INVESTING IN NUTRITION with World Bank Assistance

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This booklet is published for government managers and staff responsible for—and interested in—addressing malnutrition. The purpose: to acquaint them with what the World Bank is doing in nutrition—and why—and to help them understand how collaboration with governments takes place.
Why invest in nutrition

Why does the World Bank invest in nutrition? The simple answer is that resources put into nutrition are an investment with significant returns, today and in the future. And the results of that investment meet the World Bank's overarching objectives of alleviating poverty and spurring economic growth.

Improving nutrition directly addresses some of the worst consequences of being poor. It concretely improves the well-being of populations even when incomes remain low, and it offers the promise of increasing future incomes by boosting productivity. Investment in nutrition can help workers produce more and children learn more in school. Such investment in people is the firmest foundation for economic and social development.

Malnutrition is primarily a result of insufficient dietary energy (calories) and protein, often in combination with some form of infection, and a lack of micronutrients (especially, iodine, iron, and vitamin A). The all-too-familiar outcomes are poor health, stunted growth, blindness, mental debilitation, and likely early death. The most vulnerable to these consequences are children under the age of three—in a critical period of growth—and pregnant and lactating women who have special nutrition needs. In poor countries, one-third of child deaths annually are due, in part, to malnutrition, and a sizeable majority of pregnant women in developing countries suffer from iron deficiency anemia, with the consequent higher risk of death related to childbirth.

What nutrition investment can do. Investments in nutrition aimed at vulnerable groups can lessen and, in some cases, eliminate the debilitating and potentially fatal effects of malnutrition. Simultaneously, the same investment can begin to address the underlying causes of poverty and malnutrition by allowing the poor and malnourished to be more productive and to benefit more from education—both important aspects of economic growth.

- Productivity. Chronically malnourished children become smaller adults with reduced physical capacity, an obvious drawback to productivity in many jobs. The advantages of adequate nutrition in
adults are clearcut—more productive work days, fewer days lost to illness, and longer work lives. Gains that accrue are reflected in higher earnings and prolonged participation in the work force.

- **Education.** Early childhood malnutrition can delay or irrevocably damage a child's mental development and impair learning capacity. The merits of investment in early childhood nutrition, confirmed in recent studies, are not only to prevent such effects but to improve growth and health and contribute to subsequent performance in school and later in the work force. Similarly, malnutrition and related illnesses affect a school-age child's ability to learn and even to attend school. Improving the nutrition of school children allows more of them to attend school, over more years, and with higher achievement.

**Rationale for direct action.** Although better nutrition generally follows economic growth in most countries, especially the lowest-income, this route is usually unacceptably long. Under the most optimistic growth assumptions, nutrition improvement generally takes more than a generation, and the consequences of delay are costly.

Moreover, raising incomes of poor families, although vitally necessary for sustainable nutrition improvement, does not automatically yield better nutrition, particularly among those most at risk. The benefit of additional income can be canceled out by harmful feeding and caretaking practices and by problems of infectious disease, often related to poor environmental hygiene or the absence of adequate health services.

Nor do higher levels of food production for domestic consumption, as important as this is, ensure adequate nutrition. The ability of those at risk of malnutrition to acquire food does not necessarily improve with increases in the total food supply or changes in food prices. To reach food-deficit families, food marketing and distribution systems must be effective, which often is not the case. In addition, the effects of food price changes on the malnourished are uncertain. Households that are net food consumers may benefit from lower food prices, while those that are net food producers may be hurt. And even when at-risk groups receive additional food, the behavioral and health causes of malnutrition can negate its value.

In short, waiting for economic growth to improve nutrition is unsatisfactory, and aiming to improve nutrition through raising incomes or increasing general food supplies is insufficient and too time consuming. A direct and immediate response to the problems of malnutrition also is required.
How countries are confronting malnutrition

The World Bank invests a considerable proportion of its resources in efforts to increase food crop production and to increase incomes of the poor, both essential to overcoming the roots of malnutrition. In addition, however, its intensified commitment to poverty alleviation and human resource development has led to many new projects that try to improve nutrition directly and immediately. This sampling of country experiences suggests a range of opportunities—beyond programs to improve agriculture and increase incomes—for governments interested in confronting malnutrition. The programs described here follow several key strategies:

- Targeting food transfer programs
- Providing essential nutrition services to those at risk
- Supplying critical micronutrients
- Using a multifaceted approach
- Building capacity in nutrition programming

Targeting food transfer programs

Many countries maintain costly consumer food subsidies or other food transfer programs in an attempt to ensure adequate nutrition for their populations. Recently, the World Bank has worked with a number of governments in identifying mechanisms for reorienting and targeting such programs, making more efficient use of limited resources while increasing the impact on the nutrition status of vulnerable groups. Techniques under way include economic means tests, self-targeting (subsidizing commodities or services not used by the better-off), and targeting by geographic area.

