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Nutrition in Nepal

A National Development Priority

THE WORLD BANK

An estimated 2-3 % of GDP (US$ 250 to 375 million) is lost every year in Nepal on account of vitamin and mineral deficiencies alone.

Good Nutrition
A Foundation for Development

Nepal has a very high rate of child malnutrition: half (49%) of children under five are stunted and one third (39%) are underweight. Maternal undernutrition is also a significant problem in Nepal: One in four (24%) women of reproductive age has chronic energy deficiency (Body Mass Index <18.5). Women and children also suffer from some of the world's highest levels of vitamin and mineral deficiencies. Improving nutrition contributes to productivity, economic development, and poverty reduction by improving physical work capacity, cognitive development, school performance, and health by reducing disease and mortality. The economic costs of malnutrition are very high – an estimated 2-3 % of GDP (US$ 250 to 375 million) is lost every year in Nepal on account of vitamin and mineral deficiencies alone. Scaling-up key interventions to address these deficiencies will cost a small fraction of that amount.

Consider these facts:

- Child underweight is the single largest risk factor contributing to the global burden of disease in the developing world.

- Vitamin A deficiency compromises the immune systems of approximately 40 percent of the developing world's children under age five, precipitating the deaths of approximately 6,900 children in Nepal each year.

- Infants with low birth weight – reflecting in part malnutrition in the womb -- are at 2 to 10 times the risk of death compared with normal-birth weight infants. The same low-birth weight infants are at a higher risk of non-communicable diseases such as diabetes and cardiovascular disease in adulthood. One in five (21%) children is born with low birth weight in Nepal.

- Iodine deficiency in pregnancy causes more than 200,000 babies a year in Nepal to be born mentally impaired; even mildly or moderately iodine-deficient children have IQs that are 10 to 15 points lower than those not deficient.

Nepal is not on track to achieve MDG1 if current nutrition interventions continue with "business as usual".

Malnutrition and the Millennium Development Goals (MDGs)

Malnutrition is one of the most important constraints to achieving the MDGs. The relationship between nutrition and six of the MDGs is explained in Table 1. It is notable that the proportion of people who suffer from hunger (as measured by the percentage of children under five who are underweight) is an indicator of MDG1. Nepal is not on track to achieve MDG1 if current nutrition interventions continue with "business as usual".

Table 1: Investing in Nutrition is Critical to Achieving the MDGs

Goal	Relationship to nutrition
GOAL 1: Eradicate extreme poverty and hunger	Malnutrition erodes human capital through irreversible and intergenerational effects on cognitive and physical development.
GOAL 2: Achieve universal primary education	Malnutrition affects the chances that a child will go to school, stay in school, and perform well.
GOAL 3: Promote gender equality and empower women	Anti-female biases in access to food, health, and care resources may result in malnutrition, possibly reducing women's access to assets. Addressing malnutrition empowers women more than men.
GOAL 4: Reduce child mortality	Malnutrition is directly or indirectly associated with most child deaths, and it is the main contributor to the burden of disease in the developing world.
GOAL 5: Improve maternal health	Maternal health is compromised by malnutrition, which is associated with most major risk factors for maternal mortality. Maternal stunting and iron and iodine deficiencies particularly pose serious problems.
GOAL 6: Combat HIV/AIDS, malaria and other diseases	Malnutrition may increase risk of HIV transmission, compromise antiretroviral therapy, and hasten the onset of full-blown AIDS and premature death. It increases the chances of tuberculosis infection, resulting in disease, and it also reduces malaria survival rates.

Source: Adapted from Gillespie and Haddad (2003) in "Repositioning Nutrition as Central to Development, World Bank, 2006

Investments in Nutrition Yield High Returns

Specific nutrition investments can accelerate improvement and these are very sound investments. In May 2008, a group of eminent economists (including several Nobel laureates) known as the "Copenhagen Consensus" considered 30 options for solving the world's most pressing problems cost-effectively and, as Table 2 shows, 5 of the top ten-ranked development investment opportunities were nutrition interventions.

