A Leadership Agenda for Action

The Coalition for Sustainable Nutrition Security in India

September 19, 2008

Foreword

19 September, 2008

India's greatest national treasure is our people. We cannot afford to neglect their well being and allow so many of our citizens to face hunger and malnutrition. After more than sixty years as an independent nation, we still have large numbers of women and children who are suffering from malnutrition. The cost to our nation in terms of health, well-being and economic development is tremendous.

In recognition of the urgency of ensuring the opportunity for every child and citizen to have a healthy and productive life, we have formed a Coalition for Sustainable Nutrition Security in India. The Coalition has developed and committed itself to a Leadership Agenda for Action. I am pleased to share this action plan with you. We invite everyone who wants to see an end to malnutrition to join us this effort. I hardly need to stress that the task can be accomplished through the power of partnership.

I would like to express my sincere appreciation to all of the Expert Task Force members, special reviewers, and the Coalition Secretariat who greatly contributed to this document.

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Abbreviations/Acronyms

AWCs	:	*Anganwadi* Centres
BMI	:	Body Mass Index
CSNSI	:	Coalition for Sustainable Nutrition Security in India
DALYs	:	Disability Adjusted Life Years
GDP	:	Gross Domestic Product
GOI	:	Government of India
ICDS	:	Integrated Child Development Services
IDA	:	Iron Deficiency Anaemia
IFA	:	Iron Folic Acid
IMNCI	:	Integrated Management of Neonatal and Childhood Illness
MDG	:	Millennium Development Goals
MHFW	:	Ministry of Health and Family Welfare
MWCD	:	Ministry of Women and Child Development
NFHS	:	National Family Health Survey
NNMB	:	National Nutrition Monitoring Bureau
NREGS	:	National Rural Employment Guarantee Scheme
NRHM	:	National Rural Health Mission
NUHM	:	National Urban Health Mission
PDS	:	Public Distribution System
PRIs	:	*Panchayati Raj* Institutions
RCH	:	Reproductive & Child Health

Overcoming the Curse of Malnutrition in India: A Leadership Agenda for Action

The Coalition for
Sustainable Nutrition Security in India

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Executive Summary

Although India has made tremendous advances in science, medicine, information technology and many other fields, and has experienced unprecedented economic growth over the past decade, malnutrition remains unacceptably high. Poor nutrition is a major cause of other health problems in the country, including high infant and maternal mortality. The Prime Minister, Dr Manmohan Singh, declared the problem of malnutrition to be a "curse that we must remove" from India, in his address to the nation on Independence Day, 15th August 2008.

The national costs of malnutrition[i] are very high: a vicious intergenerational cycle of poor health, high death rates, poor quality of life, decreased mental capacity and reduced worker productivity. Productivity losses are estimated at more than 10 per cent of lifetime earnings for individuals and 2-3 per cent of gross domestic product for the nation. This means that improvements in nutrition are important for a healthy and productive life as well as for continued economic growth and development[52].

The Coalition for Sustainable Nutrition Security in India (the Coalition), chaired by Professor M S Swaminathan, is a group of public and private sector leaders who have united in an effort to improve nutrition security, ensuring that every Indian citizen has access to a balanced diet, safe drinking water, environmental hygiene, sanitation and primary health care. The Coalition has reviewed and released this *Leadership Agenda for Action* to promote policy, programme and budgetary focus on overcoming the curse of malnutrition (see text box "Developing the *Leadership Agenda for Action"*).

We recognise malnutrition as a complex and multi-dimensional issue, affected by poverty, inadequate food consumption, inequitable food distribution, improper infant and child feeding and care practices, equity and gender imbalances, poor sanitary and environmental conditions and limited access to quality health, education and social services. Therefore, the *Leadership Agenda for Action* takes a broad and

[i] *For the purpose of this paper, the word 'malnutrition' refers to nutritional deficiencies as measured by wasting, stunting, underweight, micronutrient deficiencies and/or anaemia.*

multi-sectoral view of *nutrition security*, defining it as "physical, economic and social access to, and utilisation of, an appropriate, balanced diet, safe drinking water, environmental hygiene and primary health care for all".

Developing the Leadership Agenda for Action

In February 2008, the Coalition for Sustainable Nutrition Security in India requested an Expert Task Force to review nutrition security in India in order to 1) highlight the urgent need to address high levels of malnutrition in India; 2) develop recommendations for priority actions based on evidence and programming experience; and 3) help build awareness, capacity and commitment among policy and programme leaders for implementation of the recommendations.

The Coalition took the following approach to prepare the paper:

- Inviting recognised experts representing a wide range of groups and different perspectives to contribute as Task Force members
- Reviewing the evidence and literature about how to improve nutrition security
- Considering the available platform of a large number of Government schemes and programmes directly or indirectly related to nutrition
- Evaluating and prioritising the best opportunities available to improve nutrition security
- Seeking Task Force member agreement on the key recommendations to improve nutrition security

The Coalition requested USAID to support a Secretariat, which provided administrative and logistical support to the Task Force (see Attachment 3 for names and affiliations of the members of the Expert Task Force).

Following a participatory drafting and review process, the Expert Task Force submitted its recommendations to reduce malnutrition to the Coalition. The Coalition reviewed and endorsed this *Leadership Agenda for Action* in September 2008.

The Coalition calls for the following critical actions to achieve nutrition security.

What needs to be done:

A significant body of Indian and global evidence supports that these interventions are the most critical and effective to improve nutrition security:

1. Focus on proven, essential nutrition interventions, the timely initiation of

breastfeeding within one hour of birth, exclusive breastfeeding during the first six months of life, the timely introduction of age-appropriate complementary foods at six months (adequate in terms of quality, quantity and frequency), hygienic child feeding practices, improved nutrition for women (especially adolescent girls, pregnant women and lactating mothers), focusing on iron and folic acid supplements and deworming, and timely, high quality therapeutic feeding and care for all children with severe acute malnutrition (with leadership from the Ministry of Women and Child Development).

2. Focus on proven, essential primary health care interventions: full immunisation, bi-annual vitamin A supplementation with deworming for infants and young children, appropriate and active feeding of children during and after illness, including oral rehydration with zinc supplementation during diarrhoea and timely, high quality therapeutic feeding and care for all children with severe acute malnutrition (with leadership from the Ministry of Health and Family Welfare).
3. Promote personal hygiene, environmental sanitation, safe drinking water and food safety (with leadership from Ministry of Rural Development).
4. Integrate household food and nutrition security considerations into the design of cropping and farming systems (with leadership from the Ministry of Agriculture).
5. Expand and improve nutrition education and awareness as well as involvement and accountability for improved nutrition at the community level (with leadership from the Ministry of Women and Child Development and the Ministry of *Panchayati Raj* [local self government] and including others, such as the Ministry of Information and Broadcasting and the Department of Education).

How to do it:

Based on the Indian context and significant programming experience, the Coalition recommends the following ways to improve nutrition security.

1. Expand efforts to engage and empower vulnerable communities, particularly women in these communities, to overcome malnutrition (including through *Gram Sabhas* [local councils] and self help groups).
2. Ensure that nutrition related programmes focus on key nutrition outcomes and are reaching the priority target groups of children under two years of age, and women (especially adolescent girls, pregnant women and lactating mothers) in order to break the intergenerational cycle of malnutrition and to achieve the desired results.

3. Strengthen the focus on improving nutrition through a leadership and coordination mechanism with clear authority and responsibility, working from local to national levels (possibly through a mechanism like a Ministry of Nutrition).

More than 60 years after independence, many sources of data show that the nutrition situation has not improved as desired, with almost half of our children underweight, and more than 70 per cent of our women and children suffering from serious nutritional deficiencies such as anaemia. Although there are success stories in parts of the country which show what we can achieve, the level of malnutrition today is morally unacceptable and has enormous costs in terms of health, well being and economic development.

India is at an historic juncture with respect to development and its position in the world. The country faces critical choices in terms of benefiting from its recent economic growth. We can continue on the present course, leaving half of our people under-nourished, in poverty and suffering - risking the political and economic destabilisation that can result from such a divide. Or, we can take bold leadership steps to eliminate malnutrition and improve the health and well being of our citizens. The Coalition has accepted this *Leadership Agenda for Action*, in order to ensure that we take the path that will end the “curse” of malnutrition.

I. The Current Situation and Challenges

Introduction and Definitions

For this paper, *nutrition security* is broadly defined as physical, economic and social access to, and utilisation of, an appropriate, balanced diet, safe drinking water, environmental hygiene, and primary health care for all. (Appropriate diets are based on age, gender, physiological status, and activity levels.)

Despite an apparent surplus of food grains at the national level, malnutrition persists. This highlights that national level food production or availability (food security) alone is not sufficient to attain to nutrition security, especially at the household and individual level. The Coalition recognises nutrition security as dependent on several inter-related factors such as food production, community and household level food distribution, poverty, equity, access to health services, education levels, access to safe drinking water, environmental sanitation and hygiene and cultural beliefs and practices.

Good nutritional status is widely accepted as an important indicator of national development. However, the Coalition views nutrition security as not only an outcome – but also as a critical input that fuels further health, development and economic growth.

While recognising the growing problem of over nutrition, this paper focuses on the problems related to under nutrition. Malnutrition is defined here as the outcome of insufficient quality or quantity of food intake and recurrent infectious diseases. It includes being *underweight* for one's age, too short for one's age (*stunted*), too thin for one's height (*wasted*) and deficient in vitamins and minerals (*micronutrient malnourished*).[56]

Magnitude of the Problem

Despite an impressive economic performance, with the gross domestic product (GDP) rising 8.4 per cent in 2005-06[29] and 9.2 per cent in 2006-07,[30] nutrition indicators still reveal an unacceptable situation – contributing to India's poor rank

of 128 among 177 countries on the Human Development Index in 2007[59]. The lack of progress over the past decade and the current high levels of malnutrition have led to India being recognised as having, perhaps, the worst malnutrition problem in the world.

The data reveal an unacceptable prevalence of malnutrition in our children:

- 42.5 per cent of our children under the age of five years are *underweight* (low weight for age)
- 48 per cent of our children are *stunted* (low height for age)
- 19.8 per cent of our children are *wasted* (low weight for height)
- In poorer states the situation is even worse with over 50 per cent of children underweight

Our children often start out at a disadvantage. As a national average, 22 per cent of children are born with low birth weight (<2.5kg). The situation does not improve very much for adolescents or adults. Thirty-six per cent of adult women and 34 per cent of adult men suffer from chronic energy deficiency (BMI <18.5) with higher rates in rural and urban slum areas. In states like Bihar, Chhattisgarh and Jharkhand the rates are over 40 per cent[23].

The NFHS-3 survey highlighted widespread anaemia, with its prevalence actually increasing in some categories, such as in children between 6 – 59 months, where the rates increased from 74 per cent in NFHS-2 (1998-99)[22] to 79 per cent in NFHS-3 (2005-2006)[23]. Anaemia in women of reproductive age also increased from 52 per cent to 56 per cent over this same time period. Sixty-nine per cent of boys and 70 per cent of girls suffered from anaemia.

Although these figures indicate that the country has not yet attained nutrition security, many believe that India has achieved food security at the national level. However, there is a mismatch between food availability, food consumption and good nutrition in many parts of the country. Some areas have better nutrition despite lower food consumption. Other areas still suffer from seasonal hunger.

Consumption of all foods, except roots and tubers, is below the Recommended Dietary Intake in all age and sex groups. The consumption of protective foods such as pulses, green leafy vegetables, fruit and milk is the most inadequate, meaning that the intake of micronutrients, such as iron, vitamin A, and folic acid, is far below the recommended levels. In addition, only 51 per cent of households consume adequately iodised salt. These data reveal that food and nutrition security have

not been achieved at a household or individual level. (National Nutrition Monitoring Bureau studies).

One and a half million children are estimated to die of diarrhoea - related causes, which are closely related to poor hygiene and a lack of clean drinking water. The negative impact of diarrhoea on the nutritional status of children with marginal diets is well established. Poor hygiene is also linked with acute respiratory infections, another major killer of children. Today only 48 per cent of the rural population has access to toilets[58].

Although these data reveal an unacceptable situation, there are some hopeful signs and indications of change. The nutrition situation is considerably better in states like Kerala, Mizoram, Sikkim, Manipur, Punjab and Goa (NFHS-3)[23]. Lessons from these successes could help other Indian states. Also, even in the poorer states, important indicators of nutrition such as early and exclusive breastfeeding have been improving, and, therefore, lessons from these states as well could help the others.

The Consequences

Malnutrition is the underlying cause of at least 50 per cent of deaths of children under five. Even if it does not lead to death, malnutrition, including micronutrient deficiencies, often leads to permanent damage, including impairment of physical growth and mental development. For example, iron, folic acid and iodine deficiencies can lead to brain damage, neural tube defects in the newborn and mental retardation.

Malnutrition also has a high economic cost. Over 73 million working days are lost due to waterborne disease each year, with a resulting economic burden estimated at $600 million a year[60]. Poor sanitation results in an annual loss of 180 million work-days, with an economic loss of $275,000. Productivity losses related to poor nutrition are estimated to be more than 10 per cent of lifetime earnings for individuals and 2-3 per cent of GDP to the nation. Malnutrition and micronutrient malnutrition were estimated to have reduced the country's GDP between 3-9 per cent in 1996. A 1997 report of the National Strategies to Reduce Childhood Malnutrition revealed that the cost of treating malnutrition is 27 times more than the investment required for its prevention[2].

In 2004 a group of eminent economists, including a number of Nobel Laureates, reviewed the cost efficiency of various ways to address global development. They issued the Copenhagen Consensus which stated that micronutrient supplements

for children are the most important interventions, based on their cost and benefits[47]. Among the top ten priorities selected by the panel, five were in the area of nutrition (micronutrient supplements, micronutrient fortification, bio-fortification, deworming and other nutrient programmes at schools and community-based nutrition programmes).

India ratified the Convention on the Rights of the Child in 1989, which is the first legally binding international instrument to incorporate a range of human rights - civil, cultural, economic, political, and social. This Convention protects children's rights through standards in health care and education as well as legal, civil and social services. Article 24 on the topic of health states "Children have the right to the best health care possible, safe drinking water, nutritious food, a clean and safe environment and information to help them stay healthy."[39]

In summary, the consequences of poor nutrition extend well beyond poor quality of life and health. Poor nutrition affects our country's overall social welfare, human rights record and economy.

Determinants of Malnutrition

There are many determinants of malnutrition, which can be grouped as economic, environmental, agricultural, cultural, health and political factors. Some key factors are listed below.

Economic: poor purchasing power, poverty, livelihood insecurity, major inequities in asset distribution and control, including gender inequities

Environmental: lack of safe drinking water, poor sanitation, poor hygiene practices

Agricultural: failure to include nutrition concerns in major cropping and farming systems, leading to limited availability of nutrient rich foods, seasonal food shortages, inequities in food distribution, conversion to cash crops, and decreases in home gardening

Cultural: inadequate knowledge of nutrition, cultural beliefs and practices that lead to poor nutrition (e.g., expelling colostrums, restricting food consumption during pregnancy or sickness), cultural shifts to prefer less micronutrient rich foods, discriminatory intra-familial food distribution, high workload for women, inadequate time available for infant and young child feeding and care, early marriage, discrimination against girls and women, other forms of discrimination

Health: weak health service systems, inadequate human resources, especially in public health nutrition, weak health and nutrition educational systems,

poor utilisation of services, recurrent infections, low immunisation rates, lack of awareness of nutrition issues (such as which foods are the most nutritious, or proper infant and young child feeding practices), and many of the poor and vulnerable left “unreached”

Political and Administrative: many vertical programmes that are not coordinated, lack of a central coordinating mechanism for nutrition extending from the local to national level, lack of a nutrition surveillance system focused on nutritional outcomes, decision making that is not based on data or evidence, diffusion of effort, weak implementation and monitoring systems, lack of accountability, poor governance

Without a change in a critical number of these determinants taking place at the same time, the problem of malnutrition will persist.

