sorghum, sugar), a protein component (chicken, beans, milk, eggs), a fatty acid component (peanut oil and palm oil for frying), a micronutrient component (mango, passion fruit), vegetables and iodized salt, and local foods that provide both carbohydrates and micronutrients (cassava, bananas). Improved soil fertility and water management, along with rural roads, are critical for the success of such a program. They need to be in place so that small farmers can adopt modern agricultural technology.

Such locally produced meals may not always supply the required amounts of vitamins and minerals for school children, so it may be necessary to fortify the fruits and vegetables with premixes of vitamin A, iodine, iron, and zinc. The harvesting and management of wild foods and vegetables and foods from tree gardens, school orchards, and community forests are also good sources of food for these programs.

Components of homegrown feeding can be fully incorporated into broader community programs. School feeding programs should be expanded to ensure that the children are not only fed a meal at school with locally produced food but also given rations of food to bring back home, offering an economic incentive for families to send children to school, especially girls. Due to the importance of education, especially women's education, in contributing to the reduction of malnutrition (Smith and Haddad 2000), these programs should be linked to community nutrition programs described in the previous section to achieve the most synergistic benefits.

Estimates for Ghana suggest that school lunches cost \$0.25 a day per child when the food is sourced locally (totaling \$50 a year per child) or \$0.19 a day per child if sourced from international food assistance. Such assistance is likely to be needed during startup periods, while contracts with local farmers, delivery systems, and financial accountability mechanisms are being set up. Over time and with greater competition and scale, these costs should fall. The future costs and impacts of such programs will need to be monitored at the national level.

Investments in soil health and water resources

The third synergistic trigger recommended by the Task Force on Hunger is increased investment in soil health and water. As already stated, a large percentage of hungry people in Africa and some parts of Asia and Latin America are smallholder farmers with degraded or nutrient-depleted soils, with inade-

quate soil organic matter, poor physical structure, poor water-holding capacity, lack of soil nutrients, high risk of erosion, and lack of soil biodiversity. Hunger and poverty reduction in such areas will require significant increases in farm production and reduced risk of failed harvests, possible only if water management, soil health, and productivity can be improved or restored.

Soil health investments should include a combination of technical extension and support services, and external support for asset-building farm investments in soil fertility restoration and maintenance, such as agroforestry, green manure and cover crops, conservation tillage, and mineral fertilizers, depending largely on the local economic context. Soil improvements must be linked to access to improved varieties of both staple food crops and of seeds to green manure and cover crops and agroforestry tree species—as well as with associated activities, such as water harvesting and soil and water conservation. These may be also integrated with land management practices outside farm plots to improve watershed functions and the habitat for wildlife.

Investments to improve water resources should include increasing the availability and quality of water—and the associated health benefits for the

Box 11.4
Watershed
restoration and
management in
Orissa, India

Source: Agramee
2002a,b.

Despite abundant natural resources, Orissa is one of India's hungriest states. During the hungry period (June–September), communities have resorted to eating ground-up mango pits and other normally inedible forest products. In 2001, 200–300 residents died of starvation. A local NGO, Agramee, which has worked in Orissa's remote tribal areas for 23 years, coordinates community-based programs to increase food security including watershed management projects.

In the Kodikitunda watershed, Agramee scientists worked with tribal villagers in a “bottom-up planning process” to design a watershed restoration project including:

- Reforestation of degraded ridgeland, formerly used as upland fields.
- Soil and water conservation through construction of earth berms and terraces, boundary planting, stone gullies to channel runoff, check dams, and water ponds for percolation and irrigation.
- Restoration of soil fertility and water absorption capacity through use of nitrogen-fixing trees, including *Simarouba glauca* (a drought-resistant tree that produces oil, processed by the village women's group).
- Crop diversification and intensification, including rice, maize, cashews, spices (turmeric), and fruits (banana, lychee, mango, jackfruit, papaya, and lemon).
- Redevelopment of barren lowlands into rice paddy fields.

