



# Nutrition Policies in Developing Countries: Challenges and Highlights

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Malnutrition remains one of the major obstacles to human well-being and economic prosperity in developing countries.<sup>1</sup> There are strong normative and instrumental reasons related to human and economic development to address the burden of malnutrition as an issue of public concern. This calls for governments to prioritize policies and actions and allocate substantial investments in efforts to address the needs of their malnourished populations. Governments have the responsibility to establish functioning institutions and infrastructure enabling the poor to achieve nutrition security and to provide services for treatment and prevention of malnutrition and related diseases.

Yet, despite high-level commitment in the context of the Millennium Development Goals (MDGs) and other initiatives, most developing countries are likely to fail in achieving their nutrition-related goals, although there are large differences in nutritional achievements across countries. For example, developing countries as a whole have less than a 5 percent probability of meeting the MDG 1 target, but 61 of these 141 countries have a probability of 50-100 percent (Stevens et al. 2012). Countries that are highly unlikely to achieve the target of halving child undernutrition are concentrated in Sub-Saharan Africa and Southern Asia, whereas most Latin American, Southeast Asian, and Central and East Asian countries have been quite successful (Stevens et al.

2012). In addition, progress towards other MDGs directly related to nutrition such as 'reducing child mortality' (MDG 4) and 'improving maternal health' (MDG 5) is still much too slow in most developing countries and particularly in Sub-Saharan Africa for achieving the targets by 2015 (UN 2012). The lack of political commitment and action of central governments may be a critical factor (or even the main reason) for failure in reducing malnutrition, whereas in other developing countries a functional nutrition policy in place may be the driver of success (Nabarro et al. 2012).

In this policy note, we review developing countries' nutrition policies at the national level. We first define the area of nutrition in the sector-aligned landscape of national policies. We then discuss the challenges to address malnutrition in national policy processes and turn to examples of countries that have successfully included nutrition in their development agenda. We conclude by outlining the rationale for making malnutrition reduction a policy priority, and providing some policy recommendations for the realization of this objective.

## FRAMING NUTRITION POLICIES

The U.S. National Library of Medicine defines *nutrition policy* as "governmental guidelines and objectives pertaining to public food supply and nutrition including recommendations for healthy diet and changes in food habits to ensure healthy diet".<sup>2</sup> Thus, a nutrition policy

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<sup>1</sup> Malnutrition is generally defined as a chronic condition which is a consequence of over- or underconsumption of any or several essential macro- or micronutrients relative to the individual physiological and pathological requirements. Four forms of malnutrition can be distinguished: Protein-energy (or protein-calorie) malnutrition, (dietary) micronutrient malnutrition (that is, mineral and vitamin deficiencies due to an inadequate diet), secondary malnutrition (that is, malnutrition primarily caused by nutrient loss or impaired absorption from illness or disease), and overnutrition (Mayer 1976). This policy note focuses on the first three forms of malnutrition that lead to a state of undernutrition.

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<sup>2</sup> *Policy* can be defined as "a high-level overall plan embracing the general goals and acceptable procedures especially of a governmental body" (Merriam-Webster 2012). By this definition, a government strategy outlining a particular policy as well as specific regulations, guidelines, and programs resulting from that policy are integral parts of the policy. Important to notice is that most development country governments have a general commitment to reducing malnutrition in their development strategy but are lacking specific strategic goals and regulations, guidelines, and appropriate programs to put this commitment into operation as well as a system for monitoring and

establishes generally improved nutrition (or—in developing countries—reduced prevalence of malnutrition) as a goal of the state toward which it allocates resources. It outlines the processes and activities that the government will take or support to achieve this goal, usually documented in a strategy. A policy should provide guidance on setting an institutional framework for implementation and identifying the responsibilities for ensuring that the specific activities planned are carried out successfully (Benson 2008). The boundaries between nutrition policies and policies in related realms may be drawn where regulations and actions cease to have (or not have) a traceable impact on nutrition (although its assessment in practice is challenging).