II. Current Indian Response

The Government of India has been implementing a number of programmes, which have the potential to improve the current nutrition security situation, through the Ministries of Women & Child Development (MWCD), Health & Family Welfare (MHFW), Rural Development, *Panchayati Raj* and the Urban Poverty programme. The Government also has a number of cross cutting programmes including the National Rural Health Mission, National Food Security Mission, Horticulture Mission, National Rural Employment Guarantee Act, Jawaharlal Nehru National Urban Renewal Mission and the Rajiv Gandhi National Drinking Water Mission. The major Government programmes are listed in Attachment 1 as per a life cycle approach.

Although there are many programmes related to nutrition, there are significant gaps in these public sector efforts. It may be that taking account of the problem only at a national and state level is inadequate and there is a need for greater focus on the household and community levels. Among the challenges are the following:

- There is no comprehensive national programme or approach specifically aimed at improving nutrition, resulting in a lack convergence and synergy between existing programmes
- Many Government programmes which have the potential to impact nutrition, like the well-funded agricultural development programmes, lack a focus on nutrition as a major outcome
- Most programmes are not reaching the correct target groups, such as infants and young children, women, or the most needy and vulnerable
- India has not developed a cadre of *public health* nutritionists (although there is a cadre of academic and clinical research nutritionists)
- Insufficient national systems to collect and analyse data on nutrition outcomes, lack of appropriate data for monitoring and decision making
- Weak implementation systems and poor governance lead to the low effectiveness of most of these programmes

For example, the Integrated Child Development Services (ICDS) scheme, although often considered as the nation's main nutrition programme, has not shown an impact on nutrition over the past three decades of its operation. There are a number of reasons for this - its central mandate is to enhance child development (not eradicate malnutrition); its programmatic focus is on supplementary feeding (which is not an optimal nutrition intervention); and its primary target group is children 3-6 (who are not the most critical group to target). Decisions regarding the basic design or the on-going implementation of the ICDS scheme are not based on evidence of what works to reduce malnutrition, but on other considerations and desired results (e.g., early childhood development objectives). As with other programmes, it also suffers from weak implementation systems and governance.

A number of important areas have fallen in the gaps between these Governmental programmes. For example, there is no major programme focusing comprehensively on nutrition education or on nutrition monitoring. Even large, cross cutting missions, like the National Rural Health Mission have very little focus on nutrition. In addition, the public sector has not found ways to engage with, learn from and promote the involvement of the private sector in addressing the nutrition challenges.

In addition to the public sector, a number of academic, non-governmental organisations (NGO) and private sector agencies are contributing to nutrition security. For example, the Nandi Foundation, *Akshay Patra*, the Hunger Project, the Nutrition Foundation of India, CARE India, the University of Delhi, M.S. University of Baroda, *Avinashalingam* University for Women (Coimbatore), and various Home Science Colleges within Agricultural Universities have all contributed models and approaches to improve nutrition, which should be further documented and disseminated.

In order to improve the situation, our leaders must find a way to bridge these gaps.

III. Evidence and Programming Lessons

A review of recent, sound evidence from India and other countries reveals a number of lessons for tackling malnutrition, which are summarised below.

Complex causes of malnutrition: It is clear from the literature that there are multiple, interlinked causes of malnutrition and that there will not be one simple remedy for it. The evidence indicates that holistic and integrated interventions will be required to address malnutrition.

Core determinants: Most evidence indicates that malnutrition is closely linked to poverty and purchasing power. In addition, improving nutrition is linked with gender equity and increasing girls' and women's education, improving infant and young child care and feeding (e.g., early initiation, exclusive breastfeeding up to six months, timely and appropriate complementary feeding) and improving access to safe drinking water.

Target groups: Based on the available evidence, the most important target groups appear to be children under two years of age and women (adolescent girls, pregnant women and lactating mothers). The target group must also include the most vulnerable, such as both the rural and urban poor. In addition, it is important to determine the true "denominator" (the total number) of people who need to be reached with services and information - and to ensure that needy and vulnerable groups are not missed. Unfortunately, many Government programmes are not using a denominator based approach and, therefore, are not effectively planning for, or reaching out to the true number of persons in need.

Critical interventions: There are a number of interventions proven to contribute to improving malnutrition and overall health; timely initiation of breastfeeding within one hour of birth, exclusive breastfeeding during the first six months of life, timely introduction of complementary foods at six months, age-appropriate complementary feeding for children 6-24 months (adequate in terms of quality, quantity and frequency), safe handling of complementary foods and hygienic complementary feeding practices, full immunisation and annual vitamin A supplementation with deworming, frequent, appropriate and active feeding for children during and after

illness (including oral rehydration with zinc supplementation during diarrhoea), timely and quality therapeutic feeding and care for all children with severe acute malnutrition and improved nutrition for women (especially adolescent girls, pregnant women and lactating mothers)[48].

Empowerment and behaviour changes: Evidence and programming experience show that significant improvements in nutrition will require sustained changes in behaviours. Particularly important are changes in the areas of breastfeeding, complementary feeding and care of women before and during pregnancy. However, there is growing evidence that these changes may not be possible by merely providing nutrition services or information, but will require addressing social and cultural issues, such as the status and value of women and girls, son preference, the social exclusion of a number of vulnerable groups and control over assets and decision making by women and other vulnerable groups. This means that empowerment efforts will need to be combined with nutrition education and behaviour change activities[2].

Clean water and hygiene: The evidence shows significant impact on nutrition and health status can be achieved with access to clean drinking water and improved hygiene habits, especially hand washing. Young children are the most vulnerable to the effects of polluted water and poor sanitation, which contribute to diarrhoeal diseases, pneumonia, neonatal disorders, and malnutrition - the leading killers of children under age five. Improved basic sanitation (such as use of toilets) alone could reduce diarrhoea-related morbidity by more than a third; improved sanitation combined with hygiene awareness and behaviour change could reduce it by two thirds[57].

Food availability and access: Agriculture is fundamental to the achievement of nutrition goals, as it produces the food, energy and nutrients essential for human health and well being. The five main pathways by which agriculture affects nutrition are 1) increased consumption from increased food production (production for own consumption); 2) increased income from the sale of agriculture commodities (production for income); 3) empowerment of women agriculturalists and related gains in children's nutrition and welfare; 4) lower real food prices resulting from increased food production; and 5) macroeconomic growth arising from agricultural growth[54]. In food-insecure populations, nutrition education or other interventions cannot have a positive impact without adequate food availability.

Micronutrient malnutrition: Evidence shows that micronutrient malnutrition can be addressed successfully through dietary diversification and through micronutrient supplements, depending on the situation. Some programmes showed success

in improving nutrition through locally produced low cost, nutrient-dense, ready to eat foods (e.g., produced by self help group). Food-based options as well as micronutrient supplementation and food fortification options should be considered and promoted, based on a number of local factors, such as availability of nutrient-dense foods, cost of such foods, availability of fortified foods or supplements, cost of fortified foods or supplements and therapeutic needs (such as for sick or malnourished children). Deworming has been shown to enhance the success of micronutrient programmes[1].

Successful pilots: India is home to a significant number of successful pilot programmes. The experiences of states such as Tamil Nadu and Kerala could inform and help to improve nutrition programming. The country needs to work to "convert the unique into the universal." Successful programmes include models for community-based nutrition education and monitoring (including the "positive deviance" model), community accountability, intergenerational approaches, integrating nutrition interventions into primary health care programmes, girls' education, enhancements to the Universal Public Distribution System, the Council for Advancement of People's Action and Rural Technology's strategy towards combatting malnutrition using the life cycle approach and block and local level coordination mechanisms between Ministries.

Monitoring and Evaluation: Successful programmes generally use reliable data to make programmatic adjustments and focus on key nutritional status indicators as their measures of success. Programmes that showed impact on nutrition outcomes have explicit goals and systems to track nutrition outcomes (not just process measures, like the delivery of supplemental food). Successful programmes also focus on defining the "denominator" or the total number of eligible beneficiaries that need to be reached to ensure good coverage (e.g., determining and then reaching all of the pregnant women in the catchment area). Programmes must have a correct understanding of the total population they should reach or a large number of beneficiaries can be missed or left out.

Benefits: Numerous studies have shown that nutrition interventions generate high returns. Decreases in malnutrition, and in micronutrient malnutrition in particular, improve health indicators. For example, investments in micronutrients have been shown to produce high rates of return as measured by disability adjusted life years (DALYs) and in terms of long term benefits such as improved education and economic effects[53].

Leadership: There is programmatic evidence that involving civil society and community leaders in nutrition programming leads to improved results. In addition,

global and Indian evidence indicates that high level leadership is needed. There is a need for champions, particularly among political leaders, public programme administrators, medical personnel, agriculture professionals, and education leaders, in order to make major improvements in the health and development areas[11,12,48,51].

The literature review revealed a number of nutrition success stories, which can guide and inform India's efforts. Many large and small countries, in Asia and beyond, have achieved major reductions in malnutrition in relatively short time periods.

Brazil was able to accomplish a 60 per cent reduction in child malnutrition (from 18 to 7 per cent) from 1975 to 1989, with reductions in infant mortality from 85 to 36 deaths per 1,000 live births in same period. This followed a period of economic growth and poverty reduction from 1970 to 1980. Brazil adopted a Zero Hunger Strategy which coordinated programmes from 11 Ministries and which had strong national level leadership (the brother of the President)[54]. The major inputs used in this strategy were increased numbers of health care providers, investments in public and private food distribution programmes and in social-sector spending on water and sanitation, health, and education[5].

Vietnam was able to reduce child malnutrition from 45 to 27 per cent between 1990 and 2006. This followed a period of economic growth starting in the mid 1980s that showed poverty rates falling from over 60 per cent in 1990 to 18 per cent in 2004. The country created successful child health and family planning programmes and increased awareness of nutrition. Nutrition goals were included in Vietnam's Socioeconomic Development Plan and programmes and included a wide range of stakeholders such as the Women's Union, the Youth Union, and the Farmer's Association. The proportion of the health budget dedicated to nutrition programmes was (and still is) high: nutrition accounts for 25 per cent of national target programmes for health, even though nutrition is only one of ten target programmes.

Thailand succeeded in halving child malnutrition between 1982 and 1986 (from 50 to 25 per cent in less than half a decade). Thailand's Second National Health and Nutrition Policy (1982–86) focused on targeted nutrition interventions to eliminate severe malnutrition, as well as on education and communication efforts to prevent mild to moderate malnutrition. Their approach relied on social mobilisation and community-based primary health care. The country invested in large numbers of health volunteers, with significant training. The volunteers reached a ratio of one volunteer for 20 households to ensure high coverage. Nutrition was also integrated as an important theme in the National Economic and Social Development Plan,

ensuring important linkages between agriculture and nutrition. Thailand also initiated a strong local surveillance system that was linked with a response and action effort. During this time, the country made a large investment in health and nutrition, accounting for approximately 20 per cent of total Government expenditure, along with a similarly high investment in education during these years.

China succeeded in reducing child malnutrition by two-thirds between 1990 and 2002 (from 25 to 8 per cent in 12 years). During this period China was able to channel rapid economic growth into a poverty alleviation strategy. The country implemented effective nutrition, health and family planning interventions on a large scale. China also invested in complementary programmes such as water and sanitation and education. During this period, illiteracy in women fell from 22.5 to 7 per cent. Central leadership was combined with the establishment of local government ownership. China established an effective data collection system that provides regular data for monitoring and policy making. The Government's health expenditure was between 3-4 per cent and the education expenditure was around 20 per cent during the 1990s[5].

Kerala adopted an action plan for making the state malnutrition free in 2004. The programme included linking *aganwadi* centres to district and state level officers through computers, conducting publicly posted performance assessments of *aganwadi* centres, and focusing on the nutritional status of adolescent girls, through the provision of supplementary nutrition, health check ups and the formation of girls' clubs. A Citizen's Charter for *anganwadi* workers improved service delivery through accountability to established standards.

Tamil Nadu adopted an 18 point programme focusing on supporting the physical and mental development of children, particularly the girl child. This programme also focused on adolescent girls, pregnant women and lactating mothers and worked through the *anganwadi* centres in the state. Key approaches included social mobilisation, convergence of services and supporting a people's movement. Self help groups were an important approach for women's social and economic empowerment. Tamil Nadu also placed special focus on children under three, ensuring ICDS had one worker for children under three and one for children over three[35].

Analysis of Opportunities and Potential for Impact

The Constitution of India states explicitly in Article 47 that the "State shall regard the raising of the level of the nutrition and the standard of living of its people and the improvement of public health as its primary duties". In order to fulfil this duty, leaders will need to recognise and take advantage of all available opportunities, and sources

of support. A number of key opportunities and resources are described below.

- The body of global evidence, which was recently summarised in a series on maternal and child nutrition in The Lancet Journal[48]
- A wealth of Indian, regional and global evidence and pilot programmes
- The existing infrastructure and ability to build on the comparative advantages of the major Government health and nutrition programmes
- High level leadership and endorsement (numerous indications of support for nutrition to be at the top of the development agenda, from the Prime Minister and other senior leaders)
- Financial and human resources (e.g., from community organisations, *gram sabha*, or graduates of Home Science Colleges)
- Technical assistance available from a large number of development partners including United Nations agencies, bilateral and multilateral organisations
- Experience and assistance from other potential partners such as Indian and international non-governmental organisations and civil society

This analysis of the current situation, the evidence of which interventions and approaches work to improve nutrition (summarised in an earlier section) as well as the best opportunities for impact, have led to the development of a list of key recommendations for action.

IV. Action Plan for Overcoming the Curse of Malnutrition

Critical actions are recommended based on this holistic approach and analysis (also see a Nutrition Security Framework in Attachment 2). These actions are divided into two categories: 1) what needs to be done; and 2) how to do it. The first set of recommendations (*what* needs to be done) are based on evidence of which interventions have been the most effective in India and other countries. There is also a need for some consensus about "*how*" to ensure these interventions are implemented. This leads to the second set of recommendations, which may be the most critical. These "how" recommendations are based on an analysis of the current situation and opportunities as well as on expertise and programming experience.

Recommendations: What Needs to be Done to Achieve Nutrition Security

A significant body of Indian and global evidence indicates that the following are the most critical and effective actions to improve nutrition security in India:

1. Focus on proven, essential nutrition interventions, the timely initiation of breastfeeding within one hour of birth, exclusive breastfeeding during the first six months of life, the timely introduction of age-appropriate complementary foods at six months (adequate in terms of quality, quantity and frequency), hygienic child feeding practices, improved nutrition for women (especially adolescent girls, pregnant women and lactating mothers), focusing on iron and folic acid supplements and deworming, and timely, high quality therapeutic feeding and care for all children with severe acute malnutrition (with leadership from the Ministry of Women and Child Development).
2. Focus on proven, essential primary health care interventions: full immunisation, bi-annual vitamin A supplementation with deworming for infants and young children, appropriate and active feeding of children during and after illness, including oral rehydration with zinc supplementation during diarrhoea and timely, high quality therapeutic feeding and care for all children with severe

acute malnutrition (with leadership from the Ministry of Health and Family Welfare).

