

# Post-2015 Development Agenda

## Bangladesh Perspectives



## Nutrition

## SPEAKERS

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### DR. RUDABA KHONDKER OF THE GLOBAL ALLIANCE FOR IMPROVED NUTRITION (GAIN)

GAIN is an international organization that was launched at the UN in 2002 to tackle the human suffering caused by malnutrition. GAIN is driven by the vision of a world without malnutrition.

GAIN's Role in Bangladesh: The Fortification of Edible Oil with Vitamin A: supporting the Government, in partnership the Bangladeshi Oil industry, in the fortification of edible oil with vitamin A. In December 2013, the Government of Bangladesh formally requested that GAIN and the World Food Programme (WFP) draft the National School Feeding and Nutrition Policy. GAIN and WFP will provide support to the Ministry of Primary and Mass Education and the Directorate of Primary Education in facilitating the formulation of the policy during the first quarter of 2014. In a third formal engagement, GAIN has also been requested to participate as a co-lead in the National Micronutrient Deficiency Control Strategy. The development of the strategy is a high priority for the Bangladeshi government, and involves many stakeholders, including program managers, researchers, academics, rights groups, and social and health activists. GAIN led the development of the Zinc, Vitamin B12, and Calcium and Vitamin D Strategy under the National Micronutrient Deficiency and Control Strategy.

### JOHN HODDINOTT

John' Hoddinott is H.E Babcock Professor of Food and Nutrition Economics and Policy at Cornell University. His research interests revolve around the intersection of the causes of poverty, food insecurity and undernutrition, and the design and evaluation of interventions that would reduce these. This builds on earlier work on poverty dynamics, intrahousehold resource allocation, schooling, labour markets aid allocation and on improving survey methods.

Much of his current work focuses on the effectiveness of social protection programs and on the links between economics and early life nutrition. He has led or participated in the evaluations of some of the largest social protection programs in the developing world, including the Vulnerable Group Development scheme in Bangladesh, Brazil's Bolsa Familia cash transfer program, Ethiopia's Productive Safety net Programme, PROGRESA in Mexico and South Africa's Child Support Grant. John has recently completed a four country study evaluating the impact of food, cash and voucher transfers for the World Food Program and is currently engaged in the analysis of the impact of social protection interventions in Bangladesh and Ethiopia.

John is currently a Managing Editor of the Journal of African Economies and an Assistant Editor of Economics and Human Biology.

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# Summary: White Paper Report by John Hoddinott

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Bangladesh has been a world leader in making sure that growing children are properly nourished, but there is still a long way to go.

During the first 1,000 days of life – from conception to age two – children grow and develop very fast but, to fulfil their growth potential, they need enough of all the right nutrients. If not, both their bones and muscles grow slowly, leaving them permanently short for their age. This is known as stunting and, once it has occurred, it is irreversible. Poor nutrition in those vital early years leaves people at a permanent disadvantage over their whole lifespan.

Poor nutrition in these early years not only affects physical growth but also the development of the brain. Attention span, memory, learning capacity and the development of motor skills all suffer. Stunted children do less well at school and have lower incomes, perpetuating the cycle of poverty.

In 1997, 58% of all Bangladeshi children were stunted. By 2011, this had fallen to 40%; a big improvement but still leaving a massive problem. Fortunately, there are tried and tested ways for this to be tackled.

A large part of the problem is that mothers are themselves poorly nourished. Things which can improve the health and nutrition status of mothers and help their babies to develop properly include providing supplements of vitamins and minerals, including calcium, and adding iodine to salt. Community-based advice on breastfeeding and complementary feeding can also help.

For the babies themselves, the answer is to provide both more food but also better quality food, with vitamin and mineral supplements where needed.

For a poor country like Bangladesh, the costs are significant: about \$97 for each child. But the benefits are much greater: every taka spent pays back 23 taka of benefits, and the nutrition package raises incomes by an average of 11.3%. For a Bangladeshi child born today who benefits from this nutritional package, starts work at 21 and works until 50, that's a benefit of \$2,311 in today's money, or 23 times the money spent on the package. These benefits get bigger the longer people work.

