

KNOWLEDGE PARTNERSHIP PROGRAMME

Nutrition Security of Women and Children in India: Opportunity for Building Partnership with Low Income Countries (LIC)

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31st March, 2014

Scoping Study on Nutrition Security of Women and Children in India: Lessons Learned, Challenges Ahead and Opportunity for Building Partnership with Low Income Countries (LIC)

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Background

“Nutrition security” is defined as “a situation in which food security is combined with a clean environment ,adequate health services, and appropriate feeding and care practices ,to ensure a healthy life for all household members”.¹This document focuses on “*Scoping Study on Nutrition Security of Women and Children in India: Lessons Learned, Challenges Ahead and Opportunity for Building Partnership with LIC Countries.*” .The fact that nutrition security is dependent on several inter-related factors including food production as well as community and household level food security is well recognised but not elaborated in this paper. The rationale being that this document is complementing the second manuscript on ‘food security’ and the integration of the two documents is proposed for presentation of the “Scoping Study on Food and Nutrition Security in India”.

Section 1: Malnutrition in Women and Children in India---A Scoping Study

I. Introduction

The term malnutrition includes nutritional disorders in various forms and encompasses imbalances in energy, specific macronutrients and micronutrients, and dietary patterns. Conventionally, the emphasis has been on inadequacy, but malnutrition also applies to excess and imbalanced intakes. Malnutrition occurs when the intake of essential macronutrients and micronutrients does not meet or exceeds the metabolic demand for those nutrients.¹ The term under nutrition specifically refers to being underweight for one's age, too short for one's age (stunting), dangerously thin for one's height (wasting) and deficient in minerals and vitamins (micronutrient deficiencies).

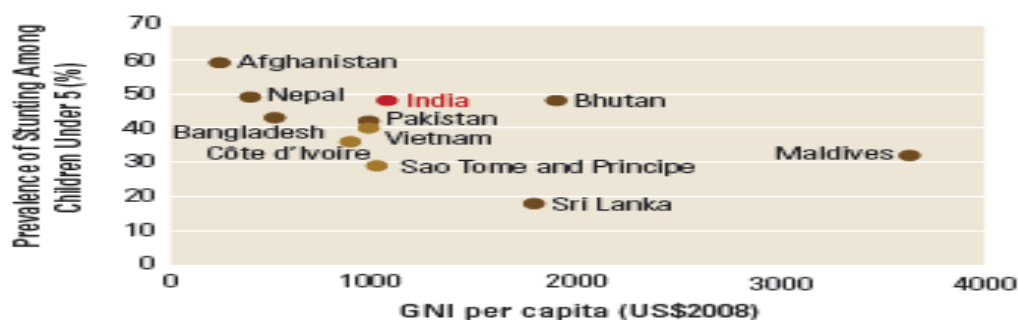
Malnutrition in India is a public health emergency with serious health, academic and economic consequences. Malnutrition, though imperceptible, is in fact an underlying cause in about a third of preventable deaths in children under five years of age.² Foetal growth restriction, attributed to a great extent to maternal under nutrition, is a cause of more than a quarter of all neonatal deaths.³ Under nutrition in children is estimated to reduce nation's economic advancement by at least 8 % due to direct productivity losses, poor cognition, reduced schooling.³ Deficiencies of essential vitamins and minerals, though not visible, are widespread in the country and have adverse effects on child survival, growth and brain development. The long term consequences of chronic under nutrition are far more reaching since the adverse impact is not only irreversible but intergenerational.

II. Nutrition situation in India: an Overview

a) Chronic Under nutrition in Children:

India is one of the eight countries where 50 per cent of the global undernourished (stunted) children live.⁴ The last available national data indicates that 48 per cent under five children are stunted, 42.5 per cent are underweight and 19.8 per cent are wasted.⁵ In fact, India has a higher rate of stunting compared to some other smaller countries in South Asia and with some countries with similar or worse economic situation (Fig 1).⁶