*Economic means tests.* In Mexico, means testing is part of the targeting mechanism for a food coupon program redesigned under an agriculture
sector adjustment project. Urban households earning less than two minimum salaries are eligible to receive one kilogram of tortillas per day. Beneficiaries register for the program, in person, at designated government offices where social workers verify incomes. Random home visits are conducted to verify eligibility as well. An estimated 2.5 million families have incomes below 1.5 minimum salaries; the new, rigorously targeted, program reaches 2.7 million families.

Self-targeting mechanisms. In Tunisia, a structural adjustment project developed a stratified approach to the subsidy on milk, a product consumed by all income groups. The project suppressed the subsidy on milk in high-cost, long-life cartons, mainly used by those with adequate income, but continued to subsidize inexpensive bottles purchased by low-income consumers. A similar targeting approach based on packaging was used for cooking oil.

In Honduras, health centers, predominantly used by the poor, distribute food coupons to mothers and young children provided they are up-to-date with their health care—for example, child growth is regularly monitored, and pregnant women receive prenatal checks. Based on careful selection of project areas and initial pre-testing, the program transfers a significant resource, equal to 22 percent of average annual income (providing 30 percent of caloric requirements for mothers and children). It has more than doubled the use of preventive health services.

Geographic targeting. Many programs use geographic targeting in conjunction with other targeting mechanisms. The food coupon program in Honduras operates only in the poorest health regions. The tortilla program in Mexico locates the participating tortilla shops in selected poor urban areas as well. School feeding programs frequently target by geographic area. In the Dominican Republic, a school feeding program included in an education project operates only in the poorest rural regions of the country and in poor urban communities. In Venezuela, under a social development project, one mechanism for the distribution of food stamps is through selected primary schools in poor urban and rural zones.

Providing essential nutrition services to those at risk

As in the case of food transfer programs, a major shift in the delivery of direct nutrition services—monitoring and promoting growth in childhood and during pregnancy, giving food and micronutrient supplements, encouraging changes in nutrition practices—has been to
concentrate resources more pointedly on those most in need. Over time, techniques have been refined for identifying individuals at risk for malnutrition and providing them with nutrition services.

**Growth monitoring and promotion.** One of the most effective tools for identifying and targeting nutrition and health interventions is monitoring a child’s growth. It permits early detection of problems (often invisible to the eye) and permits early responses that are easier and far more cost-effective than the treatment of malnutrition. However, growth monitoring alone does not change nutrition status; rather, it is a targeting tool for the actions combined with it—food supplementation, nutrition education, and medical referral, when needed.

The Tamil Nadu nutrition project in India effectively used growth monitoring as part of a growth promotion strategy involving the targeting of nutrition and health interventions to those at risk (Box 1). Many other World Bank-assisted projects in, for example, Bolivia, Guyana, Pakistan, and Zimbabwe emphasize the linkage of growth monitoring with food supplementation, effective nutrition counseling, and/or other complementary nutrition actions (for example, micronutrient supplementation). In Zimbabwe, growth monitoring and nutrition counseling under a family health project are now being linked with a long-standing program of community food production that provides the most needy with food supplements. The project emphasizes the promotion of nutrition activities and the careful design, production, and use of a nutrition education kit for village health workers.

**Food supplementation.** No longer the primary component of nutrition services, as it was in earlier years when food was often provided indis-

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**Box 1. Targeting malnutrition in India—the Tamil Nadu model**

The Tamil Nadu Integrated Nutrition Project (TINP), now reaching 2 million women and children from age 6–36 months in 20,000 villages of this south Indian state, has reduced the prevalence of severe malnutrition by 55 percent at a cost of about $11 per child per year.

Operationally, TINP couples universal growth monitoring of young children and nutrition counseling for their mothers with targeted interventions—on-site feeding, health checks and services—for children found to be nutritionally at risk. The project gives major attention to the training and supervision of community nutrition workers—local mothers with healthy children and thus with high credibility among their peers—and on systematic project monitoring and evaluation.
criminately to all children, supplementary feeding of young children in World Bank projects now frequently occurs in targeted programs and in conjunction with growth monitoring and nutrition counseling.

In the Tamil Nadu nutrition project, children receive a small supplement in the form of a snack (70 grams of a grain and legume), on-site, for ninety days, until growth becomes normal or until it becomes clear that medical referral is necessary. So that the snack is less likely to substitute for meals prepared at home, it is wheat-based—in the Tamil culture, food is not regarded as a meal unless it includes rice. The effect on the malnourished child is considerable. In a second Tamil Nadu nutrition project, and projects extending the principles of the program to four other states in India, an additional, or alternative supplement higher in both calories and protein, is being provided to the most severely malnourished children who fail to respond to the regular supplement.