3. Promote personal hygiene, environmental sanitation, safe drinking water and food safety (with leadership from Ministry of Rural Development).

4. Integrate household food and nutrition security considerations into the design of cropping and farming systems (with leadership from Ministry of Agriculture).

5. Expand and improve nutrition education and awareness as well as involvement and accountability for improved nutrition at the community level (with leadership from the Ministry of Women and Child Development and the Ministry of *Panchayati Raj* [local self government] and including others, such as the Ministry of Information and Broadcasting and the Department of Education).

How to Do It:

Based on the Indian context and significant programming experience, the Coalition recommends the following methods to improve nutrition security.

1. Expand efforts to engage and empower vulnerable communities, particularly women in these communities, to overcome malnutrition (e.g., through *Gram Sabhas*, self help groups).

2. Ensure that nutrition related programmes focus on key nutrition outcomes and are reaching the priority target groups of children under two years of age, and women (especially adolescent girls, pregnant women and lactating mothers), in order to break the intergenerational cycle of malnutrition and to achieve the desired results.

3. Strengthen the focus on improving nutrition through a leadership and coordination mechanism with clear authority and responsibility, working from local to national levels (e.g., possibly through a mechanism like a Ministry of Nutrition).

Discussion of Recommendations

What to Do...

1. Focus on proven, essential nutrition interventions (with leadership from MWCD programmes).

A review of evidence and experience indicates that the country should focus on the most effective interventions:

- Timely initiation of breastfeeding within one hour of birth
- Exclusive breastfeeding during the first six months of life
- Timely introduction of complementary foods at six months
- Age-appropriate complementary feeding (adequate in terms of quality, quantity and frequency)
- Hygienic infant and child feeding practices, safe drinking water and basic sanitation
- Timely, high quality therapeutic feeding and care for all children with severe acute malnutrition (SAM), including ready to use therapeutic foods, through a community- based approach combined with a facility based approach for children with medical complications of SAM
- Improved nutrition for women, including iron and folic acid supplements and deworming for adolescent girls, pregnant women and lactating mothers

2. Focus on proven, essential primary health care interventions (with leadership from the MHFW programmes).

A review of evidence and experience indicates that the country should focus on the most effective interventions:

- Full immunisation and bi-annual vitamin A supplementation with deworming for infants and young children
- Appropriate and active feeding of children during and after illness, including oral rehydration with zinc supplementation during diarrhoea
- Improved nutrition for women, including iron and folic acid supplements and deworming for adolescent girls, pregnant women and lactating mothers
- Timely, high quality therapeutic feeding and care for all children with severe acute malnutrition, including ready to use therapeutic foods
- Address micronutrient malnutrition in a holistic manner through a food cum fortification of appropriate foods strategy; promote and improve consumption of iodised salt

3. Promote personal hygiene, environmental sanitation, safe drinking water and food safety (with leadership from the Ministry of Rural Development programmes).

The proven priorities in this area should be:

- Promote use of safe drinking water

- Encourage personal hygiene and environmental sanitation, especially use of toilets and hand washing with soap
- Ensure safe food handling practices during storage, cooking and eating.

4. Integrate household food and nutrition security concerns into the design of cropping and farming systems (with leadership from Ministry of Agriculture).

- Promote agricultural and horticultural programmes and policies to increase the supply and consumption of safe, nutritious foods and to promote food based remedies for nutritional maladies, with emphasis on addressing micronutrient deficiencies
- Mainstream nutrition considerations into the National Horticulture and Food Security schemes such as *Rashritya Krishi Vikas Yojana*
- Expand availability of low cost nutritious foods in rural areas though the Universal Public Distribution System, public-private partnerships, women's self help groups and other mechanisms (including high quality complementary foods for children ages 6-24 months)
- Review and revise existing programmes, such as the Mid Day Meal Scheme to improve the quality of foods provided and the nutrition education elements of the programmes
- The National Commission of Farmers has produced important recommendations in this area, such as: (1) defending the gains of the Green Revolution in intensive agriculture areas; (2) developing contingency plans for different weather possibilities; (3) states with unutilised yield reserve should be encouraged to improve production and productivity; (4) more crop and income per drop of water continuing to work for completing the unfinished agenda of Land Reform; and (5) ensuring a remunerative price for farm commodities

5. Expand and improve nutrition education, awareness and involvement at community level (with leadership from the Ministry of *Panchayati Raj* and MWCD, together with assistance from others, such as the Ministry of Information and Broadcasting programmes).

- Increase PRI leadership in nutrition security:
  - Improve sensitisation and training of PRI members on priority nutrition issues

  - Promote the formation and active functioning of Village Health and Sanitation Committees, with oversight from *Gram Sabhas*, in order to focus on nutrition and engage and empower vulnerable families
  - Expand PRI role in monitoring the functioning and outcomes of nutrition programmes at community level
  - Increase awareness of entitlements among poor households, especially women, for example, by the distribution of entitlement cards listing the various health, nutrition and development programmes available

- Promote the use of information technology platforms and innovations (e.g., *Gyan Chaupal*, e-governance, National Knowledge Mission) for nutrition education and monitoring efforts; Encourage the *Grameen Gyan Abhiyan Movement* (village knowledge movement) and *Gyan Chaupal* (village knowledge centres) to focus on nutrition; Establish Village Nutrition Literacy Centres
- Issue clear Government guidelines on the priority interventions and target groups for improving nutrition, to encourage all programmes to focus on these evidence based, priority interventions
- Improve the nutrition education and counselling skills of all frontline service providers (e.g., *Aganwadi* workers, Auxiliary Nurse Midwives, Accredited Social Health Activists); expand nutrition education for public health and medical professionals; promote the development of a public health nutritionist cadre
- Expand nutrition education programmes in schools
- Expand Government programmes to empower and educate women's self help groups and other community-based organisations about nutrition issues and key actions they can take (e.g., community production of high quality foods, dietary diversification, grain banks)
- Expand NGO, community-based organisations, civil society, citizen's charters and private sector involvement in nutrition, including public-private partnerships and corporate philanthropy, with appropriate regulations designed to protect the public's health (e.g., corporate support for nutrition education programmes)

How to do it ...

1. **Expand efforts to engage and empower vulnerable communities, particularly women in these communities, to overcome malnutrition**

    - Make nutrition a top focus area for community or *Gram Sabha* level of the *Panchayati Raj* institutions; require the *Gram Sabha* to monitor and achieve improvements in malnutrition (with specific guidelines and indicators), with a focus on reaching the most vulnerable

    - Issue guidance on community involvement and empowerment as critical nutrition security approaches for all programmes; encourage communities to hold public programmes accountable (e.g., through Village Health and Sanitation Committees)

    - Fund and develop a cadre of "hunger fighters" or community workers to help communities improve nutrition; this cadre of workers (hunger fighters) should reach out to all community-based organisations and women's groups (consider employing Home Science College graduates)

    - Prioritise and disseminate key nutrition education messages for use at community level (led by the *Gram Sabha*), using a life cycle approach; coordinate nutrition education and information efforts to avoid conflicting messages

    - Ensure that the *Gram Sabhas* include and empower women, and support active Health and Sanitation Committees; explore community led options for reaching the vulnerable (such as through *crèches* linked with ICDS programme)

    - Encourage the *Gram Sabha* to introduce mechanisms to hold Government programmes accountable for providing mandated services

2. **Ensure that nutrition related programmes are focused on reaching the priority target groups to achieve the desired results: *children under two years of age and women* (adolescent girls, pregnant women, and lactating mothers)**

    - Issue guidance to direct all Government Missions, Ministries and programmes to focus on the priority interventions and target groups (children under two and women); require reporting on specific indicators

    - Improve the estimates of the persons to be reached by nutrition programmes, therefore ensuring correct coverage targets and improving

the quality of data used for programming and monitoring (i.e., improved "denominators"); expand registration of children under two in ICDS

- Involve communities in identifying key target groups such as pregnant women, lactating mothers and infant and young children, through village mapping; use village maps for programme planning and outreach
- Hold regular reviews of progress on nutrition indicators at all levels (using the nutrition surveillance system); conduct problem solving and revise programmes as needed, use data and regularly measure progress toward targets
- Establish concurrent evaluation systems using external agencies to provide additional data needed to ensure successful programming
- Involve the media and public to increase awareness of the nutrition situation, the national effort and to review their progress; make progress reports public

3. Improve the focus on improving nutrition through a leadership and coordination mechanism with clear authority and responsibility for improving key nutrition outcome indicators (working at local, state and national levels)

- Increase awareness and promote leadership (and champions) in nutrition at all levels (local, state and national); improve "nutrition literacy" of policy makers and administrators through advocacy and (pre-service and in-service) training; promote all political parties to include nutrition security as a priority issue in their political/election manifesto; educate parliamentarians and legislative leadership on nutrition security and create opportunities for debates
- Utilise an existing mechanism (or create a new mechanism) to ensure current Missions, Ministries and Government programmes improve their focus and performance with respect to nutrition outcomes at all levels – this mechanism could be a Cabinet committee, a task force under the Prime Minister, an apex body, a National Nutrition Authority, or Ministry of Nutrition at the national level; ensure strong leadership for this coordinating mechanism
- Expand and strengthen the National Nutrition Monitoring Bureau to establish a robust national nutrition monitoring system in order to 1) provide nutrition outcome data for measuring progress and holding programmes

accountable nationally and at state level; 2) shift the focus to nutrition *outcomes* rather than process measures; 3) improve the estimates of the persons to be reached by nutrition programmes, therefore ensuring correct coverage targets and improving the quality of data used for monitoring and evaluation (i.e., improved "denominators"); and 4) set time-bound targets and hold Missions, Ministries, and programmes accountable for their performance

- Harmonize nutrition awareness programmes with guidance on nutrition literacy and key messages as well as critical indicators to track and guide major nutrition related programmes
- Use improved data on beneficiaries (denominator based approach) to ensure adequate funding levels to reach desired beneficiaries and coverage levels
- Make good governance an explicit objective at all levels (national, state and local); select and implement successful model efforts to improve governance; select indicators and set efficiency/good governance targets; measure and publicly share progress toward good governance targets; consider more focus on the block as the primary unit for nutrition programme planning and implementation, since it may be more realistic to improve governance at this level
- Strengthen and expand the human resource pool addressing malnutrition; utilise Home Science collage graduates for expanded nutrition programming; prioritise the development of public health nutrition as a profession; mandate nutrition to be included in pre-service training of professionals such as nurses and medical doctors
- Review and implement selected lessons from Indian states (e.g., Kerala, Tamil Nadu) and other countries that have made rapid progress toward eliminating malnutrition (e.g., China, Vietnam, Thailand, Brazil); organise two-way exchange and learning programmes

Conclusion

The eradication of hunger is a critical step in socially sustainable development. The Constitution of India states explicitly in Article 47 that the *"State shall regard the raising of the level of the nutrition and the standard of living of its people and the improvement of public health as its primary duties"*. Yet more than 60 years after independence, many sources of data show that the nutrition situation in India

has not improved as desired, with almost half the children underweight and more than 70 per cent of women and children with serious nutritional deficiencies such as anaemia. Although there are success stories and developments in parts of India which show what we can achieve, the level of malnutrition in our country today is morally unacceptable, and has enormous costs in terms of health, well being, and economic development.

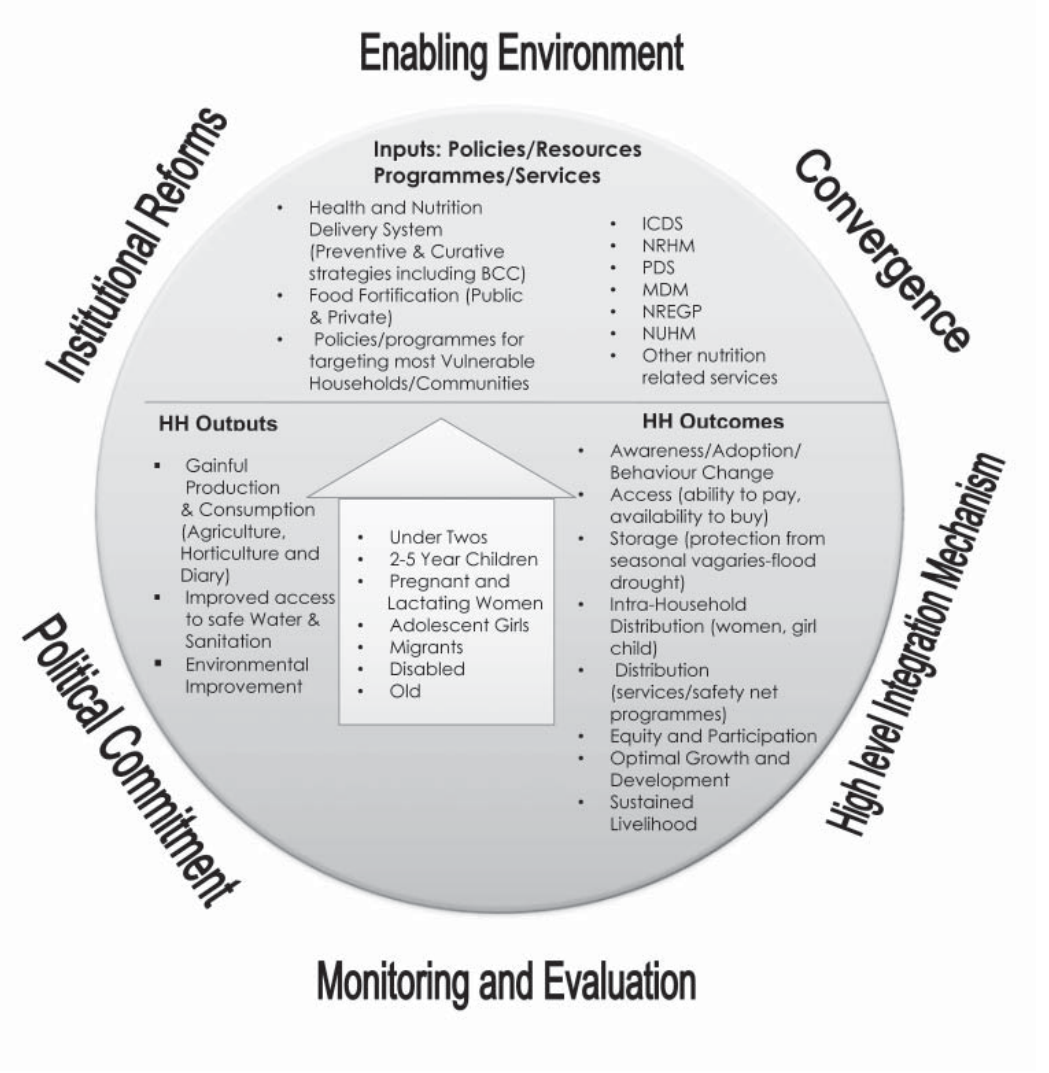
The world is focused on the achievement of the Millennium Development Goals (MDGs), which are greatly dependent on tackling the critical problem of nutrition in India. Malnutrition affects every MDG indicator identified by the United Nations as the most meaningful indicators of human development: poverty, hunger, education, women's empowerment, child mortality, maternal mortality and infectious chronic diseases.