Table 2: Copenhagen Consensus 2008 Top 10 Development Investments

RANK	Solutions
1	**Micronutrient supplements for children (Vitamin A and zinc)**
2	The Doha development agenda
3	**Micronutrient fortification**
4	Expanded immunization coverage for children
5	**Bio-fortification**
6	**De-worming and other nutrition programs at school**
7	Lowering price of schooling
8	Increase and improve girls' schooling
9	**Community-based nutrition promotion**
10	Provide support for women's reproductive role

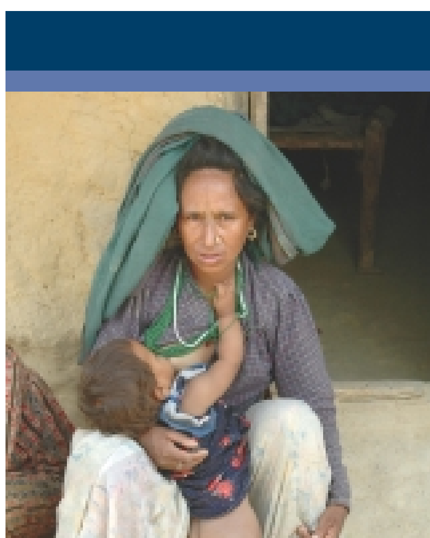
The damage to physical growth, brain development, and human capital formation that occurs during pregnancy and the first 24 months of life is largely irreversible.

Scaling-up will give very high economic returns to investing in such programs. The World Bank recently conducted a costing exercise to determine the annual cost of scaling-up well proven nutrition interventions in countries with the highest burden. Table 3 outlines economic analysis contained in that costing exercise.

Table 3: Estimated Benefits from Scaling-up Nutrition Interventions

Intervention	Estimated benefit : cost ratios or cost-effectiveness
Behavior change (through community nutrition programs)	US$ 53-153 per DALY
Vitamin A supplements	US$ 3-16 per DALY
Therapeutic zinc supplements	US$ 73 per DALY
Micronutrient powders	US$ 12.20 per DALY (zinc) 37: 1 benefit: cost ratio (iron)
De-worming	6: 1 benefit: cost ratio
Iron-folic acid supplements	US$ 66-115 per DALY (iron)
Iron fortification of staples	8: 1 benefit: cost ratio
Salt iodization	30: 1 benefit: cost ratio
Complementary foods	US$ 500-1000 per DALY
Community-based management of acute malnutrition	US$ 41 per DALY

Source: Horton, S., et al. Scaling-Up Nutrition; What Will it Cost?, World Bank, 2010