Another approach to improving the effectiveness of food supplements is being tried in a project in Tanzania. The bulk or viscosity of the normal ration is being reduced with no compromise in its nutritional value. The technique involves a catalyst, for example, a spoonful of germinated grain, often sorghum, that turns a regular (stiff) porridge to a more liquid form, making it easier for a malnourished child to consume in larger quantities. This technique is also included in projects in Burkina Faso and Malawi.

A new emphasis in food supplementation for women, to improve childbirth and the chances for sustained breastfeeding, is targeting women and girls before they become pregnant. A woman's pre-pregnant weight and health status play an important role in the birthweight of her children. Thus, addressing the nutrition and health needs of women earlier in their life cycle may be an effective way to increase birthweights and decrease the subsequent growth failure and mortality of their children. An upcoming project in India will implement this approach to improving the nutrition of future children by identifying moderately and severely malnourished adolescent girls and providing them with supplementary food and iron and treatment for parasitic and other infections.

**Changing nutrition practices.** Project experience shows that in many instances changing behavior alone can have substantial impact on malnutrition, even in the absence of additional income or food. The gains particularly pertain to young children when adequate intake of calories or nutrients can be achieved with small increments in food or even shifts among foods. This is especially relevant in situations where the adults in a family are adequately nourished and the children are not.
The behavioral change component of a World Bank-assisted nutrition project in Indonesia led to a significant improvement in the nutrition status of 40 percent of children under two years of age. It demonstrated that the key to effective nutrition counseling and education is to develop programs aimed at changing specific practices of targeted audiences. Anthropological and market research techniques such as focus groups were used to identify constraints to proper feeding and those practices susceptible to change. Based on this information, messages aimed at specific behaviors were developed. Community nutrition workers conveyed the messages during growth monitoring sessions, and they were reinforced by radio spots.

Intensive nutrition education to confront maternal malnutrition, especially to mitigate against harmful eating practices—for example, the practice of eating down during pregnancy, consuming less food for fear of a difficult delivery—is an important aspect of a women-in-development project in The Gambia. Both formal and informal modes of communication are used.

Supplying critical micronutrients

Many countries, with World Bank support, are confronting deficiencies of iodine, iron, and vitamin A that affect significant portions of their vulnerable populations. Giving high doses of vitamins and minerals orally or by injection (supplementation) or adding nutrients to a common food (fortification) are the major remedies, aided by educational efforts to change diets. A reinforcing combination of interventions is often desirable. The costs of supplementation and fortification are so low and benefits so considerable that some type of micronutrient intervention is cost-effective in virtually any setting.

Supplementation. In Bangladesh a project provides high-dose vitamin A supplements to children and lactating women as part of an anti-blindness program. Given at 3 to 6 month intervals, supplements are distributed by family welfare and health assistants responsible for government outreach services. Vitamin A supplementation is included in projects in India, the Philippines, and Sudan as well. Injections at two-year intervals against iodine deficiency disorders are further provided in Bangladesh. Projects in Guinea, Malawi, and Mozambique also support iodine supplementation through injection or capsules.

Iron supplementation for pregnant women and young children with anemia also is a part of the project in India. De-worming interventions accompany the supplementation in areas where over 60 percent of the
population is infected with worms. (Worm infections increase the loss of iron and impair its absorption from food.)

**Fortification.** In Zaire, a World Bank-assisted project combats iodine deficiency through a national salt fortification program. The World Bank also assists the governments of China and Mali with iodine fortification. The Mali project is experimenting with a new technique that fortifies the rural water supply. Iodine in a cylinder is attached to the community water pump and released as the water flows. Tests have shown that iodine deficiency is eliminated in six months with no side-effects and at a cost of US$10–20 cents per person.

**Dietary change.** In Tanzania, an iron deficiency control program includes efforts to promote the production and consumption of iron-rich foods and vitamin C-rich foods that increase the absorption of iron. Educational materials particularly target pregnant women. The educational effort to change diets complements a program of iron supplementation for vulnerable groups.

**Using a multifaceted approach**

In addition to the actions discussed above, multifaceted programs may include child care services that focus on improving nutrition, small-scale credit schemes for employment generation (mainly directed at women) linked to nutrition education, interventions to increase family food production (e.g., home gardens), labor-saving technologies to reduce the caloric expenditure of women, community food preservation and storage, and the delivery of packages of agricultural inputs and food.

**Agricultural inputs and food.** Through providing a one-time package of agricultural inputs and food, the nutrition component of a project in Malawi seeks to break the cycle of poverty imposed by pre-harvest hunger and to support more stable agricultural production for low-income female-headed households. Grain supplies often run out as much as seven months prior to the next harvest, compelling women to seek work on larger farms and thereby neglect their own land. In a program jointly conducted with UNICEF, a package of hybrid maize and soybean seed, fertilizer, and three 90-kg bags of maize meal are provided. This enables each woman to work her own land, increase her yields, become more familiar with credit and agricultural extension, and, in the process, protect the nutrition of her family. Nutrition services delivered through health centers are coupled with the program.
Labor-saving devices. In Lesotho, to reduce the calorie expenditure of women, the nutrition component of a World Bank-assisted project provides targeted credit for the purchase of diesel-powered grain processing mills by women's groups. Making these mills available saves many hours of heavy labor per woman per week and generates additional income for food-deficit households. This component is designed to complement a UNICEF-supported community-based program of child growth monitoring, nutrition education, and related income-generating activities.

