Food Security and Climate Change

Undernourished Women and Children under 5 Could Increase by 20 percent

14 JUNE 2012 | WASHINGTON - On a planet with sufficient food for all, today almost half a billion women and children under 5 in the developing world are undernourished – a consequence of persistently limited nutritious food intake.

This number could increase by 20 percent, reaching one in five within a decade, compared to one in seven today, due to the impacts of climate change on global food production, according to a detailed analysis by The Partnership for Maternal, Newborn & Child Health (PMNCH), the World Health Organization (WHO), the UN System Standing Committee on Nutrition (UNSCN), 1,000 Days, World Vision International and the Canadian International Development Agency and partners.¹

“Food security is under threat by climate change. The linkages between its impacts on global food production, price volatility, population growth and nutrition need to be addressed in order to tackle undernourishment of these more vulnerable groups,” says Carole Presern, Ph.D., Director of The Partnership for Maternal, Newborn & Child Health and a midwife.

According to the analysis, it is this equation of climate change and its impacts on food production plus increased population growth that would result in a deficit of global food production versus demand, which could increase by 100 million the number of undernourished women and children by 2020.

¹ Partners include the International Diabetes Foundation, the Union for International Cancer Control, the World Heart Federation, the International Union Against Tuberculosis and Lung Disease, the NCD Alliance, and Eminence.
Food security will be one of the main issues to be discussed at both the Group of 20 (G20) and the United Nations Conference on Sustainable Development (Rio+20) meetings in mid-June.

Spurred by continuing price volatility and public pressure to address this issue, “World leaders are just beginning to commit to action and investment to improve nutrition for mothers and children during the critical 1,000 days from pregnancy to age two, when nutrition can have a lifelong impact on a child’s future in terms of both health and development,” says Dr. Presern.

This new attention to nutrition is happening at country, regional and global levels. Some 27 countries accounting for 50 million undernourished women and children have committed to a new Scaling Up Nutrition effort, through which stakeholders are working to develop multi-stakeholder and multi-sectoral coordination mechanisms and comprehensive national nutrition plans and aligning resources behind these plans.

Additionally, G8 leaders and African leaders reaffirmed their commitment to achieving food security through the launch of the New Alliance for Food Security and Nutrition, which will join African governments, private sector institutions and G8 leadership in efforts to increase responsible domestic and foreign private investments in African agriculture, with a focus on smallholder farmers, especially women.

Ministers of Health at the 2012 World Health Assembly adopted a resolution on maternal, infant and young child nutrition that endorsed the WHO Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition. It calls on member states to develop nutrition policies and to pass legislation to control the marketing of breast milk substitutes.

**Chronic hunger will increase**

Today, 495 million women and children under 5 in the developing world are undernourished. That is 150 million or one in four in Africa; 315 million or one in seven in Asia; and 30 million or one in 11 in Latin America and the Caribbean.
About 465 million additional women and children under 5 will be living in developing countries by 2020, bringing the total population of this group to 3.6 billion, vastly increasing food demand.

Thus, in 10 years, the compounded impact of climate change and population growth could increase the number of undernourished women and children by 20 percent.

**The greatest impact in the tropical region**

According to the assessment of the Intergovernmental Panel on Climate Change (IPCC), climate change is expected to affect all aspects of food security.

In particular, the tropical region, already most vulnerable to food insecurity, will be the most adversely affected. It is this climate region where 73 percent, or 360 million, undernourished women and children live.

India, Bangladesh, Pakistan, Nepal, Philippines, Ethiopia, Nigeria, Madagascar and Yemen are the countries in the tropical region with the highest percentages of undernourished women and children under 5 (see map on page 7).

However, the impacts of climate change on food production vary across and within regions.

For example, India, with 61 million undernourished children, would be at increased risk of additional undernourishment since its food production is estimated to decrease by 30 percent, according to the IPCC.

On the other hand, food production in the Philippines, also in the tropical region, would increase by 20 percent, concludes the IPCC. This will contribute to a reduction of undernourished women and children currently estimated at 16 and 38 percent respectively.

**Impact on women and children**

In developing countries, about 208 million women of reproductive age (15-44 years old) are undernourished, a major problem during pregnancy.
“Undernutrition is a determinant of poor health and it is women and children who suffer the most,” says Andres de Francisco, MD, deputy director of PMNCH. “Maternal undernutrition can continue in children, extending the cycle for at least three generations.

“Undernutrition is associated with intrauterine growth restriction, leading to low birth weight of newborns and stunting (low height-for-age) – an indicator of chronic restriction of a child’s potential for growth.”

“These children do not have the opportunity to reach their full potential because of poor nutrition in the earliest months of life,” according to Stefan Germann, Director for Partnerships, Innovation & Accountability at World Vision International. “Without proper nutrition, newborns and young children can face irreversible damage to their cognitive development, which impacts educational performance, reducing opportunities over a lifetime for both the children and for the economy they contribute to.”

“The long-term damage imposed by nutritional deprivation in the 1,000 days between pregnancy and age two can be prevented. And the good news is that solutions to undernutrition are high impact and exceptionally cost-effective,” says Lucy Martinez Sullivan, Executive Director of 1,000 Days.