By 2002 agricultural production had increased about 70 percent, and cropping intensity 37 percent. Both incomes and health have reportedly improved as a result.

To complement these activities, villagers founded a grain bank to ensure against food shortages. They also created a community savings fund to provide loans and help support the village school. And they lobbied for government funds to establish a road to their village (previously inaccessible by vehicle), helping establish minimal links to agricultural markets. Agramee managed this project for the first five years (1994–99), after which it was taken over by the Village Watershed Users Association. A model in the region, it continues to show good results.

**Water
management
programs
should be
based on
community
action**

poor. Water quality will continue to grow in importance with the expansion of periurban livestock, agriculture, and chemical-intensive horticulture production—and with the need to combat waterborne disease to improve health and nutrition, especially for children. Water management programs should be based on community action, but in some cases the scale of the problem or the effectiveness of solutions requires that investment programs be coordinated at district, watershed, or ecosystem level (box 11.4).

The Task Force on Hunger thus recommends kick-starting agriculture-driven rural economic growth by encouraging major and sustained public investment in soil health and water management. Such initiatives are needed in most African countries, as well as in other parts of the world that face similar constraints, until producers overcome this soil infertility-poverty trap. The task force recommends two soil fertility interventions that will assist the food-insecure farmer: voucher systems to reduce input costs and agroforestry fertilizer trees, green manures, and cover crops.

Voucher systems to reduce input costs. There is a tremendous need to reduce the costs of purchased inputs. Various interventions have been shown to have the potential to reduce the costs of inputs that help to improve soil health (Bremen and Debrah 2003; IFDC 2003). First, bulk purchases to supply several countries in a region can significantly reduce the unit costs of inputs (as in East Africa). Second, targeted voucher schemes can get subsidized inputs to those most in need without risking the corruption and excesses of earlier subsidy schemes. The schemes would operate as follows:

- Identify poor farmers who qualify for subsidies (say, those who earn less than \$1 a day) with NGOs playing a key role, and make sure that sufficient attention is given to women-headed farming families. Farmers in need are then given vouchers for the purchase of inputs, in the form of “smart cards” with picture identification and electronic information, as used successfully in South Africa.
- Use private retailers or agrodealers to redeem the vouchers and deliver the goods. Learn from past experience that direct delivery by government or agencies is detrimental to the private sector, hampering its growth. The retailers exchange the vouchers for money supplied by a government or donor agency.
- Train village-level extension workers to educate farmers to use mineral and organic fertilizers effectively and return crop residues to the soil—and to issue certificates of compliance that subsidized inputs are used in the receiving farmer’s fields, to maintain the validity of the smart card for future use.
- Include a sunset clause, so that the subsidies are gradually phased out over a given number of years. In view of the need for long-term commitments if economic development is to take off, this should take about a decade.

Governments and donors, working with the private sector, are the key players in reducing input costs

The key ingredients for the success of voucher schemes thus include the presence of traders and their central role in the scheme, a rigorous targeting and monitoring system, an accountable and transparent system for allocating vouchers, an efficient system for redeeming vouchers, and a sunset clause, typically leading to the reduction of subsidies after 5 years and their total elimination after 10 years. Governments and donors, working closely with the private sector, are the key players in reducing input costs.

Although greater reliance on the private sector for input supply is a step in the right direction, withdrawal by the state from direct trading in such inputs as fertilizers will not ensure that smallholders have access to them, since the private sector may be too weak to step into the vacuum. When state operations are withdrawn, a more gradual scaling down is required than has sometimes been practiced—otherwise a vacuum will almost certainly occur.

At least four conditions must be met to give smallholder farmers access to mineral fertilizers, including highly reactive phosphate rocks:

- The fertilizer sector must have enough competition to keep fertilizer prices low. Governments need to ensure that importers can procure from the lowest priced sources in international markets, and that domestic entrepreneurs and traders have easy entry into the fertilizer distribution business.
- Financial incentives and technical support should be provided to traders operating in remote areas with poor transport links, to persuade them to integrate fertilizer into their operations. If this is not done, fertilizer prices will remain high and supplies will be unreliable.
- Government initiatives are needed to train market entrants in financial transactions and in technical knowledge about the products and how farmers should use them.
- Subsidies need to be strictly time-bound to be fiscally sustainable and well targeted to avoid subsidizing fertilizer use by larger, wealthier cultivators. If properly structured, these can be viewed as investments in restoring productive capacity.