Figure1: Stunting prevalence in India compared to many neighbours & income peers



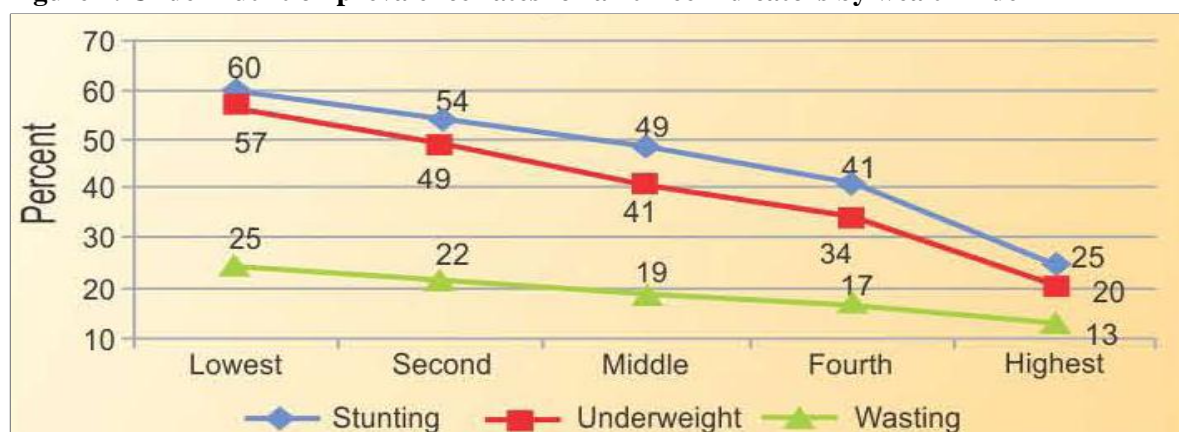
Source: World Bank (India profile), 2011⁶

The rate of underweight and stunting varies widely across states. The proportion of children underweight ranges from 20 per cent in Sikkim and Mizoram to 60 per cent in Madhya Pradesh. As in the case of underweight, proportion of children suffering with stunting varies across states with 18 states having a stunting rate of over 40 percent and only two states-Kerala and Goa-reporting a stunting rate of less than 30 percent.⁵

The prevalence rate of under nutrition in under 5 years children in urban and rural regions differ substantially -- urban region 32.7 per cent are underweight and 39.6 per cent stunted while in rural areas the rates of underweight is 42.6 per cent and stunting 50.7 per cent.⁵ However, the nutritional status of urban poor (urban population not residing in slums or population covered under Municipal Corporation Facilities) are nutritionally worse off as compared to urban slums or rural India.^{5,7} The pattern of under nutrition (underweight, stunting or wasting) does not reveal a significant gender difference in children under 5 years in rural or urban India. Interestingly, girls are observed to have a nutrition advantage over boys in the first months of life which seems to be reversed overtime as girls grow older, possibly due to poor care and feeding.⁸

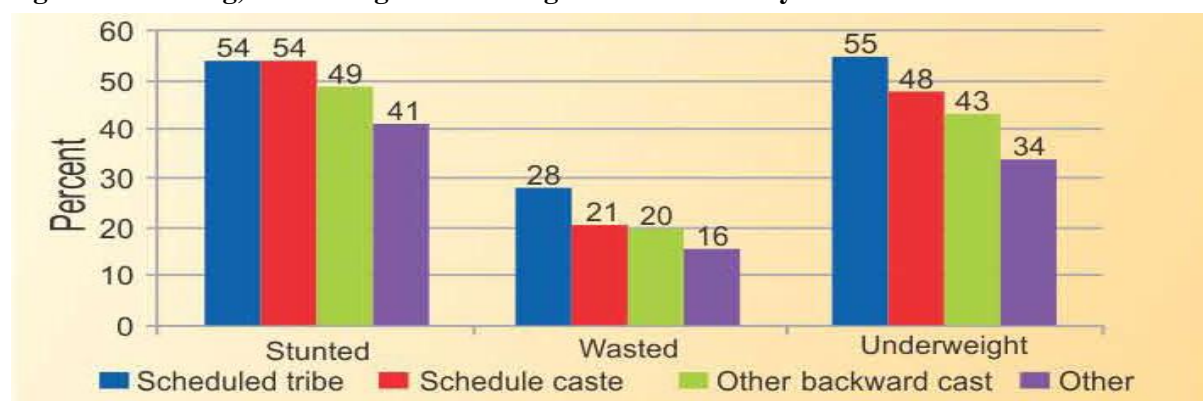
As per the NFHS-3, the rates of under nutrition in the country show a wide inequity gap between the highest and lowest wealth index group (Fig 2).⁵ Poor children are approximately three times more likely to be underweight or stunted than their wealthy counterparts. Interestingly a quarter of children in the high wealth index group are also stunted.