The reduction in stunting so far is associated with several factors. About 25% of the improvement is due to increasing prosperity and 25% to better schooling and nutrition of mothers. Better healthcare and sanitation are responsible for another quarter and demographic factors and father's schooling account for the remainder.

The nutritional package will make a real difference, but by itself will not eliminate stunting. Social protection policies in Bangladesh are an important way of reducing hunger, but don't necessarily deliver a balanced diet. Combining social safety nets for poor families with a nutritional package can be much more effective.

A big increase in rice yields has gone a long way towards reducing hunger, but does not deliver good overall nutrition. Changing farming to produce a more varied diet could make a big contribution to reduced stunting.

And the last big factor in the equation is the status of women. Improving their education and nutrition will benefit women directly, but also have a big impact on the health and development of the next generation and, ultimately, on economic growth.

# White Paper Report by John Hoddinott

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For the last 15 years, Bangladesh has been a world leader in the reduction of chronic undernutrition in children. But it can do even better and it should.

Chronic undernutrition arises when nutrient depletion is so long or so severe that it leads to retardation of linear (skeletal) growth and to loss of, or failure to accumulate muscle mass and fat. It is of especial concern in the first “1000 days” – from conception to age two – a time when growth potential is highest, children’s nutrient needs are great but also a time when children are particularly vulnerable to infections which – if frequent or prolonged – inhibit growth. Chronic undernutrition can be detected by measuring children’s heights. A child who is chronically undernourished, one who has low height given their age and sex, is considered stunted.

Stunting in Bangladesh has fallen from 58 percent in 1997 to 40 percent in 2011 (Figure 1). This annual reduction of 1.3 percentage points per year is one of the fastest rates of reduction in the world. Of the proportion of this that can be explained by standard statistical techniques, increasing levels of wealth accounts for 25 percent of this reduction and improvements in women’s schooling and their height another 25 percent. Better health care and sanitation, paternal schooling, and the rise in exclusive breastfeeding have also played a role.

But while these improvements are impressive, a 40 percent prevalence of stunting is unacceptably high. There are an estimated six million children in Bangladesh who are chronically undernourished. Redressing this is both intrinsically and instrumentally valuable. It is intrinsically valuable because all children have the right to grow up healthy and well-nourished. It is instrumentally valuable because the effects of stunting persist into adulthood. These arise because stunting has long term physical and neurological consequences.

Growth lost during the “1000 days” is never fully recovered. In developing countries, shorter individuals earn less, a useful rule of thumb being that a one percent loss of height reduces wages by 2.4 percent. More pernicious still are the neurological effects that lead to cognitive impairments. Chronic undernutrition damages children’s brains with adverse consequences for functions such as attention, memory, learning and the development of motor skills. Chronically undernourished children attain less schooling and do poorer on tests of vocabulary and non-verbal cognitive ability. Because schooling increases economic productivity, individuals who are chronically undernourished in early life have lower income and consumption levels in adulthood. These impacts on stature and cognition mean that children who are chronically undernourished in Bangladesh face a future of lower wages and income.

One study, from Guatemala, followed children from birth until they were as much as 40 years old. Children who were chronically undernourished lived in households that were poorer, partly because they earned lower wages and partly because they were less likely to marry better educated partners - children who were better nourished in early life had better prospects when they entered the marriage market.

Lastly, taller mothers will have taller children so that benefits from reducing chronic undernutrition are transmitted from one generation to the next.

So what should Bangladesh do? An excellent starting point are *direct nutrition interventions*. Rigorous evidence to support the large-scale implementation of the following interventions that address chronic undernutrition, severe acute undernutrition and micronutrient deficiencies:

- Interventions that improve the health and nutrition of mothers: universal salt iodization; micronutrient supplementation; and calcium supplementation.
- Interventions aimed at improving care behaviors: community-based nutritional programs that provide information on breastfeeding and complementary feeding.
- Interventions that address health-related causes of undernutrition: therapeutic zinc supplementation and Vitamin A supplementation given its impacts on reducing mortality in children six to 59 months (although there is limited evidence on a link to stunting reduction).
- Interventions that improve the quantity and quality of a child's diet: community-based management of severe acute malnutrition and limited use of fortified supplementary foods.