India is at an historic juncture with respect to development and its position in the world. The country faces critical choices in terms of benefiting from its recent economic growth. We can continue on the present course, leaving half of our people under-nourished, in poverty and suffering - risking the political and economic destabilisation that can result from such a divide. Or, we can take bold leadership steps to eliminate malnutrition and improve the health and well being of all of our citizens. The Coalition for Sustainable Nutrition Security in India has accepted this *Leadership Agenda for Action*, in order to ensure that we take the path that will end the curse of malnutrition.

Attachment 1: List of On-Going Government Programmes (listed by life cycle focus area)

Beneficiaries	Schemes
Pregnant and Lactating Women	ICDS RCH- II NRHM
Children 0 – 3 years	ICDS RCH- II NRHM IMNCI Rajiv Gandhi National Creche Scheme
Children 3 – 6 years	ICDS RCH- II NRHM Rajiv Gandhi National Creche Scheme
School going children 6 – 14 years	Mid Day Meals *Sarva Shiksha Abhiyan*
Adolescent Girls 10 – 19 years	Nutrition Programme for Adolescent Girls (NPAG) *Kishori Shakti Yojana*
Adults	Food for Work *Aam Admi Bima Yojana* NREGS Skill Development Mission Women Welfare and Support Programme Adult Literacy Programme
BPL Population	Universal Public Distribution System
Antodaya Card Holder	*Antodaya Anna Yojana*
Old and Infirm Persons	*Annapurna*
All Population	*Rashtriya Krishi Vikas Yojana* Food Security Mission Safe Drinking Water and Sanitation Programmes National Horticulture Mission National Iodine Deficiency Disorders Contol Programme (NIDDCP) Nutrition Education and Extension *Bharat Nirman*

Attachment 2: Framework for Analysis of Nutrition Security



Note: The Expert Task Force used this framework to guide their analysis of Nutrition Security in India, which informed this paper.

Attachment 3: List of Expert Task Force Members

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Essential Interventions for

Reducing Malnutrition in Infants and Young Children:

A Leadership Agenda for Action

The Coalition for
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Essential Interventions for Reducing Malnutrition in Infants and Young Children in India: A Leadership Agenda for Action

First Edition: September 2008

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Executive Summary

Malnutrition remains a major threat to the survival, growth and development of Indian children[1]. The latest National Family Health Survey (NFHS-3, 2005-06) shows that 25 million Indian children – 20 per cent of children under five years old - are wasted (acutely malnourished) and 61 million children – 48 per cent of children under five years old - are stunted (chronically malnourished).

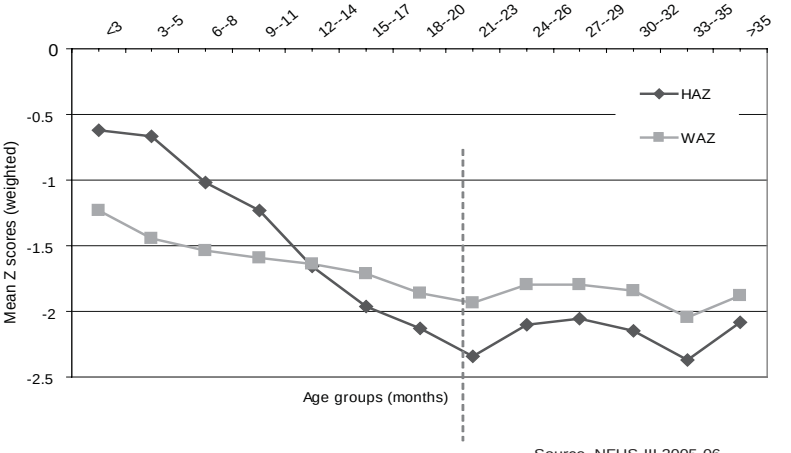
Rates of child malnutrition in India are among the highest in the world. The prevalence of child wasting in India (20 per cent) is twice as high as the average prevalence of child wasting in sub-Saharan Africa (9 per cent) and ten times higher than that in Latin America (2 per cent). The prevalence of child stunting in India (48 per cent) is more than four times higher than the prevalence of child stunting in China (11 per cent). More worrisome, the nutrition situation of Indian children has not improved significantly over the last decade. For example, according to NFHS-3, there has only been a very slight 0.5 per cent annual decrease in the prevalence of underweight children over the past six years.

Child malnutrition in India happens very early in life. NFHS-3 shows that 56 per cent of severe wasting happens before the age of two. Their nutritional status deteriorates rapidly over the first two years of life (Figure 1), and once this damage is done, catch up and recovery are almost impossible.

Therefore, improving the quality of foods, feeding practices, and the nutrition situation of children in the first two years of life, represent a critical window of opportunity to break the inter-generational cycle of malnutrition. If this critical opportunity is missed, child malnutrition will continue to self-perpetuate: malnourished girls will become malnourished women, who give birth to low birth weight infants, who suffer from poor nutrition in the first two years of life. The best opportunity to break this vicious inter-generational cycle is to concentrate efforts on improving the nutrition of infants and young children *from conception through the first two years of life*.

[1] *For the purpose of this paper, the word 'malnutrition' refers to nutritional deficiencies in children as measured by wasting, stunting, underweight, micronutrient deficiencies and/or anaemia.*

Figure 1: India, child weight-for-age and height-for-age, by age



Source, NFHS-III 2005-06

Legend: HAZ: Height-for-Age **WAZ:** Weight-for-Age

The Coalition for Sustainable Nutrition Security in India, chaired by Professor M S Swaminathan, is a group of public and private sector leaders who have united in an effort to improve nutrition security, ensuring that every Indian citizen has access to a balanced diet, safe drinking water, environmental hygiene, sanitation and primary health care. The Coalition has reviewed, endorsed and released this *Leadership Agenda for Action* to promote policy, programme and budgetary focus on the most essential interventions needed to reduce malnutrition in this most critical group: infants and young children (see text box "Developing the List of Essential Interventions").

Developing the List of Essential Interventions

In February 2008, the Coalition for Sustainable Nutrition Security in India requested an Expert Task Force to identify the most important evidence-based, cost-effective interventions to reduce malnutrition in infants and young children (0-24 months old) in India. The Expert Task Force, chaired by UNICEF, adopted the following process:

- Inviting a wide range of national and international experts and stakeholders, representing different perspectives, to contribute as Expert Task Force members and/or reviewers;
- Agreeing on the goal, objectives, methodology, and expected results of the Expert Task Force deliberations and work;

- Reviewing existing global and national epidemiological and programmatic evidence;
- Building consensus on the most important evidence-based, high-impact, cost-effective interventions with the greatest potential to make a major contribution to the reduction of malnutrition in infants and young children in India; and
- Identifying the intervention (referred to as the "what?"), the rationale (the "why?"), and the existing opportunities for scaling up (the "how?") for these essential interventions.

The Coalition requested USAID to support a Secretariat, which provided administrative and logistical support to the Expert Task Force. All the members of the Expert Task Force declare that the best interests of Indian children has been the one and only guiding principle in their contribution to this *Leadership Agenda* (see Attachment 1 for names and affiliations of the members of the Expert Task Force).

Following this careful and participatory process, the Expert Task Force submitted its recommended *Leadership Agenda for Action* to reduce malnutrition in infants and young children in India to the Coalition. The Coalition reviewed and endorsed this Leadership Agenda in September 2008.

The Coalition calls for an increased policy, programme, and budgetary focus on ten proven interventions that can dramatically reduce malnutrition in infants and young children, as follow:

1. **Timely initiation of breastfeeding within one hour of birth:** Every newborn starts breastfeeding within one hour of birth to take advantage of the newborn's intense suckling reflex and alert state and to stimulate breast milk production. Good breastfeeding skills - including proper positioning and attachment - are established to increase the newborn's suckling efficiency, mother's breast milk production, and infant's breast milk intake.
2. **Exclusive breastfeeding during the first six months of life:** Every infant is exclusively breastfed in the first six months of life. The infant is fed only breast milk and is not given any fluids, milk, or foods, not even water. Exclusive breastfeeding, with frequent, on-demand feedings ensures maximum protection against malnutrition, disease, and death, while contributing to child spacing and lower fertility rates.

3. **Timely introduction of complementary foods at six months:** Every infant starts receiving complementary foods by the beginning of the seventh month of life while breastfeeding continues until 24 months and beyond. By the beginning of the seventh month of life breast milk alone cannot meet an infant's energy and nutrient requirements. At this time complementary feeding should begin. Introducing complementary foods before is both unnecessary and dangerous.

4. **Age-appropriate complementary feeding, adequate in terms of quality, quantity and frequency for children 6-24 months:** Every child 6-24 months old is fed age-appropriate, energy and nutrient-dense, diverse complementary foods with increased quantities, nutrient density, and frequency as the child increases in age. Child feeding is responsive and active. Children are given prophylactic iron and folic acid supplements to prevent anaemia. Hygienic practices are followed when feeding children.

5. **Safe handling of complementary foods and hygienic complementary feeding practices:** Every child 6-24 months old is fed using safe handling (preparation and storage) and hygienic feeding practices of complementary foods by – among others - washing caregivers' and children's hands before food preparation and eating, serving foods immediately after preparation, using clean utensils, and avoiding feeding bottles.

6. **Full immunisation and bi-annual vitamin A supplementation with deworming:** Every child is protected from vaccine preventable diseases through a full course of immunisation delivered through the routine immunisation system at set times in the child's first year of life. In addition, all children 6-59 months old are further protected from mortality, morbidity, and malnutrition with preventive vitamin A supplementation and deworming twice yearly.

7. **Frequent, appropriate, and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhoea:** Every child is fed, actively and frequently, with age-appropriate and nutrient dense foods, during and after illness, while frequent, on-demand breastfeeding continues to increase fluid and nutrient intake. Children with diarrhoea also receive appropriate rehydration therapy including a full course of zinc supplements as per national guidelines for the treatment of diarrhoea.

8. **Timely and quality therapeutic feeding and care for all children with severe acute malnutrition:** Every child with severe acute malnutrition is provided with therapeutic foods and care in a timely manner, for life-saving rapid weight gain

and recovery. Care for children with severe acute malnutrition requires early case detection (before the development of medical complications), optimal therapeutic feeding and care protocols, and access to therapeutic foods, including ready-to-use therapeutic foods.

9. **Improved food and nutrient intake for adolescent girls particularly to prevent anaemia:** Every adolescent girl is protected against nutritional deficiencies and anaemia through dietary counselling, weekly iron and folic acid supplementation, twice yearly (six months apart) deworming prophylaxis, and life-skills development to avoid early marriage and early pregnancy.

10. **Improved food and nutrient intake for adult women, including during pregnancy and lactation:** Every woman has access to sufficient quality and quantity of food including during pregnancy and lactation. Every pregnant woman and lactating mother takes iron and folic acid supplements daily to reduce maternal anaemia and improve pregnancy and lactation outcomes. Universal regular consumption of salt with adequate levels of iodine (> 15 ppm) is required, especially for pregnant women, in order to prevent foetal brain damage associated with iodine deficiency.

This paper also identifies specific opportunities for taking these ten essential interventions to national scale so as to reach every child, everywhere in India, to achieve an unprecedented impact on reducing child malnutrition and its associated poor health, growth, development and waste of human capital. This will also have the impact of reducing poverty and improving economic growth. The most important opportunities identified are listed below:

- Promote an evidence-based approach to the design and revision of key nutrition programmes, considering replication of proven interventions and programmes from within and outside of India.

- Focus on evidence-based, low-cost, high-impact interventions and deliver them at state-level for maximum impact in reducing the burden of malnutrition.

- Develop and expand the national policy framework to include 1) deworming for children 1-5 years of age, and provision of immunisation and vitamin A supplementation, 2) provision of weekly iron and folic acid supplementation, twice yearly deworming prophylaxis and nutrition and life-skills counselling for adolescent girls, and 3) standard, state-of-the art feeding and care for children with severe acute malnutrition, including the indigenous production and provision of ready to use therapeutic foods.

- Improve the performance of primary level providers and counsellors through improved results-focused training, communications materials, job aids, motivation, and supportive supervision.
- Harmonise nutrition communication guidelines and core messages across ministries and programmes.
- Initiate denominator-based planning and monitoring to expand coverage, starting with community-based micro-plans, anchored in good mapping of pregnant mothers and children 0-23 months old in the community.
- Promote monthly coordination and convergence meetings between Ministry of Health and Family Welfare (MHFW), Ministry of Women and Child Development (MWCD), development partners, and other non-governmental organisations (NGOs) as appropriate, especially at district and block level.
- Support and expand village Health and Nutrition Days to deliver these essential nutrition interventions.

India's leadership in many fields is recognised globally. The questions now are - Can India show its strength and leadership in improving the nutrition and well being of its children? Can India ensure that its economic successes are shared more equitably so that none of its children suffer from malnutrition? Can India uphold the national and international commitments it has made to the basic rights of children to nutrition and life?

The evidence and expert opinion indicate that implementing these ten Essential Interventions could halve the rates of child malnutrition in India over the next five years. Now is the time to combine the existing technical knowledge and political will to make history for children in India.

Ten Essential Interventions for

Reducing Malnutrition in Infants and Young Children in India: A Leadership Agenda for Action

1. **Timely initiation of breastfeeding within one hour of birth:** Every newborn starts breastfeeding within one hour of birth to take advantage of the newborn's intense suckling reflex and alert state and to stimulate breast milk production. Good breastfeeding skills - including proper positioning and attachment - are established to increase the newborn's suckling efficiency, mother's breast milk production, and infant's breast milk intake.
2. **Exclusive breastfeeding during the first six months of life:** Every infant is exclusively breastfed in the first six months of life. The infant is fed only breast milk and is not given any fluids, milk or foods, not even water. Exclusive breastfeeding, with frequent, on-demand feedings ensures maximum protection against malnutrition, disease, and death, while contributing to child spacing and lower fertility rates.
3. **Timely introduction of complementary foods at six months:** Every infant starts receiving complementary foods by the beginning of the seventh month of life while breastfeeding continues until 24 months and beyond. By the beginning of the seventh month of life breast milk alone cannot meet an infant's energy and nutrient requirements. At this time complementary feeding should begin. Introducing complementary foods before is both unnecessary and dangerous.
4. **Age-appropriate complementary feeding, adequate in terms of quality, quantity and frequency for children 6-24 months:** Every child 6-24 months old is fed age-appropriate, energy and nutrient-dense, diverse complementary foods with increased quantities, nutrient density, and frequency as the child increases in age. Child feeding is responsive and active. Children are given prophylactic iron and folic acid supplements to prevent anaemia. Hygienic practices are followed when feeding children.
5. **Safe handling of complementary foods and hygienic complementary feeding practices:** Every child 6-24 months old is fed using safe handling (preparation and storage) and hygienic feeding practices of complementary

foods by – among others - washing caregivers' and children's hands before food preparation and eating, serving foods immediately after preparation, using clean utensils and avoiding feeding bottles.