To narrow down the area of responsibility of nutrition policy, recalling the causes of malnutrition is helpful. The UNICEF framework (UNICEF 1990) and following frameworks (e.g. IFPRI et al. 2010) suggest three tiers of causation. First, the *immediate causes* of malnutrition, which relate to the individual level, are inadequate dietary intake of nutrients (from food) and ill health causing or amplifying malnutrition (such as through infectious diseases). Second, the *underlying causes* operate at the household level and directly influence an individual’s food and nutrient intake or health status. They include inadequate access to food, health care, potable water and sanitation—largely due to poverty; poor child caring and feeding practices; poor (female) education and nutritional knowledge; lack of family planning; and the poor status of women. Third, the *basic causes*, which are rooted at the societal level, emerge from problems in physical infrastructure, in the macro-economy, in institutions (including cultural norms) and governance.

In accordance with this framework, nutrition policies can be distinguished between nutrition-specific and nutrition-sensitive policies. Although these terms have been increasingly used, clear definitions are lacking. Even so, the literature on nutrition interventions (or actions, more generally) offers some guidance.<sup>3</sup> Nutrition-specific interventions summarize those that directly target the *immediate causes* of malnutrition or treat its symptoms. Based on evidence from the 2008 Lancet series on

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evaluation of progress. In this brief, we therefore consider strategic commitments only as part of a credible policy if specific legislations or actions emerge from them.

<sup>3</sup> Lacey and Pritchett (2003) define a nutrition intervention as an action purposefully planned and designed with the intent of changing a nutrition-related behavior, risk factor, environmental condition, or aspect of health status for an individual, target group, or the community at large. It involves steps of selecting, planning, and implementing the specific action to meet the nutrition needs of individuals or groups of individuals.

maternal and child undernutrition (Lancet 2008), Horton et al. (2010) identified 13 highly cost-effective interventions to be implemented at scale in countries with high rates of malnutrition (Box 1). These interventions focus on the “window of opportunity”—that is the period throughout pregnancy and up to the second year of life (spanning about 1,000 days)—in which interventions are particularly effective and permanent health damages can be averted (Bryce et al. 2008). Accordingly, policies that aim at improving the nutritional status of individuals by, for example, fostering the implementation of such interventions are to be considered as nutrition-specific policies.

### **Box 1: Highly cost-effective maternal and child nutrition interventions**

#### Behavior change interventions

1. Breastfeeding promotion
2. Complementary-feeding promotion
3. Handwashing with soap and promotion of hygiene behaviors

#### Micronutrient and deworming interventions

4. Vitamin A supplementation
5. Therapeutic zinc supplements
6. Multiple micronutrient powders
7. Deworming
8. Iron-folic acid supplements for pregnant women
9. Iron fortification of staples
10. Salt iodization
11. Iodine supplements

#### Complementary and therapeutic feeding interventions

12. Prevention or treatment of moderate malnutrition in children aged 6–23 months
13. Treatment of severe acute malnutrition

Source: Horton et al. (2010).

The “1,000 days” policy, which is an example of such policies, explicitly calls for a focus on maternal and child health and nutrition interventions. It acknowledges that nutrition goes beyond adequate food consumption and also emphasizes the importance of appropriate child care, related nutritional knowledge, as well as the nutritional, economic, and social status of mothers in particular and women in general. Hence relevant areas for nutrition legislation include regulations for conditioning mandatory participation of women in antenatal and postnatal care and nutrition education programs and of children in nutrition monitoring programs to public assistance benefits; food fortification standards designed to increase the micronutrient intake of mothers and children; a legal framework to regulate the quality and marketing of breast

milk substitutes; and laws governing maternity leaves and mother-friendly working hours (SUN 2012).

Contrary to nutrition-specific policies whose boundaries appear relatively well defined, the boundaries of nutrition-sensitive policies and development approaches are fuzzy. They might be best defined in respect of their (intended) nutritional outcomes (World Bank 2006), following the UNICEF framework. We hence consider nutrition-sensitive policies and development approaches as all kinds of interventions that explicitly aim at improving nutrition indirectly or achieving improved nutrition as a 'positive externality' of activities primarily targeted at non-nutrition factors of human well-being.