This intervention needs to be linked with interventions that build capacity in logistics and management of these expanded smallholder input delivery systems. It also requires training large numbers of local people to serve as extensionists in their communities, and to facilitate farmers' access to specialized technical information, research findings, and technical knowledge in other communities. Integrated nutrient management strategies (and pest management strategies), combining inorganic and organic nutrient sources and crop rotations, should be pursued.

Agroforestry fertilizer trees, green manures, and cover crops. Agroforestry techniques provide multiple benefits. The main purpose of using agroforestry fertilizer trees (improved leguminous tree fallows) is to capture nitrogen from the

Fertilizer trees also generate benefits related to other Goals

air and incorporate it into the soil where maize or other cereal crops are grown, all at very low cost. This technique can bring an array of benefits to the agricultural productivity of smallholder families:

- A doubling or tripling of maize yields for yields starting from a chronically low base (less than a ton per hectare).
- Recycling other nutrients from the soil, including potassium, calcium, magnesium, sulfur, and micronutrients.
- Reducing weed growth and eliminating the parasitic weed striga.
- Increasing the water-holding capacity of the soil, which reduces vulnerability to drought. During the 2003 drought in Malawi, thousands of farmers who used fertilizer trees obtained low maize yields (about a ton per hectare) while neighbors using mineral or no fertilizer obtained zero yields.

Fertilizer trees also generate benefits related to other Goals, such as:

- Poverty and energy. One-third of a hectare of fertilizer trees provide enough fuelwood for a typical farm household to cook for a year. Farmers can also generate income by selling the fuelwood and crop surpluses from the fertilizer trees.
- Gender. Obtaining fuelwood from their own fields can save women 6–12 hours of hard labor per week, which they can spend caring for family or resting.
- Environment. The fuelwood produced by fertilizer trees reduces wood-gathering in nearby forests and woodlands, reducing deforestation and

Box 11.5 **How a smallholder farmer diversified and got out of absolute poverty**

Source: Stewart 2004.

Harrison Akumoye farms one hectare of terraced sloping land in Vihiga District in Western Kenya. His maize yields tripled when he restored soil health by using nitrogen-fixing trees, phosphate rock applications, and biomass transfers of the Mexican sunflower that he planted on all his internal farm boundaries.

Realizing that he could feed his family with only a portion of his farm, Akumoye gradually converted his hectare into a diverse enterprise. He grew kale and tomatoes and sold them to the nearby market in Luanda, using mainly biomass transfers. He planted napier grass (*Pennisetum purpureum*) in a field and Calliandra, a nitrogen-fixing tree that produces high-protein fodder and nectar for bees along bunds.

He fed the napier grass and Calliandra leaves to a high-grade milk cow obtained from Heifer International. He now has several cows and sells milk to neighbors. He also planted bananas which he fertilized with Mexican sunflower biomass. He planted *Grevillea robusta* trees for poles and timber and established a small tree nursery to sell fruit, timber, and fertilizer trees to farmers. Fruit trees and passion fruit vines now surround his house. His wife grows grain, legumes, and vegetables for home consumption.

He estimated his income at less than \$1 a day in 1997. Six years later it was \$10 a day. His house has a zinc roof, also used to harvest rainwater. All his children go to school, wear clean clothes and shoes, and are well nourished. Now a leader in his church, he is building a church for his community.

helping preserve biodiversity. In addition, fertilizer trees sequester considerable amounts of carbon in the soil (1–2 tons of carbon per hectare a year), contributing to the mitigation of climate change.

Much can happen when a poor farmer diversifies through agroforestry and into such high-value products as milk, tomatoes, onions, or kale (box 11.5).