6. **Full immunisation and bi-annual vitamin A supplementation with deworming:** Every child is protected from vaccine preventable diseases through a full course of immunisation delivered through the routine immunisation system at set times in the child's first year of life. In addition, all children 6-59 months old are further protected from mortality, morbidity, and malnutrition with preventive vitamin A supplementation and deworming twice yearly.
7. **Frequent, appropriate, and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhoea:** Every child is fed, actively and frequently, with age-appropriate and nutrient dense foods, during and after illness, while frequent, on-demand breastfeeding continues to increase fluid and nutrient intake. Children with diarrhoea also receive appropriate rehydration therapy including a full course of zinc supplements as per national guidelines for the treatment of diarrhoea.
8. **Timely and quality therapeutic feeding and care for all children with severe acute malnutrition:** Every child with severe acute malnutrition is provided with therapeutic foods and care in a timely manner, for life-saving rapid weight gain and recovery. Care for children with severe acute malnutrition requires early case detection (before the development of medical complications), optimal therapeutic feeding and care protocols, and access to therapeutic foods, including ready-to-use therapeutic foods.
9. **Improved food and nutrient intake for adolescent girls particularly to prevent anaemia:** Every adolescent girl is protected against nutritional deficiencies and anaemia through dietary counselling, weekly iron and folic acid supplementation, twice yearly (six months apart) deworming prophylaxis, and life-skills development to avoid early marriage and early pregnancy.
10. **Improved food and nutrient intake for adult women, including during pregnancy and lactation:** Every woman has access to sufficient quality and quantity of food including during pregnancy and lactation. Every pregnant woman and lactating mother takes iron and folic acid supplements daily to reduce maternal anaemia and improve pregnancy and lactation outcomes. Universal regular consumption of salt with adequate levels of iodine (> 15 ppm) is required, especially for pregnant women, in order to prevent foetal brain damage associated with iodine deficiency.

Essential Intervention 1

Timely initiation of breastfeeding within one hour of birth

Summary description

Every newborn starts breastfeeding within one hour of birth to take advantage of the newborn's intense suckling reflex and alert state and to stimulate breast milk production. Good breastfeeding skills - including proper positioning and attachment - are established to increase the newborn's suckling efficiency, mother's breast milk production, and infant's breast milk intake.

Why is this intervention essential?

- Timely initiation of breastfeeding within one hour of birth is a key intervention for neonatal and infant survival. Evidence from West Africa and South Asia shows that initiation of breastfeeding within one hour of birth can reduce neonatal mortality by up to 22 per cent.
- Timely initiation of breastfeeding within one hour of birth takes advantage of the newborn's active suckling reflex and alert state. Initiation of breastfeeding within one hour of birth with proper positioning and attachment ensures improved suckling efficiency by the newborn; this translates into increased breast milk production by the mother and increased breast milk intake by the infant.
- Initiating breastfeeding within one hour of birth reduces the risk of hypothermia – an important cause of neonatal mortality - as the skin-to-skin contact with the mother's body helps the newborn stay warm. This is particularly important for low birth weight newborns. Moreover, initiation of breastfeeding within one hour of birth reduces post-partum bleeding and the risk of haemorrhage - a major cause of maternal mortality - while fostering mother-infant bonding.
- The Global Strategy for Infant and Young Child Feeding (2002) and the National Guidelines on Infant and Young Child Feeding (2006) recognise timely initiation of breastfeeding within one hour of birth as a central behaviour for infant survival, growth, and development.

- However, late initiation of breastfeeding is a concern. NFHS-3 shows that only 25 per cent of Indian newborns start breastfeeding within one hour of birth. Higher rates of timely initiation of breastfeeding are observed among infants born to mothers who live in urban areas (30 per cent), have over ten years of formal education (34 per cent), are assisted by health personnel at delivery (32 per cent), deliver in a health facility (34 per cent), and/or belong to the highest wealth quintile (32 per cent).

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase efforts to inform policy makers and decision makers of the key role of timely initiation of breastfeeding in reducing neonatal and infant mortality, in order to improve programming efforts in this area. This could include the use of computer-based modelling to quantify the child survival benefits of timely initiation of breastfeeding.
- **Protocols and guidelines:** Harmonise communication goals and core messages across ministries and programmes at central, state and district levels. Include support for timely and successful initiation of breastfeeding in training protocols and guidelines related to pregnancy, delivery and newborn care used by the MHFW, MWCD and medical associations.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors in protecting, promoting and supporting timely initiation of breastfeeding, through improved training, communications materials and job aids, motivation and supportive supervision. Build breastfeeding support and problem-solving capacity in referral units and among medical doctors and public health professionals.
- **Outreach and community ownership:** Expand outreach to the broader community through *Gram Sabhas, Panchayats,* mothers' committees, self help groups, senior women, and personnel assisting mothers at delivery, in order to ensure the timely initiation of breastfeeding. Targeted outreach activities can be bundled with activities such as Village Health Committees and Nutrition and Health Days (NHDs). Initiate denominator-based planning to expand coverage, starting with community-based micro-plans anchored in good mapping of pregnant mothers and children in the community.
- **Supply, logistics, and delivery:** Ensure that primary care providers and counsellors have access to high quality communications materials and job aids on supporting timely initiation of breastfeeding, and that a referral system in is place.

- **Monitoring and Quality Assurance:** Include *"Proportion of children born in the last 23.9 months who were put to the breast within one hour of birth"* as an outcome indicator of progress and success in all national, state, and district level surveys as well as monitoring and information systems (MIS) of MHFW and MWCD programmes. Include process indicators such as *awareness of timely initiation and access to breastfeeding support* by skilled personnel in the monitoring systems and surveys. Use denominator-based planning and monitoring to improve coverage.
- **Coordination and synergy:** Develop agreed-upon operational guidelines for ensuring support for timely initiation of breastfeeding by both MHFW and MWCD staff. Utilise monthly coordination meetings especially at district and block levels for ensuring convergence. Improve focus of NHDs and other mechanisms to ensure that pregnant women are counselled prior to delivery and immediately after delivery by trained personnel such as *anganwadi* workers (AWW), auxiliary nurse midwives (ANM), and accredited social health activitists (ASHA).

Essential Intervention 2

Exclusive breastfeeding during the first six months of life

Summary description

Every infant is exclusively breastfed in the first six months of life. The infant is fed only breast milk and is not given any fluids, milk, or foods, not even water. Exclusive breastfeeding, with frequent, on-demand feedings ensures maximum protection against malnutrition, disease, and death, while contributing to child spacing and lower fertility rates.

Why is this intervention essential?

- Breast milk meets all the fluid and nutrient requirements of infants in the first six months of life. Breast milk needs to be a newborn's first food, without any preceding (prelacteal) feeds, not even water, other fluids or ritual foods. Exclusive breastfeeding ensures the intake of colostrum - the first thick yellowish milk from the breast – which provides protection against infection as it has high levels of antibodies and protective factors.
- There is ample scientific evidence that supports the benefits of exclusive breastfeeding for both the mother and her infant. Exclusively breastfed infants are at much lower risk of infection from diarrhoea and acute respiratory infections than infants who are not exclusively breastfed. Exclusive breastfeeding enhances the infant's immune system while fostering optimal growth and development.
- Exclusive breastfeeding has benefits to mothers as it reduces post-partum haemorrhage, helps shrink the uterus back to normal size, delays the resumption of ovulation and the return of menses, increases birth-intervals, and reduces fertility. Longer birth intervals bring benefits to the mother and her children.
- Exclusively breastfed infants do not need water or other liquids to maintain good hydration, even in hot climates. Water supplementation is both unnecessary and dangerous as it reduces breast milk intake and introduces contaminants.

Exclusive breastfeeding is recognised as the single most important child survival intervention worldwide.

- In our country, the rate of exclusive breastfeeding among infants younger than six months is only 46 per cent. An additional 22 per cent of infants are fed breast milk with plain water. Therefore exclusive breastfeeding rates could increase from 46 per cent to 68 per cent by tackling the introduction of plain water in the first six months of life. The rates of exclusive breastfeeding need to increase significantly in order to reduce the current rates of neonatal, infant, and child mortality.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase efforts to inform policy makers and decision makers of the key role of exclusive breastfeeding in reducing neonatal, infant, and under-five mortality, in order to improve programming efforts in this area. This could include the use of computer-based modelling to quantify the child survival benefits of exclusive breastfeeding. Build awareness of and support for exclusive breastfeeding, the International Code of Marketing of Breastmilk Substitutes, the Infant Milk Substitutes Act and maternity entitlements. Improve legislation on maternity benefits.
- **Protocols and guidelines:** Harmonise communication goals and core messages across ministries and programmes at central, state and district levels. Include support for exclusive breastfeeding in training protocols and guidelines related to pregnancy, delivery and newborn care used by the MHFW, MWCD and medical associations. Develop practical guidelines and tools for the implementation and monitoring of laws related to maternity entitlements.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors in protecting, promoting and supporting exclusive breastfeeding, through improved training, communications materials and job aids, motivation and supportive supervision. Build breastfeeding support and problem solving capacity at referral centres and among medical doctors and public health professionals.
- **Outreach and community ownership:** Expand outreach to the broader community through *Gram Sabhas, Panchayats*, mothers' committees, self help groups, senior women, and personnel assisting mothers at delivery, in order to ensure exclusive breastfeeding. Targeted outreach activities can be bundled with the activities such as Village Health Committees and Nutrition and Health Days (NHDs).

- **Supply, logistics, and delivery:** Ensure that primary care providers and counsellors have access to high quality communications materials and job aids on supporting sustained exclusive breastfeeding and that a referral system in is place.
- **Monitoring and quality assurance:** Include *"proportion of infants 0-5.9 months of age who are fed exclusively with breast milk"* as an outcome indicator of progress and success in all national, state and district level surveys as well as in the monitoring and information systems (MIS) of MHFW and MWCD programmes. Include process indicators such as *awareness of exclusive breastfeedng and access to breastfeeding support by skilled personnel* in MIS systems and surveys.
- **Coordination and synergy:** Develop jointly agreed upon operational guidelines for ensuring support for exclusive breastfeeding by both MHFW and MWCD staff. Focus NHDs and other mechanisms to ensure that pregnant women are counselled prior to delivery and immediately after delivery by skilled personnel (e.g., by AWWs, ANMs, ASHAs). Improve monitoring of the Infant Milk Substitutes Act. Utilise monthly coordination meetings especially at district and block levels for ensuring convergence.

Essential Intervention 3

Timely introduction of complementary foods at six months

Summary description

Every infant starts receiving complementary foods by the beginning of the seventh month of life while breastfeeding continues until 24 months and beyond. By the beginning of the seventh month of life breast milk alone cannot meet an infant's energy and nutrient requirements. At this time complementary feeding should begin. Introducing complementary foods before is both unnecessary and dangerous.

Why is this intervention essential?

- Exclusive breastfeeding fully meets the energy and nutrient requirements of a child up to six months. After completing six months of life, every child needs to receive foods in addition to breast milk, to fully meet the substantial energy and nutrient needs in this period of rapid growth and development.
- Complementary feeding - the period when other foods or liquids are provided to the infant along with breast milk - should start by the beginning of the seventh month of life. The timely introduction of age-appropriate complementary foods is crucial to ensure that children continue to grow and develop to their full potential.
- Early introduction of complementary foods (before six months) does not result in improved growth. On the contrary, early introduction of complementary foods replaces breast milk and leads to a decrease in caloric intake because breast milk is generally higher in nutritional value than the complementary foods and liquids fed to children in developing countries. In most cases, replacement of breast milk before six months will negatively affect the macro and micronutrient intake of infants.
- Similarly, late introduction of complementary foods results in sub-optimal nutrient intake, infant growth failure, and poor development. Lack of attention to this essential intervention and this critical age period can lead to substantial rates of growth faltering during a period of great vulnerability to poor nutrition.

- In our country, twenty-six per cent of children 0-24 months old are wasted, 38 per cent are underweight, 39 per cent are stunted, and 82 per cent are anaemic. The proportion of stunted children increases nearly threefold between the ages of 6 to 24 months. This is largely attributable to late and sub-optimal complementary foods and feeding practices.
- Currently, only 57 per cent of 6-9 month old infants receive any complementary foods at all, with wide variability across different states. Timely introduction of appropriate complementary foods, therefore, has great potential to improve the quality of children's diets during the early complementary feeding period.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the importance of timely and appropriate complementary feeding for reducing under nutrition, illness, and death among infants and young children. Promote an evidence-based approach to the design of relevant programmes that is based on epidemiological evidence and better practices and consider replication of successful programmes from within and outside of India.
- **Protocols and guidelines:** Review, refine, and promote available evidence-based approaches and tools through updated operational MHFW and MWCD guidelines and protocols to support the timely introduction of complementary foods at six months. Consider introducing special events for infants six months old during Nutrition and Health Days to promote timely introduction of complementary foods, continued breastfeeding, use of safe water for young children, and hygiene practices during feeding. Harmonise communication goals and core messages across ministries and programmes at central, state, and district levels; adapt core messages to the regional and/or local context.
- **Human resource capacity:** Improve the performance of primary level staff in promoting and supporting timely introduction of age-appropriate foods and feeding practices from six months of age, through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Intensify communications efforts to make timely initiation of complementary feeding popular knowledge among communities, service providers in MWCD and MHFW programmes, programme managers and leaders, formal and informal health care providers, politicians, and media. This could include the use of celebrity statements through a coordinated multi-channel communications strategy. Initiate denominator-

based planning and outreach to expand coverage, starting with community-based micro-plans, anchored in good mapping of mothers and children in the community.

- **Supply, logistics and delivery:** Ensure that primary care providers and counsellors have access to high quality communications materials and job aids on supporting timely introduction of complementary foods.
- **Monitoring and quality assurance:** Monitor progress on timely introduction of complementary feeding at national, state, and district levels through surveys that include the indicator *"proportion of infants 6-8.9 months of age who receive solid, semi-solid or soft foods"*. Monitor programme implementation processes through indicators such as *awareness of timely introduction among caregivers and service providers*. Use denominator-based planning and monitoring to improve coverage.
- **Coordination and synergy:** Utilise monthly coordination meetings and other mechanisms, especially at district and block levels, for ensuring convergence. Initiate focus on six month old children at Nutrition and Health Days.

Essential Intervention 4

Age-appropriate complementary feeding, adequate in terms of quality, quantity and frequency for children 6-24 months

Summary description

Every child 6-24 months old is fed age-appropriate, energy and nutrient-dense, diverse complementary foods with increased quantities, nutrient density, and frequency as the child increases in age. Child feeding is responsive and active. Children are given prophylactic iron and folic acid supplements to prevent anaemia. Hygienic practices are followed when feeding children.

Why is this intervention essential?

- Children are at the highest risk of nutritional deficiencies and growth faltering between the ages of 6 - 24 months and the prevalence of child malnutrition as measured by wasting (low weight-for-height), stunting (low height-for-age), and underweight (low weight-for-age) is highest in this age group.
- In most cases, children are unable to compensate later in life for poor feeding and growth in early childhood and they grow up to be stunted adults with compromised ability to live and perform to their potential. Stunted girls grow up to become adult women with smaller birth canals, which increases the risk of obstructed labour during child birth. In addition, stunted women are more likely to give birth to low birth weight newborns. The damage of sub-optimal feeding and nutrition in infancy and early childhood is largely irreversible.
- Globally, scientific evidence indicates that the period between 6 - 24 months is also the period when children are most responsive to interventions aimed to improve the quality of complementary foods and feeding practices. New programmatic evidence shows that programmes that provide interventions to improve age-appropriate complementary foods and feeding practices are feasible to implement and can yield substantial nutritional benefits.
- The period between 6 - 24 months of age is the period of greatest growth faltering in children. NFHS-3 shows that the prevalence of stunting increases from 20 per cent when children are younger than six months old to 47 per cent

when children are between 12 - 17 months old and 58 per cent by the time children are 18 - 23 months old.