Nutrition-sensitive policies and development approaches are designed to initiate the developments that counter the *underlying and basic causes* of malnutrition by reducing food and nutrition insecurity, strengthening resilience to shocks, and reducing disease burdens. Policies that follow such development approaches and facilitate such interventions are typically geared toward the agricultural, social, health, and education sectors and include regulations and actions for higher agricultural productivity and diversity, poverty reduction, income generation, social protection, women's empowerment, health system strengthening, population growth control, and education.<sup>4</sup> Nutrition-sensitive policies also include policies crosscutting and overarching these specific (sub)sectors such as fiscal policies allocating higher budget shares to nutrition interventions or investments in nutrition-favorable infrastructure (e.g., drinking water network, sewer system). Other examples may be trade, growth, and price policies that aim at poverty reduction and food security and can demonstrate (universally) positive nutrition outcomes.<sup>5</sup> While all of these factors are potentially important determinants, a recent cross-country study on the drivers of nutritional change over time found that four factors emerged as the most robust predictors of reductions in malnutrition globally (Headey forthcoming). These are female secondary education, reductions in fertility, household asset accumulation, and increased access to health services. The study also found that economic growth generally leads to reduced chronic malnutrition and that growth in food production translates

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<sup>4</sup> Headey et al. (forthcoming) reviews the evidence on how agricultural and food policies can contribute to improved nutrition.

<sup>5</sup> *Food security* is a situation "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO 1996, par. 1). Food security is a necessary but insufficient precondition for *nutrition security*. For a detailed overview of the food and nutrition security system, see Ecker and Breisinger (2012).

into reduced malnutrition only at low levels of initial production.

## CHALLENGES TO ADDRESS MALNUTRITION IN NATIONAL POLICY PROCESSES

Despite a growing global recognition of the importance of adequate nutrition for economic and social development, few countries have given nutrition issues high priority in national policy-making processes and resultant policies (Mwadime 2011). A pre-requisite for development of effective nutrition policies and programs is the recognition of malnutrition as the outcome of various interacting shortcomings that fall into the responsibility of several government sectors. Hence, malnutrition is a multi-sectoral problem that requires cross-sectoral solutions (Garrett & Nataliccio 2011). Concerted efforts, however, that involve the key line ministries (health, agriculture, education, social affairs, economic development, and infrastructure), leading governmental and non-governmental organizations, and the private sector have been rare, but attempts in this direction have become more prominent recently (partly in response to growing donor demands) (Bezanson & Isenman 2010, Bhutta et al. 2008, Fiedler 2000).<sup>6</sup> Major challenges to make nutrition an integral part of national policy and achieve substantial progress in reducing malnutrition are (1) the complexity of cross-sectoral coordination; (2) the lack of awareness of senior decision-makers of the scale of the malnutrition problem and its social and economic consequences for the current and future generation; (3) the lack of social pressure, advocacy (particularly from within the country), and resulting political commitment associated with malnutrition; (4) the limited financial resources allocated to implement programs at sufficient scale and timing; and (5) the limited availability of qualified personnel in developing countries to adequately address the problem.

Cross-sectoral coordination: The functional organization of many governments allocates responsibilities according to delineated social or productive sectors, which generally does not lend itself to actions that require coordination between sectors. Sectors generally differ substantially in their key mandates and expertise, making difficult the pursuit of objectives that are perceived as secondary, not well understood, or not aligned with their primary mandates. Moreover, the planning and budgeting process is often regarded as a zero-sum game in which sectors compete for limited resources, and work is conducted in 'silos' (Benson 2012). Nutrition, as an

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<sup>6</sup> For example, Mwadime (2011) discusses the efforts for cross-sectoral coordination in Lesotho, Malawi, Rwanda, and Zimbabwe.

inherently cross-sectoral issue, does not fit well into this administrative organization. This is further complicated by the fact that nutrition is generally not regarded as a separate sector, but usually a subsector of health, competing with other subsectors over resources. Therefore it does not have its own ministry and often lacks an administrative body to advocate for it in national policy processes independent of the sector-wide requests of the superordinate sector.<sup>7</sup>