This package of interventions is not cheap – fully implemented it costs around \$97 per child with much of the expense coming from the provision of fortified supplementary foods. But remember that cost is only one part of the story.

On average, implementing this package of direct nutrition interventions raises incomes by 11.3 percent. Mindful of this, consider a Bangladeshi child born in 2015, benefitting from this package during conception and infancy and joining the work force at age 21. Assume that over his lifetime, he will earn the average per capita income of a Bangladeshi. Using current income figures and growth projections, we can calculate their expected income from the date they start working, 2036, to different dates in the future. These are *future* income gains that result from investments made *today*. To compare costs incurred today with these future benefits, we calculate the present value of these future income gains. If we assume that this person works until they are 50 years old and using a conservative five percent rate (to take account of the time value of money), switching this child from stunted to not stunted increases the present value of their lifetime income by \$2,311. Put another way, every dollar or taka spent on direct nutrition interventions today generates 23 dollars or 23 taka in future income gains.

Table 1 shows these income calculations for different numbers of working years and different discount rates. If we assume individuals work longer, or we discount future earnings by a smaller percentage, the present value of these monetary benefits gets larger. If we express these income gains (the benefits of direct nutrition interventions) and costs as a ratio – the benefit: cost ratio – and assuming this individual works until they are 60, with a three percent discount rate, every taka spent on direct nutrition interventions generates 77 Taka in benefits. These benefit: cost ratios are smaller if we assume that individuals work for a shorter period of time and if we assume a higher discount rate (so assuming that people only work until they are 35 and a five percent discount rate, we get the widely cited benefit: cost ratio of 18); conversely they are larger if we assume longer working lives and lower discount rates. And there are other benefits from reductions in stunting not captured in these calculations. Fully implementing this package of direct nutrition interventions would reduce deaths by children under five by 15 percent.

While these direct nutrition interventions will make a significant dent in chronic undernutrition in Bangladesh, by themselves they will not eliminate stunting. These direct actions need to be complemented by increased use of nutrition sensitive interventions, especially in social protection, agriculture and gender.

Bangladesh has an array of social protection and social safety net transfer programmes that reach millions of poor families. Evaluations of government interventions such as the Vulnerable Group Development Programme shows that these are an important means of improving household food security and reducing hunger. But they are not enough by themselves to reduce chronic undernutrition. Promising evidence, including ongoing work in Bangladesh by government, civil society organizations and development partners, suggests that linking these with direct nutrition interventions – such as behavior change communication – can reduce stunting.

Bangladesh has done a remarkable job of increasing agricultural production, most notably dramatically raising rice yields. It is difficult to understate how important these gains have been in reducing poverty and hunger in Bangladesh. But it appears to have, at best, only small effects on chronic undernutrition. While the reasons for this are not fully understood, one plausible explanation is that very young children need access to a diverse set of foods, not just staples such as rice, but also animal source proteins and vitamin-rich vegetables. Yield gains in rice do not provide such access. Nutrition sensitive agriculture interventions – such as those that emphasize diversifying agricultural production to include a broader range of foods together with increased emphasis on the consumption by young children of more diversified diets – has the potential to play a much larger role in reducing stunting.

Finally, improving the status of women can continue to help drive reductions in chronic undernutrition. Between 1997 and 2011, average maternal schooling increased doubled, from 2.4 to 5.4 grades and this accounted for 25 percent of the explained reduction in stunting between 1997 and 2011 was due to improvements in women’s status. Eliminating child marriage can also play a role in reducing stunting. Approximately 20 percent of children in Bangladesh are born stunted. As a recent report by Save the Children notes, when girls marry young, they often become pregnant before their bodies are fully ready for childbirth. This increases the risk of intra-uterine growth retardation (poor growth of a baby while in the mother’s womb), leading to stunting at birth.