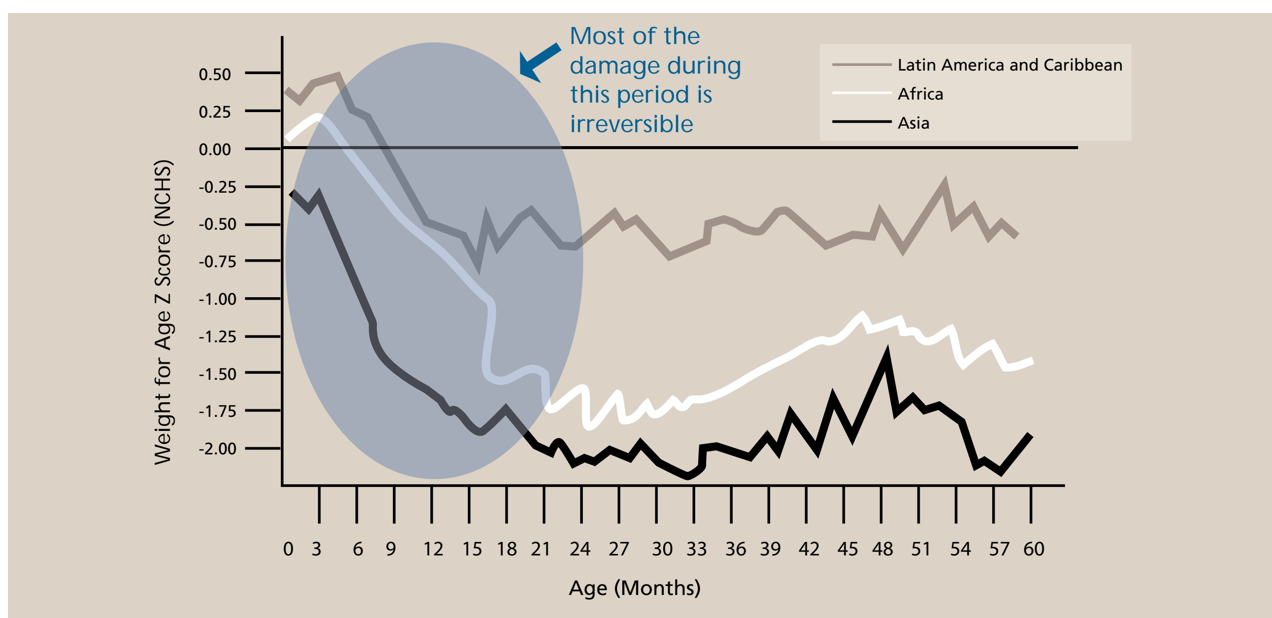


Malnutrition is directly or indirectly associated with most child deaths, and it is the main contributor to the burden of disease in the developing world.

Need to Act in the First 1000 Days to Improve Nutrition

The window of opportunity for improving nutrition is small – the first 1000 days from the first day of pregnancy through the first two years of life. The damage to physical growth, brain development, and human capital formation that occurs during this period is extensive and largely irreversible. **Interventions must therefore focus on this window of opportunity and focus on this age group and women of child-bearing age.**

Figure 1: Critical Window of Opportunity to Improve Nutrition



Source: Shrimpton and others (2001)