Nutrition awareness in policy: Poor recognition by senior policy- and decision-makers of malnutrition as a critical factor of ill health and as a public health problem or more broadly as major obstacle to economic and social development is a crucial barrier to making it a top priority on the development policy agenda (Bryce et al. 2008). In fact, chronic malnutrition is generally accepted as a 'normal' condition and part of the context within which the government works as best as it can (Benson 2008). Disabilities, cognitive impairment, and long-term susceptibility to disease are often not viewed in relation to malnutrition because their common underlying cause and milder impairments are often less visible to the untrained eye than other diseases. Furthermore, chronic malnutrition does not attract broad attention in the media to the extent that famines and natural catastrophes do, because it does not arise from sudden and severe events. Thus it is often not considered a pressing problem. Also, leaders may not be aware of the existence of cost-effective nutrition interventions and their relatively high prospects of achieving rapid success (Mwadime 2011).

Advocacy and social pressure: Limited engagement of civil society groups in nutrition advocacy—likely related to the lack of public awareness of the signs and costs of malnutrition—leads to insufficient political commitment (Benson 2004). In contrast to chronic malnutrition, sharp increases in acute malnutrition (such as during famines) receive widespread attention, and rising staple food prices are taken very seriously by the authorities because of the risks of social and political unrest. Even at the household level, chronic malnutrition—unlike food insecurity and hunger—is usually not recognized as a vital problem, primarily because of the absence of immediate physiological responses to nutrient deficiencies, such as in the case of mineral and vitamin shortages (hence *hidden hunger*). In addition, the burden of malnutrition largely falls on the poor and predominantly on women and children, who tend to be underprivileged in society and do not have a strong voice in public debates

and decision-making circles. Consequently, political leaders do not feel urged to act upon malnutrition, and the lack of political commitment translates into the allocation of insufficient financial resources to tackle malnutrition.<sup>8</sup>

Availability of financial resources: Relative to the scale of the malnutrition problem, the nutrition subsector is underfunded in government budgets and in the budgets of the international development assistance community. Although the amount of financial resources allocated to nutrition is difficult to estimate precisely (especially given the responsibilities scattered across government sectors), the poor progress in reducing malnutrition in most developing countries demonstrates meaningful evidence. For example, each stunted child in the 20 countries accounting for 80 percent of the global burden of child stunting received only \$2 out of the \$5-10 required to scale up community-based nutrition programs in 2006 (Horton et al. 2010, Morris et al. 2008). In contrast to malnutrition, the fight against HIV/AIDS has shown remarkable success, thanks to the commitment and funds of major international donors such as the Gates Foundation and attention by celebrities. The experience gained in fighting HIV/AIDS may indeed provide important lessons for the reduction of malnutrition.

Availability and quality of human resources: The availability of a civil service capable of formulating sound nutrition policies and strategies seems to be quite limited in many developing countries, especially in sub-Saharan Africa. Thus, expanding nutrition programs in universities, improving curricula, and attracting students constitute an important initial step towards more effective nutrition policies. However, lacking qualified personnel in key positions such as in ministries may also be a result of institutional barriers and inefficiencies in recruitment, despite sufficient financial resources. As a consequence, the institution's absorptive capacity for funds is constrained, since the allocation of funds to specific activities cannot be processed, and their appropriate use cannot be ensured.

In addition to overcoming these challenges, any nutrition policy must be consistent with the government's master development strategy to be successfully integrated into national policy processes. To be given due consideration across the government, it is crucial to clearly state the objectives of the nutrition policy in this master development strategy (Benson 2008). Finally, the demonstration of success and its dissemination are

<sup>7</sup> Benson (2008) analyzes the institutional constraints to integrating nutrition into national policy processes in Sub-Saharan African countries, especially Ghana, Mozambique, Nigeria, and Uganda.

<sup>8</sup> Peru exemplifies how civil society organizations can champion nutrition and make it a high government priority (Kim et al. 2011, Acosta 2011).

important tools in advocating any policy, requiring a monitoring and evaluation system to be in place.

## COUNTRY HIGHLIGHTS

Nutrition policies and programs have been implemented in many developing countries with varying degrees of success and with different levels of cross-sectoral coordination. As examples of promising nutrition policies rooted in different sectors, we present three country cases from different world regions, namely Brazil, Nepal, and Uganda.