Building capacity in nutrition programming

Interested governments build their capacity in designing and implementing nutrition programs throughout all phases of World Bank-assisted projects.

Identify needs. Identification, the usual first step, includes data collection on the nature, magnitude, location, and possible causes of nutrition problems. World Bank projects commonly include resources to finance surveys and help governments build their institutional capacity to conduct assessments. In Côte d'Ivoire, for example, government statisticians worked with World Bank staff to develop, implement, and analyze a national-level household survey. Data on nutrition status and related information on income and access to health care were collected, permitting an analysis of the socioeconomic determinants of nutritional risk and the potential effects of various policy changes. In Papua New Guinea, nutrition studies carried out in a World Bank-assisted rural development project provide the foundation for nutrition information in that country.

Train and supervise. Commonly, a primary impediment to the delivery of effective nutrition services is lack of adequately trained and supervised personnel. World Bank-assisted projects generally include support for inservice training in nutrition for direct providers of nutrition services and for those working in related sectors, for example, agricultural extension staff, who require a better understanding of nutrition principles and concepts.

The success of India's Tamil Nadu nutrition project is partly attributed to its approach to training and supervision of community nutrition workers. Initial training was sixty days, with an emphasis on hands-on experience rather than lectures. It took place locally, eliminating the problem of trainees having to leave their families for extended periods
of time. Training concentrated on specifics: how to survey the village and encourage participation of target families, conduct growth monitoring and nutrition counseling, and maintain records. Workers also received periodic in-service training and close, supportive supervision, oriented toward encouragement and problem solving. The ratio of supervisors to workers was 1:10, enabling each village center and worker to be visited for a full day twice a month.

**Involve the beneficiaries.** Since most nutrition interventions are community-based, and improving nutrition often involves changes in behavior, community participation is desirable, even essential. By becoming more demand-oriented and responsive to needs of recipient populations, nutrition activities increasingly involve target communities in project design, planning, and implementation. Such participation can generate enthusiasm for project activities, raise awareness of nutrition, and improve the likelihood of long-lasting effects.

An early World Bank-assisted project in Thailand encouraged villagers to form cooperatives to run their own nutrition programs, including growth monitoring and supplementary feeding programs. Supplements (mixtures of rice and mung beans, rice and soybeans, or groundnuts and sesame seeds) were produced by the village cooperatives, with excess production sold and proceeds put back into the nutrition program or other community development activities. Approximately half the cooperatives became self-supporting. Malnutrition declined rapidly in the participating villages, which was attributed in large part to community involvement.

In a World Bank-assisted nutrition project in Brazil, mothers assisted teachers in the implementation of a supplementary feeding and preschool education program. Fathers and other community members donated time and materials to construct feeding and play centers. The academic performance of children participating in the program was 15 percent better than for non-participants, and repetition rates were markedly reduced by the program. The high degree of community participation helped to lower costs, strengthened links between families and local schools, and opened the door for large-scale public preschool education throughout Brazil.

**Monitor and evaluate.** Nutrition programs commonly have been hindered by inadequate monitoring systems. As a result, there has not been the necessary information on project activities to allow for rapid feedback and adjustments in project design and execution. The programs also are hindered by insufficient mechanisms to assess effectiveness and
impact. World Bank-assisted nutrition operations focus on assisting governments to develop greater capability in these areas.

In Brazil, for example, an evaluation of a food coupon program focused on the operational aspects of program delivery in addition to the impact on nutrition status. In doing so, it showed that the practice of limiting the purchase of subsidized food to once every two weeks (because of the extra paperwork involved) meant that the poorest could not regularly come up with the necessary cash to buy food for a two-week period and take advantage of the subsidy. Also revealed was that many families had to take taxis to carry home the food because the distances to markets selling subsidized food were so great. Subsequently, the program was modified to serve those most in need by, inter alia, selling food regularly in small neighborhood shops in selected impoverished areas.