- Similarly, the period between 6 - 23 months of age is the period of greatest risk for anaemia. NFHS-3 shows that the prevalence of anaemia in children 6-24 months old is 82 per cent while it is 63 per cent among children 24-59 months old.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the importance of good nutrition for children in the vulnerable age window of 6-24 months. Consider use of computer-based modelling of the impact of poor feeding and nutrition in infancy and early childhood to develop a common understanding among all stakeholders of the consequences of poor complementary feeding. Advocate for a social safety net approaches for young children to ensure access to age-appropriate foods and essential nutrients. Promote an evidence based approach to the design of relevant programmes and consider replication of successful programmes from within and outside of India.
- **Protocols and guidelines:** Review, refine, and promote available evidence-based approaches and tools through updated operational MHFW and MWCD guidelines and protocols so that children are fed age-appropriate, energy and nutrient-dense complementary foods, with increased nutrient density, quantity, and frequency as children grow. Conduct qualitative and ethnographic research to document the main opportunities for, and barriers to, improved complementary feeding practices. Use research findings to ensure well-designed programmes grounded in the local context. Harmonise communications guidelines and core messages to promote age-appropriate complementary foods and feeding practices. Adapt guidelines and messages to the state, district, or local contexts.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors in age-appropriate complementary feeding, through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Sensitize all community members to the needs of children under two, including *panchayat* members, women's groups and other local resource groups. Initiate denominator-based planning

and outreach to expand coverage, starting with community-based micro-plans, anchored in good mapping of children in the community. Through Nutrition and Health Days and other community events, build awareness of the importance of age-appropriate complementary feeding and continued breastfeeding until at least 24 months of age. Consider expansion of MHFW and MWCD collaboration with NGOs to achieve this objective.

- **Supply, logistics, and delivery:** Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to support improved complementary feeding practices. Ensure that these materials stress the role of local foods and family recipes in ensuring improved complementary feeding for infants and young children. Strengthen the capacity of local groups that produce complementary foods to ensure adequate supply in quantity, nutritional adequacy, and safety. Introduce the use of point-of-use micronutrient powders and/or fortified complementary foods, where local diets are unable to meet the specific nutrient needs of infants and young children. Ensure timely provision of iron supplements to prevent anaemia where needed.
- **Monitoring and quality assurance:** Include indicators on the quality, quantity, and frequency of complementary feeding in national, state, and district level surveys as well as the MIS of MWCD and MHFW programmes. Key indicators include: *(i) proportion of children 6-23.9 months of age who receive foods from four or more food groups; (ii) proportion of breastfed and non-breastfed children 6-23.9 months of age who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more, and (iii) proportion of children 6-23.9 months of age who receive an iron-rich food or iron-fortified foods specially designed for infants and young children, or fortified in the home.* Use denominator-based monitoring to improve coverage.
- **Coordination and Synergy:** Develop joint operational plans for MWCD and MWCD field personnel. Utilise monthly coordination meetings especially at district and block levels for ensuring convergence. Initiate focus on six month old children at Nutrition and Health Days. Where needed, seek to improve local production of complementary food.

Essential Intervention 5

Safe handling of complementary foods and hygienic complementary feeding practices

Summary description

Every child 6-24 months old is fed using safe handling (preparation and storage) and hygienic feeding practices of complementary foods by – among others - washing caregivers' and children's hands before food preparation and eating, serving foods immediately after preparation, using clean utensils, and avoiding feeding bottles.

Why is this intervention essential?

- Frequent infections such as diarrhoeal diseases and intestinal worm infestations contribute significantly to high prevalence of malnutrition among infants and young children. It is well documented that the peak incidence of diarrhoeal diseases in children happens between 6-12 months of age as the intake of complementary foods increases.
- As the intake of complementary foods increases, so does the risk of food contamination with pathogens. Microbial contamination of complementary foods is a major cause of childhood diarrhoea. Therefore, safe handling of complementary foods is critical for the prevention of gastrointestinal diseases. Safe handling of complementary foods includes serving foods immediately after preparation and storing foods safely.
- Using clean utensils to prepare and serve children's food and using clean cups and bowls when feeding children is also vital to avoid the contamination of complementary foods with pathogens. Feeding bottles are particularly difficult to keep clean, making them an important route in bacterial transmission and they should be avoided.
- Washing caregivers' and children's hands with soap before food preparation and eating is among the most important complementary feeding practices to reduce food contamination and the incidence of diarrhoeal diseases in infants and young children.

- According to NFHS-3, the proportion of children with diarrhoea in the two weeks preceding the survey was 10 per cent among infants 0-6 months old and almost 20 per cent (double) in infants 6-12 months old, indicating the importance of close attention to hygiene practices related to complementary feeding.
- Compliance with these recommendations may be challenging, particularly in environments with limited access to safe water and facilities for safe preparation and storage of food, however, there is evidence that carefully planned educational interventions can result in improved practices and outcomes.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the importance of adequate supply of safe drinking water and sanitation facilities for central, state, and district level programmes, particularly in relation to highly vulnerable communities.
- **Protocols and guidelines:** Update operational guidelines and protocols in programmes including those of the MHFW and Ministry of Rural Development to ensure that primary providers and counsellors build community awareness about safe food handling practices, child feeding, and hand washing practices at all contacts with their client families. Implement guidelines pertaining to the provision of water and sanitation facilities in public spaces such as *Anganwadi* Centres and primary health centres. Harmonise communications guidelines to promote safe handling of complementary foods and hygienic complementary feeding practices. Adapt guidelines and messages to the state, district, or local contexts.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors in safe handling of complementary foods, through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Strengthen communications activities through the MWCD, MHFW, and Total Sanitation Campaign programmes to engage communities on issues related to environmental sanitation, food and water handling, and hand washing, especially those pertaining to child feeding. Through Nutrition and Health Days, *Gram Sabhas*, and other community mechanisms, increase community use of clean drinking water and improved sanitation facilities.

- **Supply, logistics and delivery:** Improve access to safe drinking water and sanitation facilities, especially through engagement with district officials. Increase awareness and demand for better hygiene. Link with the National Rural Employment Guarantee Scheme (NREGS) and Food for Work (FFW) programmes to ensure funds in these programmes are channelled to the development of water and sanitation infrastructure. Explore the use of public-private and social marketing approaches to ensure access to, and use of, soap while hand-washing. Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to support hygienic complementary feeding.
- **Monitoring and quality assurance:** Monitor access to safe drinking water, improved sanitation, and awareness about hygiene practices in child feeding and care through household surveys such as NFHS and District Level Household Survey. Track progress on this essential action with the following two indicators: *1) proportion of children 0-24 months old living in households with access to safe drinking water; and 2) proportion of children 0-24 months old living in households with access to improved sanitation.*
- **Coordination and synergy:** Utilise monthly coordination meetings and other mechanisms, especially at district and block levels, for ensuring convergence. Expand focus on food handling at Nutrition and Health Days. The MHFW and MWCD should coordinate with other sectors and programmes, such as NREGS, to improve access to sanitation and safe water.

Essential Intervention 6

Full immunisation and bi-annual vitamin A supplementation with deworming

Summary description

Every child is protected from vaccine preventable diseases through a full course of immunisation delivered through the routine immunisation system at set times in the child's first year of life. In addition, all children 6-59 months old are further protected from mortality, morbidity, and malnutrition with preventive vitamin A supplementation and deworming twice yearly.

Why is this intervention essential?

- Immunisation protects children against death and disability associated with vaccine preventable diseases.
- In addition to immunisation, regular vitamin A supplementation has been shown to reduce under-five mortality by an average of 23 per cent in regions where vitamin A deficiency is prevalent.
- Intestinal worm infestation in children is associated with a significant loss of micronutrients, particularly iron, and can contribute to iron deficiency, growth retardation, and anaemia.
- According to NFHS-3, only 44 per cent of children 12-23 months old are fully vaccinated (58 per cent in urban areas versus 39 per cent in rural areas) and five per cent of children have not received any vaccine. India is home to the largest pool of non-immunized children in the world.
- Data from the National Nutrition Monitoring Bureau shows that the consumption of vitamin A in the diet is very low with median intakes below 20 per cent among children and adolescents. Vitamin A supplementation can be delivered cost-effectively in combination with routine immunisation and as a part of bi-annual Nutrition and Health Days. Currently less than half the children 6-59 months old have access to this life saving intervention.
- According to NFHS-3, anaemia rates among Indian children are among the highest in the world as 82 per cent of children 6-23 months old are anaemic.

Anaemia in children impairs cognitive development, reduces learning ability, limits future earning potential, and compromises national development and economic growth.

- Children's iron intake needs to be improved through the timely introduction of age-appropriate, iron and micronutrient rich complementary foods (including fortified foods). When needed children should be given prophylactic iron and folic acid supplements to prevent anaemia. Biannual vitamin A supplementation and deworming will increase the absorption of the iron available in the child's diet.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the importance of deworming for children under five years of age and include this cost-effective intervention in national policy frameworks along with immunisation and vitamin A supplementation. Replicate experiences from states that have improved coverage of immunisation, vitamin A supplementation, and deworming.
- **Protocols and guidelines:** Develop and disseminate guidelines for deworming children under five years of age. (The protocols and guidelines for immunisation and vitamin A supplementation are largely in place.) Increase the focus for the three interventions reaching "hard to reach" children (children from poor urban and rural areas, children from socially excluded groups, and children living in remote areas) who currently do not have access to these services. Harmonise communication goals and core messages across ministries and programmes at central, state and district levels; adapt core messages to the regional and/or local contexts. Expand use of village Nutrition and Health Days to reach all children with these services.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors, especially in deworming, through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Initiate denominator-based planning and outreach to expand coverage, starting with community-based micro-plans, anchored in good mapping of children in the community. Expand use of village Nutrition and Health Days to improve delivery, increase coverage, and help build awareness at community level (e.g. women's groups) that immunisation, vitamin A supplementation, and deworming are services to which children

are entitled (to generate demand and improve accountability of the service providers to the communities).

- **Supply logistics and delivery:** Ensure timely access to the commodities needed for the interventions in adequate amounts to ensure the targeted coverage. Consider the use of vitamin A capsules instead of syrup, which is the delivery mechanism of choice in most other countries. Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to promote these services.
- **Monitoring and quality assurance:** Track progress on this essential action with the following three indicators: *1) proportion of children 12-23 months old fully immunised; 2) proportion of children 6-59 months old having received two doses of vitamin A in the previous 12 months; and 3) proportion of children 12-59 months having received two deworming tablets in the previous 12 months.* Use denominator-based monitoring to improve coverage.
- **Coordination and synergy:** Utilise monthly coordination meetings and other mechanisms, especially at district and block levels, for ensuring convergence. Expand Nutrition and Health Days to improve coverage of these services.

Essential Intervention 7

Frequent, appropriate, and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhoea

Summary description

Every child is fed, actively and frequently, with age-appropriate and nutrient dense foods, during and after illness, while frequent, on-demand breastfeeding continues to increase fluid and nutrient intake. Children with diarrhoea also receive appropriate rehydration therapy including a full course of zinc supplements as per national guidelines for the treatment of diarrhoea.

Why is this intervention essential?

- Nutrition and infection are closely inter-related. Malnutrition is the cause of one-third to one-half of all deaths in children under-five either through direct causation or through increased case-fatality rates in malnourished children affected by diarrhoea, pneumonia, measles, and/or malaria. Especially when not appropriately treated or managed, infections increase the nutrient requirements of the child and - unless compensated with additional food and nutrient intake - they contribute to worsening malnutrition with related increases in mortality.
- It is therefore critical to break the vicious cycle of malnutrition and infection through, among other things, active and frequent feeding (including breastfeeding) during and after illness. Global guidelines recommend prompt treatment of illnesses and continuation of usual feeding in a frequent and active manner during and after illnesses to improve the nutrition status of children.
- Global guidelines for the treatment of diarrhoea also recommend the use of oral rehydration salts with zinc supplementation (for 10-14 days). Zinc supplementation reduces the duration and severity of the diarrhoea episode and lowers the incidence of diarrhoea in the 2-3 months following supplementation. This should be accompanied by breastfeeding, continued complementary feeding for children 6 - 24 months old, and selective use of antibiotics.
- According to NFHS-3, 18 per cent of children under two had fever - a manifestation of infection – in the two weeks preceding the survey and 14 per

cent had diarrhoea. There is also evidence that frequent additional feeding during and after illness is not occurring, since as many as 43 per cent of children 6-23 months old with diarrhoea in the two weeks preceding the survey were offered no food/liquids or less food/liquids than usual.

- Rates of treatment of diarrhoea are also extremely low. According to NFHS-3, only 29 per cent of children 6-23 months old with diarrhoea were treated with ORS made from packets. Despite a favourable policy environment, the use of zinc supplements for the treatment of diarrhoea is virtually nil; yet zinc deficiency is very high - (as evidenced by the high rates of stunting, which is a proxy indicator of zinc deficiency - according to NFHS-3, an estimated 39 per cent children 0-23 months old are stunted).

Opportunities for scaling up this intervention

- **Policy and advocacy:** Promote awareness and implementation of the national policies on ORS and zinc supplementation. Increase the policy focus on improved and active feeding during and after child illness. Promote awareness and build consensus in the scientific community and with other key stakeholders on the importance of infant and young child feeding practices and ORS plus zinc supplementation in reducing mortality.
- **Protocols and guidelines:** Improve the dissemination and implementation of the existing protocols and guidelines. Implement a results-driven, time-bound national plan to reduce child deaths due to diarrhoeal diseases and other infections, clarifying the roles of various stakeholders from government, non-profit, and private sectors. Harmonise communications guidelines to promote frequent, appropriate, and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhoea. Adapt guidelines and messages to the state, district, or local contexts.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors to provide timely and appropriate advice and support on infant and young child feeding and care during and after illness (including oral rehydration with zinc supplementation during diarrhoea), through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Strengthen communication efforts to improve the capability of mothers and other caregivers to prevent and treat infections including diarrhoea. Initiate denominator-based planning and outreach to expand coverage, starting with community-based micro-plans,

anchored in good mapping of children in the community. Consider expansion of MHFW and MWCD collaboration with NGOs to achieve this objective.

- **Supply logistics and delivery:** Ensure the timely availability of all commodities and supplies, such as ORS packets, zinc supplements, antibiotics, and communications materials required through all possible delivery channels, both public and private. Particular attention needs to be given to increasing the domestic production capacity for zinc supplements.
- **Monitoring and quality assurance:** Monitor this essential intervention through the following indicators: *1) proportion of children reported to have had an episode of diarrhoea in previous two weeks who took ORS; 2) proportion of children reported to have had an episode of diarrhoea in the previous two weeks who took zinc supplements; and 3) proportion of children reported to had had an episode of diarrhoea in the previous two weeks who were given increased foods and fluids.*
- **Coordination and synergy:** Expand coordination between MHFW (which is responsible for the delivery of zinc supplementation and ORS), MWCD (which is able to raise community awareness of how to treat ill children) and the Department of Biotechnology (which has been working to increase the domestic capacity to produce zinc supplements to meet upcoming demand). Utilise NHDs to improve the focus on active feeding of sick children.