First, the case of Brazil shows how nutrition can be successfully integrated into poverty reduction programs and demonstrates that well-crafted nutrition policies under strong political leadership can engender a substantial reduction in chronic malnutrition. The key to success in Brazil has been poverty alleviation with a focus on human capital formation through conditional cash transfers (CCTs), which have been proven to be successful in other Latin American countries, too, and may serve as model for middle-income countries (Ruel 2008). In addition, Brazil's actions to reduce its enormous income inequality have been critical for continuous reduction of poverty and malnutrition, given that it is much harder to maintain high reduction rates when the prevalence has been already brought down to moderate levels.

Second, Nepal provides an example of a nutrition policy under the responsibility of the health sector that was instrumental to a permanent implementation of a successful large-scale nutrition-specific intervention, namely a vitamin A supplementation program. The established distribution system may serve as a platform for scaling up other nutrition interventions and a basis for implementing a nutrition surveillance system in the future. Third, Uganda's orange-fleshed sweet potato (OFSP) program is an example of a promising agricultural intervention which has led to a significant reduction in vitamin A deficiency in the program intervention area.

### Brazil

In one decade Brazil managed to almost halve the prevalence of stunting among children under the age of five from an estimated 13.5 percent in 1996 to 6.8 percent in 2007 (Monteiro et al. 2010).<sup>9</sup> Thanks to the poverty reduction program and its health and nutrition components, the trend of declining child stunting since the mid-1970s has been accelerated considerably. Trend anal-

<sup>9</sup> This equals an annual reduction by 0.61 percentage points. As orientation, Ecker et al. (2011) estimate that a 1 percent per capita GDP growth translates into an annual average reduction rate of child stunting in low- and middle-income countries of 'only' 0.14 percentage points in the long run.

yses of the determinants of child stunting suggest that nationwide two-thirds of the reduction is attributable primarily to a decline in poverty and increases in mothers' education and secondarily to expansion of healthcare coverage and improvements in sanitation (Monteiro et al. 2009, Monteiro et al. 2010).

Food security had already been part of Brazil's policy agenda since the early 1990s, championed by a network of civil society organizations. In 2003 the engagement culminated in a declaration to combat hunger—a national priority by President Luiz Inácio Lula da Silva (Kepple et al. 2012). Today, the resulting 'Zero Hunger' strategy coordinates programs from 11 ministries and provides a framework for several initiatives including the flagship conditional cash transfer program 'Bolsa Família', which is considered the "cornerstone program for the promotion of food and nutrition security" in the country (Ananias 2008, Chmielewska & Souza 2011).<sup>10</sup> The success of the 'Zero Hunger' strategy rests on its manifold integration in Brazil's institutional and legal framework. The National Council on Food and Nutrition Security (CONSEA), which monitors the country's food and nutrition situation, has broad representation from the federal government and civil society and is institutionally linked to the presidency. The food and nutrition security secretariat and social protection secretariat—managing the 'Bolsa Família' program—are housed in the Ministry of Social Development and Fight against Hunger, which has the mandate to oversee the integration of food and nutrition security actions with the activities of other relevant ministries. And third, the 'Right to Food'—incorporated into Brazil's constitution in 2009—grants the status of public policy to food and nutrition security and requires the federal states to enforce the universal right guaranteeing regular and permanent access to food in sufficient quantity and quality.

### Nepal

In 1988 Nepal's Ministry of Health and Population launched the Female Community Health Volunteer (FCHV) Program as a means to improve community participation and enhance the outreach of health services (McPherson et al. 2010). The FCHV program was formally endorsed with a firm commitment by the 1991 National Health Policy as a key instrument to attain health

<sup>10</sup> "Bolsa Família" transfers cash to about 13 million low-income households conditional on children's school attendance and the family's compliance with an agenda for health monitoring, including child vaccination, antenatal care, and nutritional monitoring of pregnant and lactating women and pre-school children (Ananias 2008). "Bolsa Família" is the largest program under the "Zero Hunger" strategy in terms of scope and financial resources (Chmielewska & Souza 2011).