Figure 2: Under nutrition prevalence rates for all three indicators by wealth index



Source: NFHS-3, 2005-06⁵

An inequity in the prevalence rate of under nutrition is also reported with reference to castes--- rate of stunting, underweight and wasting being higher in schedule caste and tribe (Fig 3).⁹

Figure 3: Stunting, Underweight & Wasting in Children < 5 by Caste / Tribe

Source: NFHS-3, 2005-06⁵; Kathuria AK, 2011⁹

Between 1992-93 and 2005-6, there has been a reduction of about 10 percentage points in India's underweight rates—the average annual rate of reduction (AARR) being less than one per cent.^{5,10,11} However, in the last decade, an improvement in the rate of reduction of under nutrition in the country, measured in terms AARR, is encouraging. The HUNGaMA survey of 2011 in 100 rural districts indicate the prevalence of underweight in children under 5 years decreased from an estimated 53 per cent in 2002-4 (based on DLHS-2 data) to 42 per cent in 2010-11 i.e. AARR of 2.9 per cent in the seven years period from 2003-2011.⁸ Recent data from the states of Chhattisgarh and Maharashtra indicate a very significant improvement in the nutrition situation.^{2,12} In Chhattisgarh state, the AARR of 4.22 % was observed for underweight and 5.64 % for stunting. In Maharashtra state, stunting rate declined from 39 per cent in 2005 in under two years children to 23 per cent in 2012.

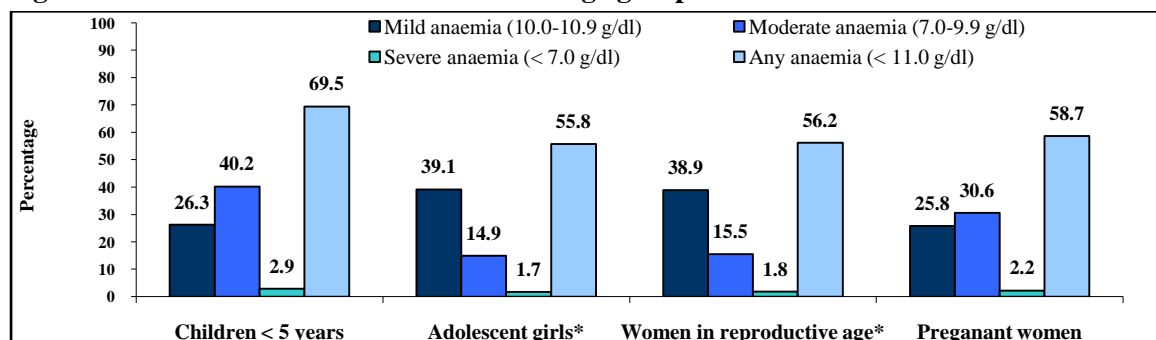
b. Severe Acute Malnutrition (SAM): SAM children in the country are nine times at higher risk of dying compared to normal children. The percentage of SAM children with severe wasting is 6.4 per cent. The three states with over 10 per cent SAM cases is Meghalaya, Madhya Pradesh and Jharkhand while states with less than 2.5 per cent SAM is Manipur and Punjab.

c. Low Birth weight and Under nutrition in Women: Low Birth Weight (LBW) incidence is reported to be 22 per cent while every third women in the reproductive age is undernourished (Body Mass Index or BMI <18.5 kg/m²). Under nutrition rates in women show a wide variation amongst states—less than 15 per cent in state of Sikkim and about 40 per cent in Bihar state.⁵ The prevalence rate of undernourished women also varies significantly with wealth index—almost three times in the lowest wealth index compared to the highest wealth index.