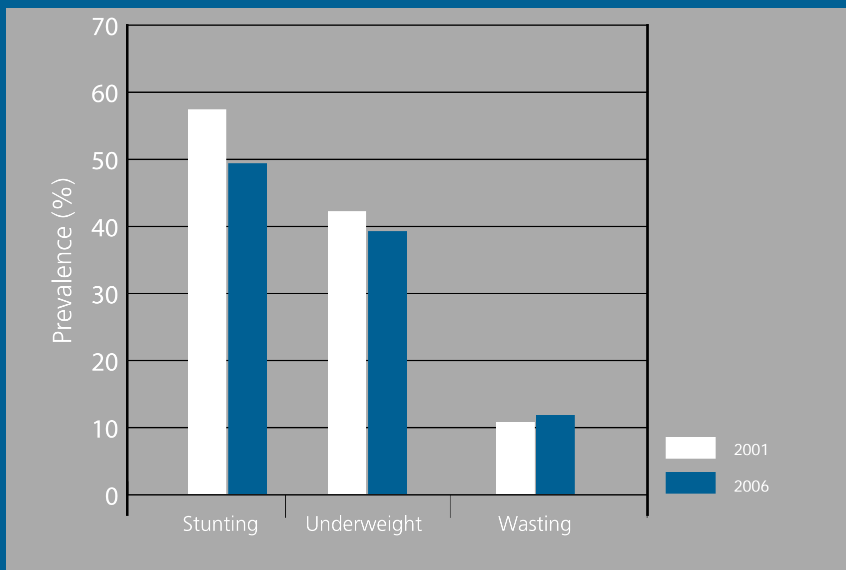


Figure 2: Types of Child Undernutrition

Source: 2001 and 2006 Nepal Demographic Health Surveys

Undernutrition is a Serious Problem in Nepal

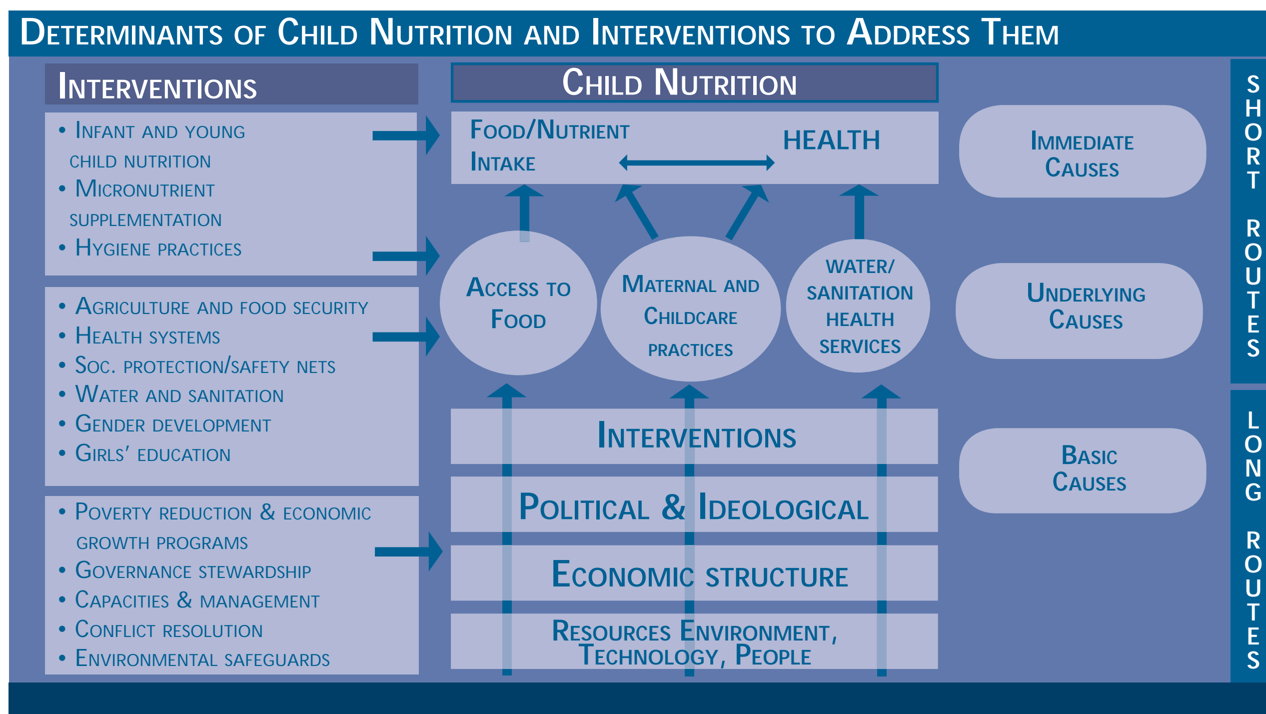
High rates of child undernutrition in Nepal.
Of the children under five, 49% were stunted and 39% underweight, according to the 2006 Nepal Demographic Health Survey (NDHS). These child malnutrition levels are among the highest in the world. Acute undernutrition (wasting) in children under five was 13%, with some geographic areas exceeding the international threshold of a "nutrition emergency" of 15% wasting. Nepal's children also suffer from vitamin and mineral deficiencies: the prevalence of anemia is 74% in children under two and 37% of households are not fully protected from iodine deficiency through salt iodization.

Maternal undernutrition is also a significant problem in Nepal.
The 2006 Nepal Demographic Health Survey reported a high prevalence (24%) of women of reproductive age having chronic energy deficiency (Body Mass Index <18.5). One third (36%) of non-pregnant women are anemic.

The prevalence of anemia is 74% in children under two and 34% of households are not fully protected from iodine deficiency.

Determinants of Undernutrition in Nepal

Malnutrition results from different combinations of immediate, underlying, and basic determinants. Inadequate dietary intake and disease are the immediate determinants of undernutrition. Underlying the immediate causes of undernutrition are three areas: (1) food security, (2) health services and health environment, and (3) care for women and children. Education is also critical. At the base of the framework are a host of interrelated causes including resources, economic structure, political and ideological structure, and formal and informal institutions.



Source: Adapted from UNICEF 1990

All key determinants of undernutrition are interacting to create the current situation in Nepal:

Nepal faces a serious **food security challenge**, with an estimated 3.7 million people having inadequate access to sufficient caloric intake. Dietary diversity is also a problem and this has worsened with the recent food price increases. Given that Nepal's poorest households spend more than 75% of their income on food, high food prices will continue to erode the recent gains made in poverty alleviation.