policy objectives.<sup>11</sup> In 1993 the Nepalese government with support of UNICEF, USAID, and others established the National Vitamin A Program (NVAP), which expanded from the 32 priority districts in 1997 to all 75 districts in 2002 thanks to the successful mobilization of an additional 50,000 FCHVs (Fiedler 2000). The volunteers have been in charge of providing each pre-school child a high-dose vitamin A capsule twice a year and educating parents on family and child nutrition among others (Thapa et al. 2005). This intervention resulted in a boost of vitamin A supplementation coverage reaching more than 90 percent of all pre-school children nationwide since 2007 (MOHP 2012). Vitamin A supplementation has been shown to avert about two-thirds of all new cases of xerophthalmia in Nepal (Katz et al. 1995), and the prevention of nearly half of all cases of death among children aged 12-59 months has been credited to the NVAP as a result of the vitamin A supplementation in combination with other preventive maternal and child health care interventions, and treatment of common childhood diseases (ERA 2006, Thapa et al. 2005).<sup>12</sup> Between 2001 and 2011 the prevalence of child stunting dropped by almost 30 percent (or 1.7 percentage points annually) from 57.2 percent to 40.5 percent (MOHP 2012). The success of the NVAP led to an extension of the FCHV program by including the distribution of deworming tablets in early 1999.

However, to maintain the rapid reduction in malnutrition rates, additional efforts toward a comprehensive nutrition program are needed since the marginal effectiveness of the currently implemented programs tend to quickly decline once moderate prevalence rates are reached. Nonetheless, the FCHV program may be of great value in this regard and for implementing a nutrition surveillance system.

## Uganda

Since the early 1990s, Uganda's Ministry of Agriculture, Animal Industry and Fisheries has been pivotal in formulating food and nutrition policies and has been in charge of food and nutrition security, together with the Ministry of Health. The Uganda Food and Nutrition Policy (UFNP) was enacted in 2003 and anchored in the country's master development and poverty reduction

strategy.<sup>13</sup> The strategy recognizes nutrition as a cross-cutting issue which requires cross-sectoral action in at least four key government sectors: health; agriculture; education; and gender, labor, and social development (GOU 2011). In 2008 the Food and Nutrition Bill was drafted to put in place statutory regulations and institutions for implementing the UFNP, particularly the Uganda Food and Nutrition Council (FNC) and a secretariat to coordinate the implementation of all nutrition interventions. The Uganda Nutrition Action Plan—which is the policy's operational plan—adopted a multi-sectoral approach to nutrition issues and was elaborated in collaboration with the responsible line ministries and with participation of representatives from civil society, the private sector, and international donors (GOU 2011). The UFNP recognizes micronutrient malnutrition (and particularly vitamin A deficiency), as a public health problem with critical implications for the country's development and provides guidelines for addressing the problem through several means, including nutrition education (e.g. promotion of dietary diversification) and promotion of production and consumption of vitamin A-rich foods (in addition to vitamin A supplementation).

An important component of the UFNP falling mainly in the responsibility of the agricultural ministry is the promotion of OFSPs.<sup>14</sup> The evaluation of this program showed that the intake of OFSPs between 2007 and 2009 increased from virtually naught to more than 30 percent of the total intake of sweet potatoes (contributing 44-60 percent of the total vitamin A intake), and the prevalence of inadequate dietary vitamin A intake declined by more than 30 percent, leading to a reduction in vitamin A deficiency among preschool children of almost 10 percentage points in the program intervention area (Hotz et al. 2012).<sup>15</sup> Despite these promising developments, the positive impact of the OFSP programs has been demonstrated only for the regions of the program implementation so far. Consequently, the program's capability for scaling-up at large, its stability over time, and its impact under different socio-economic and agricultural conditions are still to be demonstrated.

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<sup>11</sup> The strategy states that "community participation will be sought at all levels of healthcare through the participation of female community health volunteers" (Shrestha & Pathak 2012).

<sup>12</sup> Xerophthalmia is the dry eye syndrome in which the eye fails to maintain a healthy layer of tears to coat it. In developing countries, xerophthalmia is a common outcome of vitamin A deficiency and can lead to irreversible blindness.

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<sup>13</sup> At the time of the UFNP launch, the master development strategy was the Poverty Eradication Action Plan (PEAP) which was replaced by the National Development Plan (NDP) in 2010. The NDP reaffirms the importance of nutrition for Uganda's development (GOU 2011).