In India, the Tamil Nadu nutrition project's comprehensive monitoring system identified and addressed bottlenecks as they arose. Periodic progress reports provided continuous feedback on the numbers of children and mothers reached, body weight changes in children, personnel performance, and logistics of supply. Such data permitted rapid responses and necessary adjustments. Performance data on key nutrition indicators were displayed monthly at community nutrition centers. Baseline surveys were taken before implementation and evaluations conducted every two or three years.
How the World Bank can help

Experience shows that governments committed to alleviating malnutrition can make substantial progress. For such governments interested in external collaboration in strengthening or expanding nutrition activities, the World Bank now has the capacity and flexibility to respond with a range of instruments:

- Nutrition investment projects
- Nutrition components in projects in other sectors—for example, health, agriculture, education, population
- Structural and sectoral adjustment operations
- Policy advice and analytic work on a country’s or region’s nutrition situation
- Collaboration in nutrition operations with other donors and non-governmental organizations (NGOs).

Lending for nutrition

The World Bank currently assists governments with nutrition-related projects in fifty-three low- and middle-income countries. Projects include a range of responses to malnutrition, depending on country-specific needs. Where advanced malnutrition is prevalent among the most vulnerable groups, for example, critical short-term nutrition needs are met by providing food supplements combined with complementary interventions (for example, nutrition education or micronutrient supplementation). Or the family food basket is enlarged by improving the effectiveness of government expenditure on food subsidies or other types of food assistance programs. Over the past six years the World Bank has expanded its direct nutrition operations eighteen-fold: from US$50 million in total project costs for fiscal 1987-89 to US$900 million in fiscal 1990-92. An estimated US$1.2 billion is expected for operations for fiscal 1993-95 (see figure). Not included in these amounts are nutrition components in structural and sectoral adjustment projects or food-for-work operations.
**Total resources mobilized for nutrition in World Bank projects, fiscal 1987–95**

By fiscal year

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Millions of US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987-89</td>
<td>200</td>
</tr>
<tr>
<td>1990-92</td>
<td>1,000</td>
</tr>
<tr>
<td>1993-95</td>
<td>1,200</td>
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</table>

(programmed)

*Note.* Includes World Bank, government, and cofinancier resources in World Bank-assisted projects. The World Bank's fiscal year is July 1 to June 30.

By region

- **Europe and Central Asia and Middle East and North Africa** (4%)
- **Africa** (21%)
- **East Asia and South Asia and the Pacific** (37%)
- **Latin America and the Caribbean** (48%)

*Defining resources.* The World Bank on average finances about half of total project costs. Characteristically, World Bank resources are used to finance a variety of goods and services, including incremental salaries, equipment, facilities, technical assistance, studies, monitoring and evaluation, training, development of communication materials, and micronutrients.
If lack of food is the main constraint to achieving a key objective, the World Bank loan may be used to finance a portion of the food. In some cases, food supplements, provided almost as medicine for needy children, have been financed for a limited time. In other cases, World Bank resources have funded food stamps and their distribution system, aimed at vulnerable groups. The World Bank, generally, is not actively involved in ongoing food aid efforts, such work being the mandate of specialized United Nations agencies. However, in response to the recent drought in Southern Africa, the World Bank has financed emergency food imports to stave off malnutrition and starvation.

**Nutrition investment projects.** Projects directed primarily at nutrition goals are most effective in alleviating malnutrition, according to World Bank experience. Reducing malnutrition-related mortality, the incidence of low birth weight, moderate and severe growth retardation of young children, and specific micronutrient deficiencies are the operational aims of such projects. Typically, nutrition activities include growth promotion usually involving the monthly weighing of young children and, increasingly, the screening of pregnant women; this is accompanied by nutrition counseling and supplementary feeding of those whose growth is faltering. The Tamil Nadu nutrition project in India has become an important model; by targeting food to the needy when they need it, food cost has been significantly below that of most feeding programs for preschool children.

Institution-building and training are integral to action programs directed at improving calorie, protein, and micronutrient consumption. A series of nutrition improvement projects trained thousands of Indonesians to develop and manage extensive nutrition activities. Existing institutions (the Center for Research and Development in Nutrition and the Academy of Nutrition) were strengthened and expanded, and a facility devoted to village level food technology was established.

A World Bank nutrition project may also include support for primary health care services, income-generation activities that include nutrition education promoting the use of extra income in nutritionally beneficial ways, and programs to address the special nutrition needs of women. The phases of a typical World Bank project are outlined in Box 2.

**Nutrition as a component of projects in other sectors.** Activities in other sectors—health, population, primary education, early child development, agriculture and rural development, and infrastructure—often relate to and complement those in nutrition. With a renewed country focus in its work, the World Bank assists governments in developing projects that exploit the synergies among these sectors, often adding
Box 2. World Bank project lending cycle

The life of a typical World Bank project, from identification of need, to completion of work, and evaluation of results, is termed the project cycle. In close collaboration, country officials and World Bank staff identify needs that can be addressed in projects suitable for World Bank financing. Both continue to collaborate over a one- or two-year period on project preparation, which is the responsibility of the borrower. Preparation transforms the idea into a detailed proposal that takes into account technical, institutional, economic, and financial considerations. Although most preparation costs are met by the borrowers, funds for preparation are available from several possible sources: special loans for technical assistance, advances under the Project Preparation Facility, reimbursement to the borrower under the subsequently approved project for preparatory work done earlier, or funds allocated under another, related project. Cooperative programs between the World Bank and other donors are also an important source of funds for preparation.