Bangladesh has made admirable progress in reducing chronic undernutrition in the last 15 years. But it can and should do more. Not only is this the right thing to do, it makes economic sense. Investments to reduce chronic undernutrition have high economic payoffs which contribute to long term poverty reduction. A country where children are no longer undernourished is a country with a bright future.

**Table 1: Economic returns and benefit: cost ratios of direct nutrition interventions in Bangladesh**

	Benefits to age 35		Benefits to age 50		Benefits to age 60	
	3% discount rate	5% discount rate	3% discount rate	5% discount rate	3% discount rate	5% discount rate
Present value of increased income from reduction in stunting	3408	1735	6040	2311	7545	2379
Benefit: cost ratio	35.1	18.0	62.2	23.8	77.7	24.5

## For further reading

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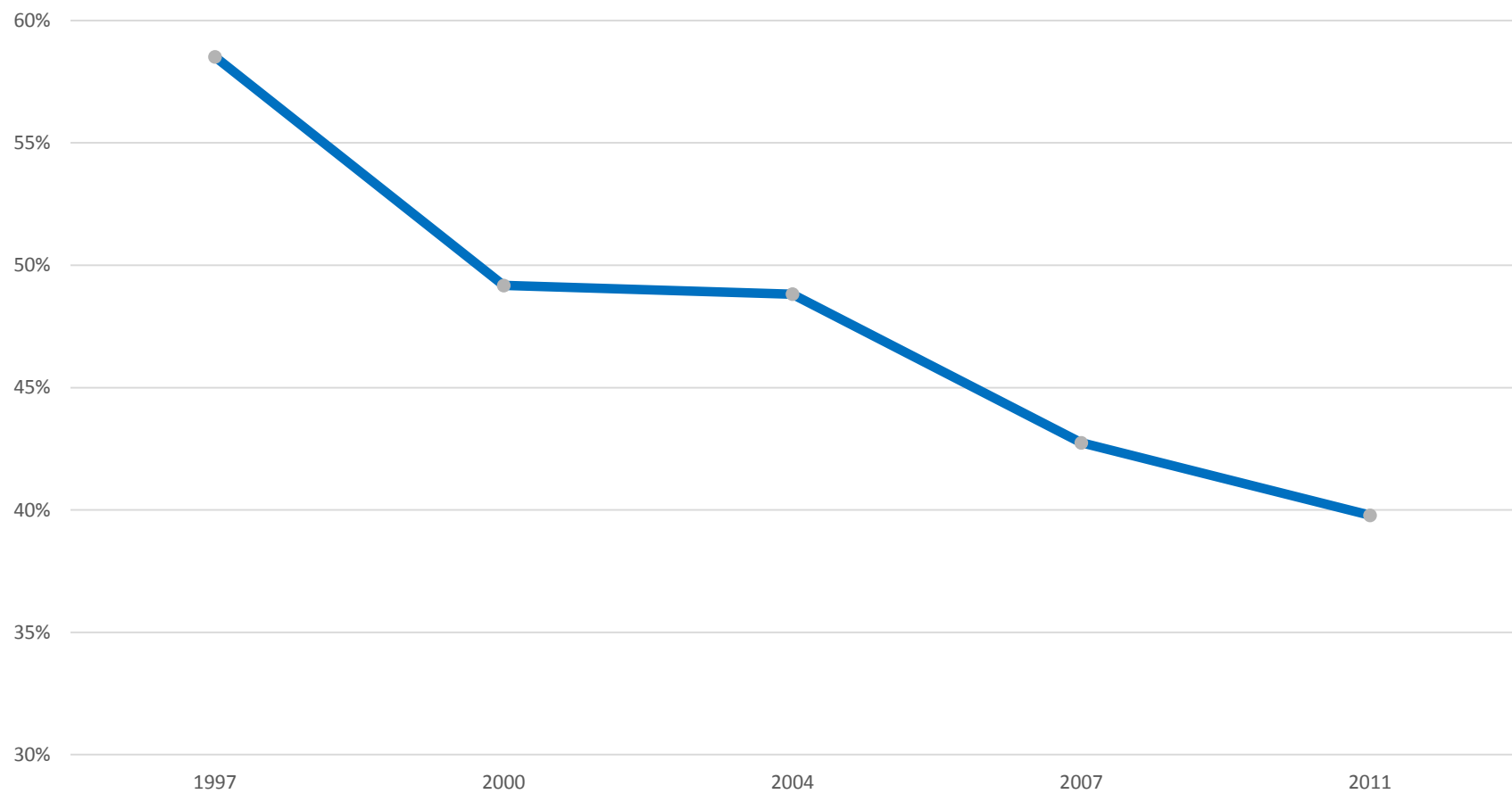
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Figure 1: Prevalence of preschool stunting by year, Bangladesh