<sup>14</sup> Contrary to the white-fleshed varieties of sweet potatoes which have been more common in Sub-Saharan Africa, the OFSP are rich in beta-carotene—a vitamin A precursor—and have the potential to cover the full vitamin A requirements when eaten in common portions and frequency (Hotz et al. 2012).

<sup>15</sup> The program evaluation revealed that the total intake of sweet potatoes stayed constant or partly even increased, while the intake of white-fleshed sweet potatoes declined due to substitution with OFSP.

## CONCLUDING REMARKS

From a development policy perspective, there is a strong rationale for making nutrition a top government priority and implementing an effective nutrition policy. Good nutrition is fundamental for individuals to realize both their physical, cognitive, and economic potential. It is the basis for individual and family well-being and human capital formation and, as such, key to economic and social development in the current generation and, even more so, for future generations (Horton et al. 2010; Victora et al. 2008). Malnutrition reduces individuals' income generation potential, lowers children's schooling performance, increases the risk of disability, morbidity, and mortality, and thus contributes to the intergenerational transmission of poverty and illness (Black et al. 2008; Grantham-McGregor et al. 2007). At the societal level, malnutrition slows economic growth and deepens poverty through direct losses in productivity from poor physical and mental performance (or death) of the work force, indirect losses from reduced working and mental capacity of the population, and losses in resources due to increased health care costs (World Bank 2006). The economic costs of malnutrition are substantial; productivity losses to individuals alone are conservatively estimated at more than 10 percent of lifetime earnings and losses to GDP at 2 to 3 percent on average (Horton 1999; World Bank 2006).

In addition, there is quite robust evidence on how to effectively address the immediate causes of malnutrition and treats its symptoms. The nutrition literature provides precise recommendations on effective nutrition-specific interventions and guidelines on how to scale up such interventions (e.g., Horton et al. 2010, SUN 2010). There are global initiatives and international organizations offering practical, financial, and scientific assistance in implementing nutrition-specific policies and programs such as those allying under the *Scaling Up Nutrition (SUN) Movement* (SUN 2012). The SUN Movement helps countries to also address the institutional failures in nutrition-related governance outlined above and to monitor progress toward their committed nutrition aims.<sup>16</sup>

Furthermore, there are countries that have successfully implemented nutrition policies and demonstrated success in reducing malnutrition substantially, as exemplified above. Maybe the most convincing argument for a stronger political commitment to nutrition, though, is the high cost-effectiveness of direct nutrition interventions (Box 2). Asked to rank 30 solutions to the ten great global challenges primarily based on economic costs and

benefits, the 2008 Copenhagen Consensus listed five solutions addressing the 'malnutrition and hunger' challenge directly and another four indirectly through the link with health and education in the top ten solutions (CC 2008). The proposed interventions include micronutrient supplementation and (bio)fortification, nutrition and hygiene education programs, and immunization, of which most of them are targeted toward women in reproductive age and young children.

### Box 2: Cost-benefit ratios of large-scale nutrition interventions (aggregates)

Micronutrient supplementation	17.3
Micronutrient fortification	9.5
Biofortification (plant breeding)	16.7
Deworming preschoolers	6.0
Community-based nutrition promotion	12.5

Source: Horton et al. (2008).

Yet direct nutrition interventions are also substantially more effective when supported by nutrition-sensitive economic and social policies (Bhutta et al. 2008, Bryce et al. 2008). Addressing the root causes of malnutrition (such as food insecurity, poverty, poor education, lack of women's empowerment, population growth control, macroeconomic instability, and inefficient public services) is absolutely imperative for achieving sustained reductions in malnutrition. The development literature can offer little guidance on effective nutrition-sensitive development policies so far, because research in this area is still in its infancy. Similar to policy, research is challenged by the complexity of the determinants of malnutrition, which demands a multi-disciplinary research approach. Innovative methods to analyze the nutritional impacts of economic, agricultural, and food price policies (e.g., Ecker et al. 2011, Hoddinott et al. 2012), for example, are available but may require further refinement.

<sup>16</sup> To today, 30 developing countries have joined the SUN Movement. Nepal joined in September 2012 and Uganda in March 2011.

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