Insufficient health services remain a determinant of undernutrition as the prevalence of illness in the population remains high. While under five mortality reduced by 48% over the last 15 years, still 61 out of every 1000 children born in Nepal die before reaching their fifth birthday. While Nepal is a world leader in providing some micronutrients to children and women (e.g. Vitamin A supplements for children 6-59 months, iron tablets for women during pregnancy), there remain significant coverage gaps (e.g. very low coverage of zinc supplementation for treatment of diarrhea).

The **health environment** in Nepal remains a significant cause of undernutrition, particularly in rural areas. While virtually everyone (89%) has access to an improved source of drinking water, more than half of the population (59%) lacks access to improved sanitation (67% in rural areas). Hygiene practices are also a concern. Hand washing with soap at appropriate times (e.g. before food preparation) is not a widespread practice. A quarter (24%) of child deaths is due to diarrhea.

Inadequate care for women and children is also a significant cause of undernutrition in the country. Women often have limited influence over how resources are spent and what foods are purchased. The response to the special needs of women and children is not adequate, especially in rural areas and in lower income households. Only 44% of women receive skilled antenatal care during pregnancy and fewer (19%) benefit from skilled birth attendance. Despite the high levels of maternal underweight (24% of women have low BMI), there are only limited food supplementation programs for women during pregnancy. Inadequate infant and young child feeding practices represent an important area for intervention. Only half (53%) of children were exclusively breastfed in 2006, a significant drop from 74% in 1996. Predominant breastfeeding is a more accurate way to describe customs (allowing for some liquids and ritual practices).

Nutrition awareness is also very low throughout Nepal. This low level of nutrition awareness is a major factor in perpetuating behaviors that currently harm nutritional status, such as nonexclusive breastfeeding, late and inappropriate feeding practices for children, insufficient eating and rest for women during pregnancy and insufficient health care seeking behavior.

The Way Forward

In line with international consensus, Nepal can undertake the following set of policy actions to address the development challenge which malnutrition poses.

- **Increase the salience of nutrition in national development priorities**

  While Nepal has developed high quality planning documents for nutrition (e.g. NPAN07), higher priority needs to be given to implementing the plans and to using nutrition indicators when reviewing overall performance. The National Planning Commission would have an important role to play in enabling these reviews, in collaboration with a range of civil society partners.

- **Build national capacity**

  There is a need to sustain the elements of the nutrition system where capacity is already in place (e.g. policy formulation), while addressing capacity gaps in program planning and execution, multi-sectoral planning and performance review, coordination, and resource mobilization.

- **Scale-up well proven direct nutrition interventions**

  A number of direct nutrition interventions should be scaled-up in the immediate future to provide urgently-needed nutrition inputs to vulnerable women and children in Nepal. These interventions, which are generally implemented through health systems, are outlined in "Scaling Up Nutrition; A Framework for Action", released in September 2010 with the endorsement of over 100 development partners. Despite strong evidence demonstrating their impact (e.g. review in the Lancet, a leading medical journal) and cost-effectiveness (average benefit-cost ratio of 16:1), the coverage of most of these interventions is currently low in Nepal. Achieving large-scale coverage of these interventions with a focus on vulnerable groups would have a significant impact on Nepal's malnutrition rates.

- **Address determinants of nutrition through multi-sectoral approaches**

  While it will be imperative to scale up direct nutrition interventions, success in improving child and maternal nutrition indicators will be enhanced and sustained by addressing underlying determinants of nutrition through action in multiple sectors such as education, agriculture, social protection, water and sanitation. It will be important to develop a multi-sectoral plan of action and to track its implementation on a regular basis.

- **Build a strong and more coordinated partnership for nutrition**

  An improved mechanism is required within the National Planning Commission to coordinate the varied multi-sectoral activities to improve nutrition. A successful coordination mechanism would need to have sufficient influence to be able to create accountability within line Ministries and have the capacity to enable coordination between development partners.

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