Source: Headey et al (2015) based on DHS data

## Bangladesh: Nutrition Profile

Globally, malnutrition undermines billions of people's health each year. It is responsible for 45% of all child deaths and leaves 161 million children stunted, unable to grow and develop to their full potential. Malnutrition has far reaching human, social and economic consequences that last for generations.

### Investment in nutrition pays a human, social and economic dividend:

Bangladesh aims to transition to a middle income country by 2021, and is committed to sustaining an annual rate of GDP growth of 10% from 2017 (*Making Vision 2021 a Reality*).

But its demographic dividend will be wasted if its large young population grows up without adequate access to a diverse and nutritious diet.

The benefit-cost ratios from investing in nutrition are highly competitive when compared to investments in roads, irrigation, and health. It is estimated that every \$1 spent on improving nutrition in Bangladesh can have a \$30 return. (*Copenhagen Consensus 2012 Challenge Paper, Hunger and Malnutrition*).

### Strengths:

- High rates of breastfeeding
- The Prime Minister's leadership of Bangladesh's role in the Scaling Up Nutrition Movement, the collective global effort with civil society, UN and development partners to address malnutrition
- Emerging National Strategy for the Control and Prevention of Micronutrient Deficiencies
- Nutrition interventions at scale: Vitamin A supplementation and fortification; salt iodization
- Innovative approaches to rice fortification including enrichment with zinc at soaking stage.
- Government commitment to introduce hot school meals for primary school children
- Local government bodies, vibrant civil society and grass roots level health and nutrition infrastructure and volunteers

### BANGLADESH HAS MADE GOOD PROGRESS IN FIGHTING MALNUTRITION OVER THE LAST DECADES BUT:

- 41% of all children under-five in Bangladesh today, and 51% in slums, will never reach their full potential because their development is stunted. (*Bangladesh Demographic Health Survey-2011*)
- Only twenty percent of young children aged 6-23 months receive the minimum acceptable diet. (*National Micronutrient Survey 2011-12*) Rice dominates and its low nutrient density likely contributes to the high rates of zinc deficiency.
- Women, have high rates of malnutrition, micronutrient deficiencies and anemia. Maternal anemia increases the risk of dying during childbirth.

### Challenges:

- Institutional capacity to steer the nutrition agenda needs strengthening to increase convergence of government, private sector, civil society, and community partnership.
- Maintenance of exclusive breast feeding at core of IYCF practices
- Coordinated approach towards nutrition specific and nutrition sensitive programming targeting maternal nutrition and the nutrition of adolescent girls
- Complexity of integrated approaches to improve nutrition linking water, sanitation and hygiene (WASH), education and social protection
- Gap in coordination to implement multi-sectoral approach to nutrition
- Political instability and a consequent increase in the price of essential commodities have impacted on access to nutritious food by the most marginalised.

### Opportunities:

- Government infrastructure including community clinics and government networks that provide services deep into rural communities
- Vibrant civil society with capacity to work throughout the country
- Recognition by government, civil society and donors of importance of nutrition
- Strong research infrastructure to build evidence base.