Essential Intervention 8

Timely and quality therapeutic feeding and care for all children with severe acute malnutrition

Summary description

Every child with severe acute malnutrition is provided with therapeutic foods and care in a timely manner, for life-saving rapid weight gain and recovery. Care for children with severe acute malnutrition requires early case detection (before the development of medical complications), optimal therapeutic feeding and care protocols, and access to therapeutic foods, including ready-to-use therapeutic foods.

Why is this intervention essential?

- Malnutrition remains a major killer of children and severe wasting (weight-for-height below minus three standard deviations of the median weight for height in the reference WHO population) is a particularly lethal form of severe acute malnutrition (SAM). Mortality rates in severely wasted children are nine times higher than those in well-nourished children due to direct causation and to the dramatic increase in case fatality in severely wasted children with common illnesses such as diarrhoea, pneumonia, measles, and malaria.

- NFHS-3 shows that 20 per cent of children under five are wasted (weight-for-height below minus two standard deviations). Rates of child wasting in India are twice as high as the average wasting rates in sub-Saharan Africa (9 per cent) and ten times higher than those in Latin America (2 per cent). Yet more worrisome, eight million Indian children are severely wasted. Severe wasting requires an urgent and quality response.

- Care for children with SAM is restricted to facility-based care in a few hospitals and nutrition rehabilitation centres, greatly limiting coverage and impact. To give a sense of the inadequacy between the scale of the problem and the current response, in the State of Bihar, where the number of children with SAM at any point in time is over one million, there are only two nutrition rehabilitation centres that can provide care to about 40 children per month. Currently less

than 0.1 per cent of the children with SAM receive treatment. Care for children with SAM requires a revolutionary national response.

- Global evidence shows that the vast majority of children with SAM can be treated in their communities. Community-based treatment involves 1) active case finding for the timely detection of SAM in the community, 2) early referral of wasted children with medical complications to a centre-based therapeutic programme, 3) the provision of ready-to-use therapeutic foods for children with SAM without medical complications (up to 90 per cent of children with SAM) in the community, and 4) weekly monitoring of weight gain until the affected children recover and can be discharged from the programme.
- Community-based care for children with SAM could avert the deaths of hundreds of thousands of children in the country annually, if implemented on a large scale and properly combined with facility-based care for children with SAM and medical complications.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the severity of the problem of children with severe acute malnutrition (SAM) - currently more than 8 million at any point in time - and the urgent need for timely access to quality therapeutic feeding and care, including access to an uninterrupted supply of ready-to-use therapeutic foods (RUTF). Develop a national policy that outlines standard, state-of-the art feeding and care for children with SAM through programmes that combine facility- and community-based therapeutic feeding and care with adequate referral between both. Ensure access to RUTF.
- **Protocols and guidelines:** Update the national guidelines on the treatment of SAM to bring them in line with internationally-agreed upon standards for the integrated management of SAM in children. This should be done on a high priority basis. These guidelines should include: 1) facility- and community-based therapeutic feeding and care, 2) active case finding at the community level for early detection of children with SAM, before the development of medical complications, 3) timely and quality treatment with RUTF, and 4) effective referral between the facility and community components of the programme.
- **Human resource capacity:** Improve the performance of facility-and community-based care providers and counsellors to provide state-of-the-art feeding and care for children with SAM, through improved training, communications

materials, job aids, motivation, and supportive supervision. Specifically, train and support *anganwadi* workers in active screening of children for early detection of children with SAM using mid upper arm circumference (MUAC) and weekly monitoring of children admitted to the community-based therapeutic component of the programme with RUTF. Train and support ANMs to identify children with SAM and medical complications and refer them to the nearest block-level therapeutic care unit where the children's condition will be stabilized before they can be referred to the community-based therapeutic care component of the programme.

- **Outreach and community ownership:** Empower caregivers, families, and communities to identify, feed, and care for children with SAM in their communities through early case detection, simplified protocols, ready-to-use therapeutic foods, and adequate weight gain monitoring until the child's total recovery.
- **Supply logistics and delivery:** Ensure the supply and logistics needed to provide caregivers and communities with timely and sustained access to the commodities needed for the integrated management of SAM, including uninterrupted access to RUTF. Give priority to the indigenous production of ready-to-use therapeutic foods within the research and development budget of the Ministry of Science and Technology. Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to support the management of SAM.
- **Monitoring and quality assurance:** *M*onitor progress in addressing SAM using the following indicators: 1) proportion of blocks conducting monthly drives for the early detection of children with SAM through village-based MUAC screening; 2) proportion of blocks with an integrated therapeutic programme that provides facility- and community-based therapeutic care to at least 90 per cent of children with SAM; and 3) proportion of children with SAM with access to RUTF. Use denominator-based planning and monitoring to improve coverage.
- **Coordination and synergy:** Actively involve *anganwadi* workers in identifying children with SAM and treating the uncomplicated cases (90 per cent) with RUTF, while referring the complicated cases to the block therapeutic feeding centre. Expand access to block level therapeutic feeding centres within the MHFW system.

Essential Intervention 9

Improved food and nutrient intake for adolescent girls particularly to prevent anaemia

Summary description

Every adolescent girl is protected against nutritional deficiencies and anaemia through dietary counselling, weekly iron and folic acid supplementation, twice yearly (six months apart) deworming prophylaxis, and life-skills development to avoid early marriage and early pregnancy.

Why is this intervention essential?

- Adolescence is a period of intense social, psychological, and physiological change, particularly for girls. Nutritional deficiencies in adolescent girls are common and have far-reaching implications for them as young women, and for their children when they become mothers. Iron deficiency anaemia is one of the main nutritional problems in adolescent girls, as during adolescence their iron requirements increase sharply due to growth and menstruation.
- Anaemic adolescent girls are less likely to enrol in formal education and more likely to have lower school performance rates and higher school absenteeism and drop-out rates. Anaemic adolescent girls also have a higher risk of becoming anaemic adult women, who often have lower pre-pregnancy weight gain, lower pregnancy weight gain, are at a higher risk of death from haemorrhage at delivery, and are more likely to deliver low birth weight newborns, thereby perpetuating the vicious intergenerational cycle of poor nutrition, growth, and development.
- An analysis of studies on intermittent iron supplementation concluded that weekly iron supplementation of adolescent girls is effective in reducing iron deficiency anaemia if delivered under supervision to ensure compliance.
- In our country, ninety per cent of adolescent girls (11–18 years) are anaemic (ICMR 2003). The low content of bio-available iron in the largely vegetarian diet in the country aggravates the problem of anaemia. Iron intake of girls 10-17 years old is estimated to be 46-to 64 per cent of the Recommended

Daily Intakes (NIN, 2002). However, the national programme for the control of anaemia does not include adolescent girls as an eligible group for services.

- Studies confirm that weekly iron and folic acid supplementation of adolescent girls combined with dietary counselling, twice yearly (six months apart) deworming prophylaxis, and life-skills development to avoid early marriage and early pregnancy significantly reduces the prevalence of anaemia.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Develop a national policy that addresses the nutritional needs of adolescent girls, including the control of anaemia through school-based and community-based approaches. (The current policy framework does not provide sufficient guidance to address the special needs of adolescent girls.)
- **Protocols and guidelines:** Develop national guidelines in tandem with the development of a national policy, drawing on experience from the *Kishori Shakti Yojana* programme as well as from other programmes that currently provide iron and folic acid supplements on a weekly basis to over 10 million adolescent girls. Harmonise communications guidelines and adapt guidelines and messages to the state, district, or local contexts.
- **Human resource capacity:** Improve the performance of primary care providers, teachers and counsellors to address the nutritional needs of adolescent girls, through improved training, communications materials, job aids, motivation, and supportive supervision. Focus on the importance of taking iron and folic acid supplements weekly and deworming tablets bi-annually.
- **Outreach and community ownership:** Involve communities in the planning and implementation of efforts to improve the nutrition of adolescent girls, including involving teachers, peer groups, self help groups, and other community groups and resource persons. Strengthen communication for improved behaviours and practices for adolescent girls' nutrition. Provide factual information to families and providers on the benefits of weekly iron and folic acid supplementation, with a particular focus on the benefits of immediate relevance to adolescent girls such as improved performance in studies and sports, and improved well-being and appearance. Stress the need for improved dietary intake as an integral part of the programme and counsel on how to minimize the potential side effects of supplementation and deworming. Strengthen community groups with an emphasis on improving gender equity.

- **Supply logistics and delivery:** Ensure the timely availability of iron and folic acid supplements, deworming tablets, and communication materials for nutritional counselling and their timely delivery through schools for school-going adolescent girls, and through community delivery channels for non-school-going girls (including "peer-to-peer" and "girl-to-girl" approaches), with emphasis on – but not limited to - the *Kishori Shakti Yojana* and ICDS programmes as delivery channels. Ensure that primary care providers, teachers and counsellors have access to high quality communications materials and job aids to support adolescent nutrition.
- **Monitoring and quality assurance:** Monitor progress and performance using the indicators: *1) proportion of adolescent girls 10-19 years old who have taken an iron and folic acid supplement in the previous week; 2) proportion of adolescent girls 10-19 years old who have taken a deworming tablet in the last 6 months; and 3) proportion of adolescent girls who have consumed foods rich in bio-available iron in the last 24 hours.*
- **Coordination and synergy:** Promote coordination based on national policies and guidelines on nutrition for adolescent girls, led by MHFW, in collaboration with MWCD and Ministry of Education. Scale up the current *Kishori Shakti Yojana* programme developed and implemented by MWCD to reach more non school going girls.

Essential Intervention 10

Improved food and nutrient intake for adult women, including during pregnancy and lactation

Summary description

Every woman has access to sufficient quality and quantity of food including during pregnancy and lactation. Every pregnant woman and lactating mother takes iron and folic acid supplements daily to reduce maternal anaemia and improve pregnancy and lactation outcomes. Universal regular consumption of salt with adequate levels of iodine (> 15 ppm) is required, especially for pregnant women, in order to prevent foetal brain damage associated with iodine deficiency.

Why is this intervention essential?

- Women's nutrient needs increase during pregnancy and lactation. Meeting these increased nutrient requirements protects maternal health and nutrition and reduces the risk of poor pregnancy and lactation outcomes. Adequate spacing between subsequent reproductive periods (pregnancy followed by lactation) gives a woman's body time to recover and replenish nutrients. Pregnant and lactating women and their partners need to be counselled on child spacing.
- During pregnancy all women need more food, a varied diet, and micronutrient supplements. Energy needs increase in the second and particularly the third trimester of pregnancy. Inadequate weight gain during pregnancy often results in low birth weight for the baby (birth weight below 2.5 kilograms), which increases an infant's risk of mortality, morbidity and growth failure. Pregnant women also require more protein, iodine, iron, folic acid, and other nutrients.
- Lactation places high demands on maternal stores of energy, protein, and other nutrients. These stores need to be established before lactation and replenished once the lactation period finishes. Virtually all mothers, unless extremely malnourished, can produce adequate amounts of breast milk. The energy, protein, and other nutrients in breast milk come from the mother's diet and/or her own body stores. Women who do not get enough energy and nutrients in their diets risk maternal depletion.

- In malnourished populations, micronutrient supplementation and fortification programmes benefiting pregnant women and lactating mothers increase birth weight, and have positive impact on pregnancy and lactation outcomes and subsequent child survival, growth, and development.
- Nationally, 36 per cent of adult women 15-49 years old are underweight (body mass index below 18.5 kg/m^2). This prevalence is over 40 per cent among women of socially excluded groups (scheduled castes and scheduled tribes) and over 48 per cent among women in the lowest wealth quintile.
- The prevalence of anaemia is also unacceptably high as 53 per cent of non-pregnant/non-lactating women are anaemic. The prevalence of anaemia increases significantly among pregnant women (59 per cent) and lactating mothers (63 per cent). Only 51 per cent of households have access to salt with adequate levels of iodine (> 15 ppm).

Opportunities for scaling up this intervention

- **Policy and advocacy:** Improve awareness and implementation of nutrition policies, such as the policy that ensures the provision of iron and folic acid supplements to all pregnant women and lactating mothers and the universal iodization of salt. Increase awareness of the evidence that children's nutritional status in infancy and early childhood begins with the mother's nutritional status prior to and during pregnancy.
- **Protocols and guidelines:** Disseminate national protocols and guidelines on iron and folic acid supplementation during pregnancy and lactation. Enforce the legislation on universal salt iodization, with a particular focus on quality control, quality assurance, monitoring, and reporting. Harmonise communication goals and core messages across ministries and programmes at central, state, and district levels.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors to improve the nutrition of women, through improved training, communications materials and job aids, motivation and supportive supervision. Focus on the benefits of improving food and nutrient intake, reducing energy expenditure during pregnancy, taking daily supplements of iron and folic acid during pregnancy, and consuming iodized salt.
- **Outreach and community ownership:** Expand outreach to the broader community through *Gram Sabhas, Panchayats*, mothers' committees, self help groups, senior women, and personnel assisting mothers at delivery, in order

to ensure that women have improved access to nutrient rich foods, including during pregnancy and lactation. Involve communities in maternal nutrition improvement programmes, including better use of local foods, micronutrient supplements, and fortified foods (including point-of-use fortification). Strengthen communications programmes and the role of self help groups and other community groups, with an emphasis on gender equity.

- **Supply logistics and delivery:** Improve the timely availability of micronutrient supplements (e.g. iron and folic acid supplements) and iodized salt. Special attention should be given to the quality of iron and folic acid supplements to reduce side-effects, as well as to quality control in the production of iodized salt. Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to improve women's nutrition.
- **Monitoring and quality assurance:** Monitor progress and performance in this essential intervention using these indicators: *1) proportion of pregnant women who consume at least 100 iron and folic acid supplements; 2) proportion of households who consume salt with adequate levels of iodine; and 3) proportion of women who have consumed foods rich in bio-available iron in the last 24 hours.*
- **Coordination and synergy:** Promote collaboration and coordination based on national policies and guidelines on nutrition for women, particularly during pregnancy and lactation, led by MHFW (policy, health services and supplies) in collaboration with MWCD (community involvement, and group and individual counselling to women) and Ministry of Industry and Commerce (iodized salt). Utilise monthly coordination meetings and other mechanisms, especially at district and block levels, to improve the focus on women's nutrition. Expand Nutrition and Health Days to include more focus on women's nutrition.

Attachment 1: List of Expert Task Force Members

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15.	**Rajiv Tandon (Dr)** Chief, Maternal and Child Health, Nutrition and Urban Health Division	Office of Population, Health & Nutrition USAID, India American Embassy, Shantipath, Chanakyapuri New Delhi -110021
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A Five Point Charter for

Overcoming the Curse of Malnutrition

The Coalition for
Sustainable Nutrition Security in India

September 19, 2008

A Five Point Charter for Overcoming the Curse of Malnutrition: A Leadership Agenda for Action

We are far from achieving the goal set up by Mahatma Gandhi at Noakhali in 1946, that the first and foremost duty of independent India should be to achieve freedom from hunger. To quote Gandhiji "God is bread to the hungry".