Next the World Bank conducts an appraisal, or review, of the proposal. Its staff and consultants examine the proposal in detail (including the capacity of implementing agencies to carry out the project) and draft a report. The World Bank and borrower then negotiate agreements on project execution, which are converted into legal obligations. After negotiations, the project is submitted to the Bank's Board of Executive Directors and, if approved, the loan is signed.

After Board approval, implementation begins and is the borrower's responsibility. The Bank remains in periodic contact with the project to help ensure that its objectives are achieved and to deal with problems that arise. The final stage of the project cycle is evaluation by the borrower and the Bank, during which the project's outcome is measured against its objectives.

nutrition components. Such activity is now a substantial portion of the World Bank's nutrition portfolio.

- **Health.** The complex interaction of malnutrition and infection often leads to health problems not effectively treated by medical intervention alone. Such important interactions relate to protein-energy malnutrition and diarrheal infection, vitamin A deficiency and measles, and iron deficiency anemia and parasitic infection and malaria. Consequently, as natural components of primary health care, nutrition services are frequently integrated into World Bank-assisted health-related projects.

In northeast Brazil, more than 15 million people are being served by a model for basic health services, including growth monitoring,
treatment of diarrhea, food supplementation, and breastfeeding promotion, in the context of a World Bank-assisted health project. Comparable programs incorporating nutrition actions in efforts to improve health service delivery are underway in Guinea and Turkey.

• Population. Nutrition programs that reach young mothers can be used to encourage family planning by winning the mothers’ confidence and offering instruction on family planning methods. In Indonesia, a project providing growth monitoring and related nutrition services was an important catalyst for villagers to become involved in family planning activities.

Exclusive breastfeeding during the first 4 to 6 months following birth can be highly effective as a contraceptive (in addition to its protective health and nutrition benefits for the infant). And in some cultures, breastfeeding may be the only acceptable form of effective family planning. Actions to support breastfeeding, such as educating mothers or training personnel in how to enhance its contraceptive effect, complement other methods that reduce fertility. In Jamaica, a population project supported a national nutrition education and communication program that explicitly recognized and promoted the contraceptive effect of breastfeeding. The general fertility rate was reduced by 33 percent over a seven-year period, in part due to the project.

• Primary education. The value of school nutrition programs to improve academic performance is becoming more apparent. Increasingly, World Bank-assisted primary education projects include nutrition interventions for school children.

In Brazil, to improve learning and retention among poor and migrant families in the state of São Paulo, a primary education project is supporting improvements in the school feeding program, screening for health and nutrition conditions among school children, integrating health and nutrition education into the curriculum, and implementing pilot iron and vitamin A supplementation programs through schools. Similarly, in Burkina Faso, school-based micronutrient and de-worming programs and curricular innovations in nutrition and health education are aimed at improving students’ health and nutrition status.

• Early childhood development. Nutrition is fundamental to new programs that link interventions to address a range of early childhood needs. Such programs deal with the whole child in contrast to earlier ones that focused, almost exclusively, on educational interventions to improve a child’s readiness for primary school. An early
childhood development project in Colombia is expanding a novel approach to early childhood care services for poor families; it includes nutrition and other child development interventions (Box 3). Similar projects are being prepared in Argentina, Bolivia, and the Philippines.

- *Agriculture and rural development.* Addressing nutrition concerns in agriculture and rural development projects is accomplished in a variety of ways—from using increased food consumption as an explicit project objective (rather than increased production or exports), to providing nutrition-related extension services to increase availability of food through home gardens and food processing and preservation techniques. In a rural development project in Nepal, the selection of all components flowed from the calculations and analysis of the requirements to meet food needs. In the southern highlands of Papua New Guinea, a project that involved a shift from subsistence to cash crops was modified to provide extension services to help increase food production in family gardens and to include other assurances that crop changes would not have negative impact on household nutrition.

Lessening the workload, hence caloric needs, of women is recognized as an alternative to increasing caloric intake to achieve better nutrition. Interventions focus on women's most arduous tasks—hauling water and wood and pounding grain. In Niger, a rural

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**Box 3. Meeting nutrition needs through targeted child care services in Colombia**

In Colombia, the World Bank-assisted Nutrition and Child Care Project supports the expansion of community-based child care for poor families. Groups of interested parents choose a “community mother” to care for 15 children in her home. Initial training in nutrition and child care is provided. A small monthly stipend is paid, and loans are arranged for the community mothers to upgrade their homes to minimum standards as daycare providers. A locally-produced food supplement—baked in bread form—and other fresh foods are provided through the program. The costs are one-third those of institutional child care programs.