**ABOUT GAIN** The Global Alliance for Improved Nutrition (GAIN) is an international organization that was launched at the UN in 2002 to tackle the human suffering caused by malnutrition. GAIN is driven by the vision of a world without malnutrition. We act as a catalyst — building alliances between governments, business and civil society — to find and deliver solutions to the complex problem of malnutrition. Today our programs are on track to reach over a billion people with improved nutrition.

**For Further Information**  
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visit our website

**gainhealth.org**



# GAIN in Bangladesh: Innovation, Scale and Impact





## ABOUT GAIN

Each day, **805 million people — one in nine — go hungry**. Close to **2 billion people survive on diets that lack the vital vitamins and nutrients** needed to grow properly, live healthy lives, and raise a healthy family. About **1.4 billion people worldwide struggle with overweight and obesity**. That's more than the number of people who are hungry worldwide. In total, around 3.5 billion people — half the people on the planet today — are malnourished.

The Global Alliance for Improved Nutrition (GAIN) is an international organization that was launched at the UN in 2002 to tackle the human suffering caused by malnutrition.

GAIN is driven by the vision of a world without malnutrition. We act as a catalyst — building alliances among governments, business, and civil society — to find and deliver solutions to the complex problem of malnutrition. Today we are reaching close to 900 million people with improved nutrition.

We focus our efforts on **children, adolescent girls, and women** because we know that helping them have sustainable, nutritious diets is crucial to ending the cycle of malnutrition and poverty. By building alliances that deliver impact at scale, we believe that we can eliminate malnutrition within our lifetimes.



## GAIN GLOBAL PROGRAMS

When GAIN was established in 2002 its program focus was on **large scale food fortification** of staples and condiments: scalable, sustainable and cost effective tool to reduce malnutrition. LSFF enables people to increase their micronutrient intake safely and consistently.

In 2007 program was developed on **MIYCN** with focus on 1000 days of greatest vulnerability for mothers and children. GAIN supports exclusive breastfeeding for the first six months followed by continued breastfeeding and the timely introduction of complementary foods and works at the community level to improve infant feeding.

In 2010 the **agriculture and nutrition** program was initiated with a focus on modifying the agriculture supply chain to increase the amount and diversity of nutrients in a range of foods. GAIN works with local entrepreneurs and farmers to make choices and use technologies to make food more nutritious.



- Programs are evidence-based – all are designed with built in monitoring, learning and research components
- Work through alliances – globally and in-country – including with the private sector as well as governments and civil society
- Innovative approaches that create impact at scale



## GAIN BANGLADESH

In **Bangladesh**, GAIN supports the following **nutrition programs**:

- Agriculture and nutrition – pilot fortifying rice with zinc via soaking process
- Community-led maternal, infant, and young child nutrition: home fortification program
- Large-scale food fortification:
  - universal salt iodization
  - vitamin A fortification of vegetable oil
- Improving the nutritional status of female garment workers
- Policy support – oil fortification, salt iodization, school nutrition

### **Cross cutting priorities:**

- Community empowerment and participation
- Gender and diversity
- Knowledge assimilation and transfer across clientele
- Supporting appropriate policies and regulatory environment



# MALNUTRITION: OVERVIEW OF BANGLADESH

## Malnutrition

### Summary

- Ranked 57 in the Global Hunger Index, Bangladesh accounts for 6% of the global underweight problem. Over 75% of the population lives on < \$2 a day and 29% live on < \$1.25. Malnutrition is still alarmingly high

### Nutrition status

- Stunting 41%, Wasting 16%, Underweight 38%

### Nutrient Intake

- Rice dominated daily diet (89.6% of total cereal consumption).
- Per capita per day intake of rice: 416 gm.
- Poor dietary diversity and low intake of animal-source foods.

### IYCF Practices

- Only 44% of children receive adequate complementary food.
- IYCF Practices among 6-23 months old children: 21%.
- Myths and misconceptions/socio-cultural barriers inhibit behaviour change

### Malnutrition among Women

- Women are vulnerable to high rates of malnutrition and Micronutrient deficiencies.
- According to the 2011-2012 survey, anemia among women is 26%

BDHS 2011 & National Micronutrient Survey 2011-12