This must be a Pan-Political effort. Fortunately, all Indian political parties are committed to the eradication of hunger and achieving the UN Millennium Development Goals in the area of hunger and poverty elimination. Our former Prime Minster, Shri Atal Bihari Vajpayee, for example, said in 2001 on the occasion of the release of the "Rural Food Insecurity Atlas" prepared by the MS Swaminathan Research Foundation (MSSRF) and the World Food Programme, (WFP) "The sacred mission of a Hunger Free India needs the cooperative efforts of the Central and State Governments, non-governmental organisations, international agencies and all our citizens. We can indeed banish hunger from our country in a short time". Prime Minister Dr. Manmohan Singh has reiterated this resolve, by stating in addresses, such as his Independence Day Address on August 15, 2008, "The problem of malnutrition is a curse that we must remove. Our efforts to provide every child with access to education, and to give equal status to women and to improve health care services for all citizens will continue". How can we convert this political resolve into practical accomplishent?

The UN Millennium Development Goals, adopted by all Member States in the year 2000, represent a Global Common Minimum Programme for sustainable human security and well being. The first among the eight goals adopted for accomplishment by the year 2015 relates to reduction in the incidence of hunger and poverty. Unfortunately, recent reviews by the Food and Agricultural Organization (FAO), International Food Policy Research Institute (IFPRI), the World Bank and other agencies show that far from declining, hunger is increasing, particularly in South Asia and Sub-Saharan Africa. The FAO estimates that about 75 million more were added to the number of hungry persons during 2007, mainly as a result of rising food prices. It is also becoming evident that hunger is closely linked with poverty. Therefore, anti-poverty programmes have to accord priority to eliminating hunger and malnutrition.

The economic, ecological and social costs of hunger are high, and hence this goal deserves to be on the top of the political agenda and public concern.

Nearly 70 per cent of India's population live in villages, where the main source of livelihood is agriculture, including crops and animal husbandry, fisheries, agro-forestry and agro-processing. Enhancing the productivity of small farms, and thereby the marketable surplus available for earning cash income, is a powerful method of reducing malnutrition among over 500 million members of small farm families who fall under the category of producer-consumers. Accelerated agricultural progress helps to strengthen both national food security and household nutrition security. Some recent Government initiatives like *Rashtriya Krishi Vikas Yojana* address this issue. The National Policy for Farmers (November 2007) also calls for an income orientation to farming.

Based on a detailed analysis of the available scientific data, two Task Forces established by the Coalition (See Attachment 1 for the list of Coalition members) have made important suggestions. Based on these reports, we suggest the following *Five Point Charter* for implementation by the Central and State Governments.

1. Institutional Structures for Public Policy and Coordinated Action in Nutrition

Overcoming malnutrition requires concurrent attention to food (macro- and micronutrients, clean drinking water) and non-food factors (e.g., sanitation, environmental hygiene, primary health care, literacy and income security). Nutrition security for each individual is vital for providing an opportunity for a healthy and productive life. Achieving the goal of nutrition security for all will need the fusion of political will and action, professional skill and people's participation. Such a coalition of policy makers, professionals and citizens will have to start from the village and go up to the national level. The following consultative, policy, oversight and monitoring structures are suggested.

- ***Panchayat/ Nagarpalika/* Local Body**

  A Council for Freedom from Hunger, selected by *Gram Sabhas*/ Local Bodies

- **State / Union Territory**

  A State Level Committee on Nutrition Security, chaired by the Chief Minister, with all concerned Ministers and representations of Civil Society Organizations, Corporate Sector and Mass Media

- **National Level**

  A Cabinet Committee for Nutrition Security, chaired by the Prime Minister

2. Learning for Success: Converting the Unique into the Universal

Nothing succeeds like success. Therefore it is important to learn from successful examples of the elimination of malnutrition. Many countries including Thailand, Vietnam, Brazil and China have achieved significant reductions in the level of malnutrition through an integrated strategy involving education, social mobilisation and nutrition safety nets. Thailand brought about a substantial reduction in the infant mortality rate speedily through a large cadre of community health workers. At the national level, Kerala and Tamil Nadu have been successful in reducing malnutrition. A unique combination of the Integrated Child Development Services (ICDS) and the Tamil Nadu Integrated Nutrition Project (TINP) was launched in Tamil Nadu where TINP supported a community worker to concentrate on families with children between 0-3 years of age. Special attention to pregnant women belonging to economically underprivileged families is also essential for avoiding the occurrence of babies with low birth weight.

In Tamil Nadu, the cooperative sector runs 96% of ration shops and the remaining are managed by *Panchayats* and Womens' Self Help Groups. One big advantage of using the cooperative system is that a credit facility is available to purchase grain from the Public Distribution System (PDS). From 1982, Tamil Nadu has been operating a universal noon-meal programme for school children, which now covers old age pensioners, the destitute, widows and pregnant women. Further, Tamil Nadu has decided to provide rice to the poor at a price of one rupee per kilogram from September 15, 2008. This will help to reduce malnutrition substantially. Various indicators of malnutrition show a downward trend in Tamil Nadu. For example, the incidence of severe malnutrition (Grades III and IV) among children aged 0-36 months declined from 2.3 per cent in 1983 to 0.3 per cent in 2000. In Kerala, there has been effective monitoring of quality of supply, timeliness and other features of the PDS by *Panchayats* and social activists. It would be useful to replicate such effective measures to combat malnutrition in all States.

Successful programming experience and health and nutrition evidence show that overcoming the curse of malnutrition will require focusing on two important target groups: *children under two years of age* and *women*, especially adolescent

girls, pregnant women and lactating mothers. Rates of child malnutrition in India are among the highest in the world and more worrisome, the nutrition situation of our children has not improved significantly over the last decade. In 1998-99, the prevalence of child underweight was 43 percent (NFHS-2); in 2005-06 the prevalence of child underweight was 40 percent (NFHS-3); this is a mere 0.5 percentage point annual decrease over the last six years. Population is increasing by over 16 million every year and hence the number of malnourished children is actually increasing. This is a matter for serious national concern. Although preventing malnutrition needs to be the focus of our policy and programme action, we have many children currently suffering from severe acute malnutrition. For these children adequate treatment must be made available as a matter of entitlement.

The first two years of life represent the critical window of opportunity to break the inter-generational cycle of malnutrition. If this critical window of opportunity is missed, child malnutrition will continue to self-perpetuate: Malnourished girls will become malnourished women, who give birth to low birth weight infants, who become malnourished in the first two years of life. This vicious inter-generational cycle of malnutrition requires a concerted focus on improving the nutrition situation of infants and young children from conception through the first two years of life. Investing in girls and women has also shown the potential for being transformational for the health, nutrition and well being of the entire household and community.

State Governments should develop a 'Hunger Free State' strategy, which adopts a life cycle approach to the delivery of nutrition support and reaches the key target groups and vulnerable sections of the population. In such a strategy, the lessons from TINP and ICDS could be suitably integrated, with a special programme to prevent maternal, foetal and young child malnutrition. Based on evidence and successful programming, it will be prudent to place special focus on Child Nutrition in the First Two Years of Life and Women's Nutrition throughout the Life Cycle.

3. Action at Local Level: Community food and nutrition security system

Community food and nutrition security systems including the setting up of Grain, Seed, Fodder and Water Banks can be promoted by local bodies. The food basket should be widened, so as to include a wide range of millets like *ragi*, legumes, vegetables and tubers. The *Panchayat*/Local Council for

Freedom from Hunger could mobilize the needed technological and credit support for establishing the Grain, Seed Fodder and Water Banks. Wherever hidden hunger from the deficiency of iron, folic acid, iodine, zinc and vitamin A in the diet is endemic, food–cum–micronutrient supplementation and appropriate and effective fortification approaches (as for example, iodine and iron fortified salt) can be adopted. Every *Panchayat*/Local Council for Freedom from Hunger could invite a Home Science College graduate in the area to serve as a Nutrition Advisor.

4. Action at State Level: Coordinating Nutrition Security Initiatives

The State Level Committee on Nutrition Security chaired by the Chief Minister of the State should facilitate the implementation of the numerous ongoing nutrition safety net programmes (National, Bilateral and International) in a coordinated and mutually reinforcing manner, in order to generate synergy and thereby maximise the benefits from the available resources. The Horticulture Mission provides a unique opportunity for providing local level horticultural remedies for major nutritional maladies. Overcoming micronutrient malnutrition and intestinal load of infection are urgent tasks. State Governments should launch *a Nutrition Literacy Movement* and set up 'Media Coalitions for Nutrition Security' for improved nutrition awareness. Such a Media Coalition should include representatives of print media, audio and video channels, new media including the internet, and traditional media like folk dance, music, and street plays.

5. Action at National Level: Mainstream Nutrition in National Missions

At the national level, the most urgent tasks relate to including nutrition outcome indicators and targets in all major Missions in the field of agriculture and rural development. Large National Programmes like the *Rashtriya Krishi Vikas Yojana* (Rs 25,000 *Crore*), the National Horticulture Mission (Rs 20,000 *Crore*) and National Food Security Mission (Rs 5,000 *Crore*) should have a Nutrition Advisory Board, so that cropping and farming systems are anchored on the principle of food-based nutrition security. Also, the delivery of various nutrition safety net programmes should be organised on a life cycle basis so that integrated attention can be given to the needs of an individual from birth to death. Similarly, the National Rural Employment Guarantee Act (NREGA) sites, where mostly illiterate women and men work on unskilled jobs,

should have a nutrition clinic operated by a knowledgeable person, and a PDS facility. If food is not available at affordable prices at NREGA sites, most of the money earned will go to purchasing staple foods at high cost and under nutrition will persist. *Gyan Chaupals* can run adult nutrition literacy programmes based on computer aided learning technology. The proposed Cabinet Committee on Nutrition chaired by the Prime Minister should give priority attention to efforts to overcome the curse of malnutrition, especially for children and women.

The National Rural Health Mission, supported by a large number of ASHAs, offers an uncommon opportunity for strengthening health and nutrition security. It is worthwhile to consider methods of adding a nutrition component to this Mission and thereby launching an Integrated National Rural Health and Nutrition Mission. Obviously such an integrated mission is equally important for urban areas, since urban food and nutrition insecurity is equally great, as revealed by the "Food Insecurity Atlas of Urban India," prepared by MSSRF and WFP.

In an Integrated National Rural / Urban Health and Nutrition Mission, civil society organisations and the corporate sector can play a significant role. The corporate sector under their Corporate Social Responsibility Programmes can help to achieve "Health and Nutrition for All" in the areas where they operate. It is also clear that diseases like HIV/AIDS and Tuberculosis can be cured only if there is nutrition-cum-drug based approach. Nutrition should hence be integrated into the national disease control programmes.

Integrating nutrition in relevant National Missions will accelerate the pace of progress in providing every child, woman and man in the country with an opportunity for a healthy and productive life. Without this, a sustainable foundation for inclusive economic growth cannot be laid. This is the number one challenge facing the Nation.

To conclude, we have the political will and the technical skill to achieve Gandhiji's goal of a hunger free India. Can we now bring all the needed inputs, resources and actions together so that nutrition for all becomes a reality? The present document, based on the best available scientific evidence, provides a road map for achieving this important goal.

Attachment 1: List of Coalition Members

S. No.	Name and Title	Ministry/Organisation and Contact Details
Chair		
1.	M. S. Swaminathan (Prof) Chairman	M S Swaminathan Research Foundation Third Cross Street Taramani Institutional Area, Chennai - 600113
Ministers		
2.	Anbumani Ramadoss (Dr) Minister of Health & Family Welfare	Ministry for Health and Family Welfare Room No-348, A Wing, Nirman Bhawan, New Delhi -110011
3.	Mani Shankar Aiyar (Shri) Minister of Panchayati Raj and Department of North Eastern Development	Ministry of Panchayati Raj Gate No.2, Room No.7 Krishi Bhawan, Dr. Rajendra Prasad Road, New Delhi -110001
4.	Renuka Chowdhury (Smt) Minister of State for Women and Child Development (Independent Charge)	Ministry of Women and Child Development Room No-750, A Wing, 7th floor, Shastri Bhawan, New Delhi -110001
5.	D. Purandeswari (Smt) Minister of State for Human Resource Development	Ministry of Human Resource Development Room No-125, C Wing, Shastri Bhawan, Dr. Rajendra Prasad Road, New Delhi -110001
6.	G. K. Vasan (Shri) Minister of State (Independent Charge)	Ministry of Statistics & Program Implementation Room No-103, First Floor, Sardar Patel Bhavan, Sansad Marg, New Delhi -110001
7.	Jairam Ramesh (Shri) Minister of State for Commerce & Power	Ministry of Commerce & Power Room No-146, Gate No-12, Udyog Bhawan, New Delhi -110011
8.	Subodh Kant Sahai (Shri) Minister of State (Independent Charge)	Ministry of Food Processing Industries Panchsheel Bhavan, August Kranti Marg, New Delhi -110049
9.	Brinda Karat (Ms) Member of Parliament	A.K. Gopalan Bhawan 27-29 Bhai Veer Si ngh Marg, Gole Market, New Delhi -110001
10.	Shobhana Bhartia (Ms) Member of Parliamen	Hindustan Times Building 18-20, Kasturba Gandhi Marg, New Delhi -110020
11.	Raman Singh (Dr) Chief Minister	Chief Minister of Chattisgarh Room No-303, DKS Bhavan Mantralay, Raipur - 492001
12.	Digvijay Singh (Shri) General Secretary	All India Congress Committee (AICC) 15, South Avenue New Delhi -110 011
13.	M. Venkaih Naidu (Shri) Senior Leader	Bhartiya Janta Party (BJP) 30, Aurangabad Road, New Delhi -110001
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14.	Montek Singh Ahluwalia (Mr) Deputy Chairman	Planning Commission Room No-118, A Wing, Sansad Marg, Yojana Bhawan, Parliament Street, New Delhi -110001
15.	Sayeeda Hameed (Dr) Member of Planning Commission	Planning Commission Room No-118, A Wing, Sansad Marg, Yojana Bhawan, Parliament Street, New Delhi -110001
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16.	T.K.A. Nair (Mr) Principal Secretary to PM	Prime Minister Office South Block, New Delhi -110001
17.	A.N.P. Sinha (Mr) Secretary	Ministry of Panchayati Raj Krishi Bhavan, New Delhi -110001
18.	Veena S. Rao (Ms) Secretary	Ministry of Development of Northern Eastern Region, Vigyan Bhavan Annexe, Maulana Azad Road, New Delhi -110011
19.	M.K. Bhan (Dr) Secretary	Department of Biotechnology, Ministry of Science and Technology CGO Complex, (Block 2, 7th Floor), Lodhi Road, New Delhi - 110003
20.	Rita Sharma (Dr) Secretary	Ministry of Rural Development Krishi Bhavan, New Delhi -110001

S. No.	Name and Title	Ministry/Organisation and Contact Details
21.	Loveleen Kacker (Dr) Joint Secretary	Ministry of Women & Child Development Room No. 605, Shastri Bhawan, New Delhi -110001
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31.	K. V. Kamath (Mr) President	CII India Habitat Centre , Core 4A, 4th Floor, Lodi Road, New Delhi -110 003
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1.	Laurie Noto Parker (Ms) Project Director	The Vistaar Project IntraHealth International, Inc. A 2/35, Safdarjung Enclave, New Delhi -110029
2.	Laxmikanta Palo (Mr) Sr. Technical Advisor and Secretariat Manager	The Vistaar Project IntraHealth International, Inc. A 2/35, Safdarjung Enclave New Delhi -110029

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