Malnutrition in the form of overnutrition is also a growing problem in low- and middle-income countries where women and children have increasing access to inexpensive, calorie-rich but nutrient poor foods. Overweight and obesity during pregnancy increases the risk of gestational diabetes, pre-eclampsia, pregnancy-induced hypertension and large babies. The risk of preterm birth is also heightened, now the second-leading cause of death of children under the age of five.

**Increase in food prices and volatility**

The impacts of climate change will also affect food prices and volatility. A recent analysis by The World Bank’s Food Price Watch estimates that food prices increased by 8 percent in the first quarter of 2012, partly due to extreme cold in Europe which impacted wheat prices and excessively hot and dry conditions in South America which contributed to price increases for sugar, maize, and soybeans.
Higher food prices lead poor households to buy cheaper and less nutritious food items. For poor families, coping with rising food prices means eating less, cutting the number of meals per day and reducing the quality and variety of foods they consume.

“The impact of high food prices is more severe for the poor who rely on purchased food,” says Dr. Presern. “Families in developing countries tend to spend between 50-80 percent of their income on food, compared to less than 10 percent in some developed countries.”

**Interventions to address food and nutrition security**

Mainstreaming climate change adaptation and mitigation measures in health and nutrition policies and interventions will help address food and nutrition security for millions.

Some of these interventions include:

*Controlling food prices and volatility*

Addressing food price volatility can improve food security. A key area for policy action at the country level is improving agricultural production and productivity of nutritious food, especially for smallholders.

These measures also need to create the enabling environment to encourage public and private investment in agriculture. Investments, in turn, will reduce price volatility and lower production costs, which will reduce food prices.

For example, Mexico implemented “contract agriculture” under which the buyer and the farmer agree a price. This market instrument brings certainty to future transactions, as the farmer has a prospective sale of its crop and the buyer has access to a safe supply source at a competitive and predetermined price.

It is also critical to develop nutrition surveillance at household and community levels to identify crises before they occur, and develop stronger resilience for communities at risk of food and nutrition insecurity.
Promoting education

Education has a powerful impact in preventing under nutrition. Combined efforts by all actors at the country level should focus on mainstreaming nutrition in education. Nutrition education efforts should promote knowledge of good nutrition, with a focus on the 1,000 day window from pregnancy to age 2, while encouraging the use of nutritious, climate-resilient food staples, in particular in those countries expected to be hit hardest by climate change. Better nutritional practices would, in turn, mean more effective use of available food.

For example, the Oportunidades program in Mexico, which combined nutritional education, cash transfers and the provision of fortified weaning food supplements, had an effect of over 1 cm in the height of infants who participated in the program during the first 2 years of life.

The Oportunidades program started over a decade ago. Some of its benefits on nutrition and health included a decrease of 11 and 2 percent in maternal deaths and infant mortality respectively.

The media also plays an important role in education. An assessment of a national mass-media campaign in Honduras reported that it increased exclusive breastfeeding from 48 to 70 percent at 1 month, from 24 to 31 percent at 4 months, and from 7 to 12 percent at 6 months of age.

Mobilizing political leadership to reduce greenhouse gases

Reducing global greenhouse gas (GHGs) emissions is a prerequisite to addressing climate change.

The ultimate objective of the UN Framework Convention on Climate Change (UNFCCC) is to stabilize GHG concentrations in the atmosphere to ensure that food production is not threatened.

The latest decisions of the Conference of the Parties to the UNFCCC postponed the implementation of emission reductions to 2020, although the IPCC scientific assessment concluded that higher and more immediate emission reductions were needed.
High level political leadership is needed to mainstream health and nutrition concerns into the UNFCCC discussions.

**Promoting nutrition-sensitive and climate-resilient agricultural practices**

Successful national nutrition plans should integrate climate change adaptation measures, like breeding crops that are more nutritious and heat-resistant, to address undernutrition.

For example, Mozambique had a very high prevalence of vitamin A deficiency. A new variety of orange sweet potato was introduced and vitamin A intakes increased substantially, leading to a 63 percent increase in vitamin A intakes for children aged 6–35 months, 169 percent for children aged 3–5.5 years and 42 percent among women.

The importance of sweet potato is two-fold. Sweet potato is effective in providing vitamin A (an essential micronutrient) and is a good source of carbohydrates, which account for 55-75 percent of a nutritious diet. It is also a heat-resistant crop requiring less water than other crops and thus adapting to changes in climate.

**New multi-sectoral strategies**

Multi-sector approaches should be developed at the country level, aimed at developing country nutrition strategies that also integrate adaptation measures to climate change. These strategies should focus on adaptation measures to climate change, incorporating alternative sources of food, while providing the same amount of nutrients.

For example, China successfully implemented multi-sector action to address undernourishment. By combining anti-poverty policies, granting decision-making power to farm households, public investments in agriculture and market and price liberalization, the number of undernourished people fell from 194 million (16 percent of the population) in 1990–92 to 150 million (12 percent of the population) in 2001–03.

“We urge global leaders to prioritize and invest in programs and policies that help improve nutrition, particularly for mothers and children in the 1,000 day window, support the Scaling Up Nutrition movement, and commit to global and country-level targets to reduce malnutrition,” says Lucy Sullivan.
“Improving nutrition should not just be seen as a development priority for the G-20, but as an economic growth strategy for countries looking to compete globally,” say Dr. Presern.