Cost effectiveness is achieved, *inter alia*, through improving the efficiency of the production and marketing of the food supplement and by ensuring the quality of the nutrition training for the community mothers. A regular monitoring and evaluation system to assess the program's impact on the nutrition status is being introduced.
development component of a population project builds on the success of a number of UNICEF-funded micro-enterprise interventions for women. The component provides the capital to purchase labor-saving equipment such as food processing mills, and to initiate income-generating activities, such as market gardening and horticulture, contributing to the improved nutrition status of women.

- **Infrastructure.** The World Bank assists many countries in building infrastructure—such as transportation or water supply and sanitation systems. Given the profound effects on worker output of inadequate food intake and iron deficiency anemia, interventions to meet the nutrition needs of workers can improve the outcomes of these projects while reducing malnutrition.

  In Ghana, a transportation project includes an innovative effort to construct feeder roads by employing residents, predominantly female, from the communities to be served by the new roads. To ensure that their nutrition status is not compromised and to increase their productivity, food, iron supplements, and de-worming medication are provided. Also included is nutrition education on how to use the additional income from road building to benefit family nutrition.

**Nutrition and policy-based lending.** Structural adjustment involves broad-based economic or sector policy reforms, typically reducing public expenditures, changing trade and exchange rate policy, and enacting institutional changes. These factors can sometimes negatively affect real household income, hence the ability of families to acquire food and nutrition services. In attempts to redress these possible short-term consequences, recent adjustment programs pay special attention to nutrition problems.

  In Venezuela, for example, policy and budgetary reform are used to promote positive nutrition effects. Comprehensive reforms included replacement of general subsidies with ones targeted at groups vulnerable to malnutrition. The result: targeted food and nutrition programs increased more than seven-fold, from US$102 million in 1989 to US$761 million in 1991.

  In Sri Lanka, an adjustment operation supports the restructuring of the main anti-poverty and food programs to improve the impact on nutrition and overall welfare of the poor. The food stamp program reduces the total number of beneficiaries but increases the benefits to the most needy. A large income-transfer program is being replaced *inter alia*
by a targeted community-based nutrition program. The previously untargeted mid-day school feeding program is now focusing on poor families with school-age children and providing them with additional food stamps.

Reforms under a structural adjustment loan in Romania include phasing out general consumer food subsidies, expanding a food coupon program, and implementing a free meals program.

- **Agriculture sector adjustment.** Reforms in the agriculture sector have in some countries aimed at converting general food price subsidies—benefitting all segments of the population—to targeted ones. The effects: reduced burden on national budgets and increased potential nutrition impact from these food transfer operations for the neediest.

  In Mexico, of nearly US$2 billion spent annually on food consumption programs, poor rural families, on average, benefitted about US$9 per year, while urban families gained about US$200. Even so, in urban areas, only 10 percent of the nutritionally vulnerable had access to subsidized tortillas and milk. Under an adjustment operation, general food subsidies were replaced with targeted food assistance aimed at needy rural areas and at the urban poor not previously reached.

- **Social funds.** In recent years, various types of social funds have been established for financing grassroots development activities, designed to compensate for the immediate effect of economic restructuring. Mainly in Africa and Latin America, nutrition sub-projects are included in roughly half those social funds initiated with World Bank assistance. To facilitate quick implementation, the administrative responsibility for appraisal, financing, and monitoring of sub-projects is usually given to an autonomous, non-governmental, or parastatal organization.

  In Bolivia an emergency social fund involved an autonomous administrative body and the funding of more than 3,000 small projects designed to create social and economic infrastructure and temporary employment for roughly 20,000 workers. Nutrition sub-projects include school breakfasts, assistance to mothers’ clubs, and various forms of institutional feeding.

  In Chad, a similar fund actively involves NGOs in the planning and implementation of nutrition sub-projects, including nutrition education linked to food distribution and improved nutrition services at primary health centers.
Nutrition sectoral analysis and policy advice

Beyond lending *per se*, the World Bank offers assistance to interested countries in identifying and analyzing nutrition problems and in the design and management of projects. Nutrition sector analyses form the basis for policy dialogue with governments and the mobilization of external resources for actions to address malnutrition.

In some countries, sectoral analyses focus exclusively on a country's nutrition and food situation. In others, nutrition is analyzed as part of an overall human resources assessment and, increasingly, as part of broader analyses of social expenditures, poverty alleviation, women in development, and the environment.

In Mozambique, sectoral analysis emphasized the need to develop a food and nutrition-based *safety net* for those adversely affected by war and structural adjustment policies. Proposals included: subsidies on lower-status but nutritionally adequate foods, such as sorghum or yellow maize, to take advantage of self-targeting; changes in the existing ration system; and direct income transfers targeted to the most needy. The analysis laid the groundwork for a World Bank-assisted health and nutrition project.

In Costa Rica, a public expenditure review, helping to refine social sector strategies, found that health and nutrition expenditures accounted for the largest proportion of government social expenditures—6 percent of gross domestic product (GDP). Opportunities were identified, however, to target nutrition programs better, concentrating more on those at risk. Recommendations called for more precise screening of beneficiaries to be reached in a health and nutrition project.

*Regional analysis.* The World Bank also conducts nutrition-related regional studies to discern broader patterns or trends often less clear in national studies. An analysis of child feeding programs in Latin America, for example, compared the total amount spent on food programs to the total number of malnourished preschoolers. The conclusion: if the nearly US$2 billion currently spent per year on food programs were used instead to provide a higher level of benefit to a smaller number of needy households and individuals, it would be sufficient to meet the nutrition needs of four-and-a-half times the actual number of malnourished children. Other regional nutrition analyses are currently underway for Africa and Asia.
Collaboration: expanding opportunities for nutrition

In much of its nutrition work, the World Bank collaborates with other international and bilateral donors and NGOs, drawing on the strength of each in design and implementation. Some donors are better organized than the World Bank for on-the-ground program supervision and monitoring or for developing pilot projects to test new approaches. Others, for example, the World Food Program, have the capacity to provide substantial food assistance to countries in need.

In some countries, the World Bank builds on projects and activities of other agencies. A project in Tanzania, for example, aims to replicate in four regions of the country a nutrition project originated by UNICEF-WHO in the Iringa region. Similarly, the World Bank-assisted early childhood development project in Colombia is based on a model developed and tested by UNICEF in conjunction with several NGOs. In Cameroon, a large-scale nutrition education program within a food security project builds on earlier pilot work undertaken by CARE/Canada; that agency is now helping the Government of Cameroon implement the expanded activity.

The World Bank also collaborates with other agencies in joint identification missions and in donor co-financing. For instance, a series of World Bank/UNICEF/USAID program missions to Nigeria have been conducted, with project preparation support to the government from UNDP. In Argentina, UNICEF used its on-the-ground skills to mobilize a team of some two dozen experts to prepare the proposal for a World Bank-assisted maternal and child health and nutrition project.
What lessons for the future

What has the World Bank learned from its experience with nutrition projects? Lessons capture the missteps and successes of numerous players—the World Bank and other donors, host governments, NGOs, the communities involved. Given the vast differences in circumstances and nutrition needs among countries, no single set of recommendations can be presented. Nonetheless, common guidance can be provided based on the now-wide range of country experiences in addressing malnutrition in association with the World Bank and other donors.

Nutrition counts. Efforts to combat malnutrition in low- and middle-income countries are not solely humanitarian gestures but are at the core of sustainable development. Targeted nutrition programs can, in the short run, reduce malnutrition and its effects. In the long run such programs can develop more productive economies.

Resources are available. Malnutrition’s magnitude and complexity, as well as the disparity between needs and resources to tackle it, has often resulted in inaction by many governments and donors. Today, by contrast, successful nutrition programs are at work in various parts of the world, dealing systematically with manageable aspects of the problem. And donor resources for nutrition have dramatically increased.

Targeted, timely, and low-cost responses are effective. A favorable environment for the design and implementation of effective nutrition programming exists today. In the past, large food programs were viewed as prohibitively expensive by governments. Experience now shows that if programs—ranging from institutional or community-based child feeding to consumer food subsidies—are well-targeted to children and households most at risk, malnutrition can be significantly reduced within a reasonable time-frame and at a relatively low cost.

Don’t ignore micronutrients. Until recently, there has been inadequate attention to micronutrient malnutrition. Increasing evidence points to the importance of this problem and the cost effectiveness of interven-
tions to alleviate certain vitamin and mineral deficiencies. These interventions offer opportunities to improve nutrition rapidly and inexpensively.

Change behavior for long-lasting nutrition improvement. Experience shows that effective nutrition education designed to change specific behaviors in specific groups of people can contribute to reducing malnutrition. The costs of such efforts are very low relative to some other nutrition interventions, and the benefits of effective nutrition education programs endure well beyond the period of program implementation.

Keep it focused, simple, and flexible. Although differences in human resources, delivery mechanisms, and bureaucratic systems will require a variety of approaches, it is clear from experience that programs work best if they are focused, simply designed, and flexibly structured. Strong technical training, supported by frequent supervision, is an important element of effective programs. Attention to monitoring and evaluation to guide the administration of program activities may prove a critical ingredient for long-lasting program success.

The World Bank is committed to building on current experience in nutrition programming and is prepared to engage in dialogue with interested governments to develop suitable strategies for nutrition investment. Governments interested in seeking World Bank assistance in addressing malnutrition may initiate discussions with World Bank resident representatives or World Bank staff on mission in the country. Alternatively, interested governments may write:

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