A third of adolescent girls' between 11-18 years are also undernourished. Early marriage and early child bearing as well as poor education further worsens the situation. As per the DLHS3 survey, 43 per cent of the currently married women in the age group of 20-24 years are reported to have been married before attaining the age of 18 years.¹³

d. Micronutrient Deficiencies: Clinical micronutrient deficiencies have almost disappeared¹⁴. However, subclinical deficiencies of micronutrients such as iron, calcium, vitamin A, folic acid, iodine and zinc remain a major public health problem in India. As presented in Fig 4, Iron deficiency anaemia (IDA) occurs across all the age groups.¹⁴

Figure 4: Prevalence of anaemia in different age groups in India



Source: NNMB, 2012¹⁴

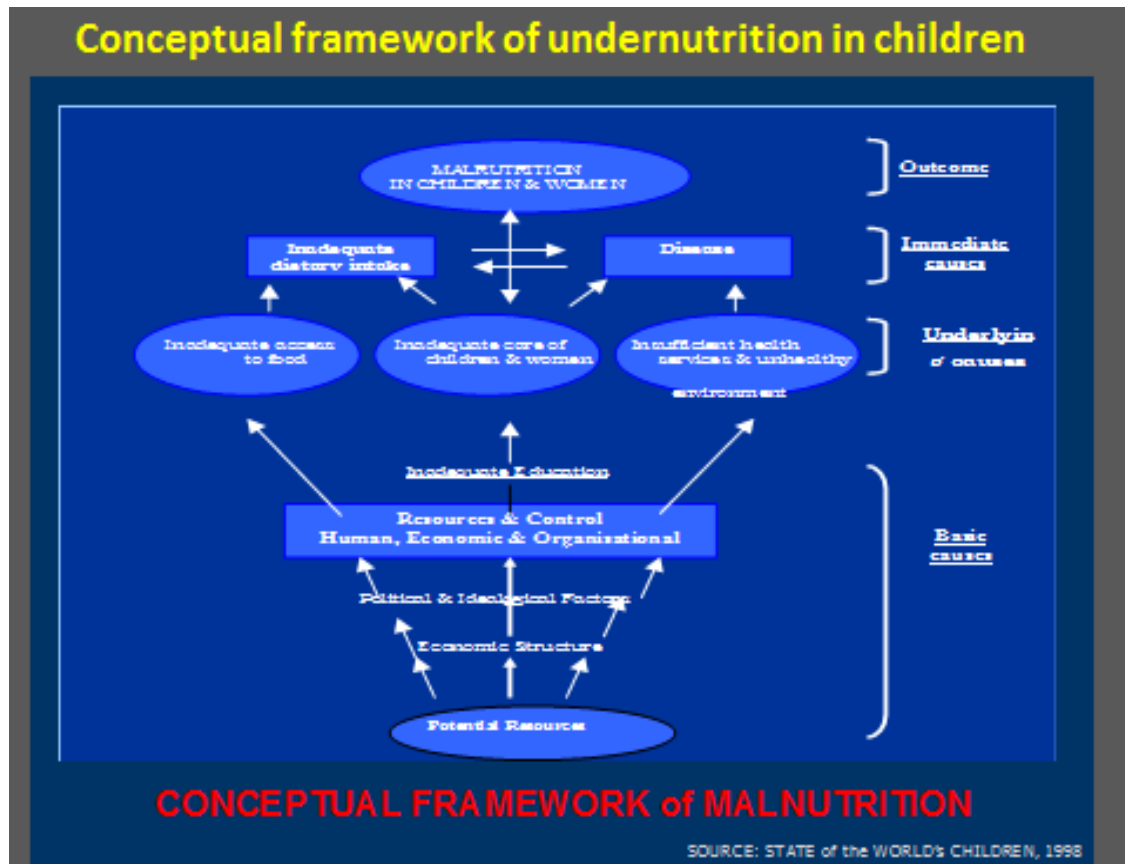
State-wise prevalence rates vary widely. In case of women in the reproductive age group, prevalence rates of anaemia is higher than 40 per cent, indicating severe public health problem, in all except five states (Punjab, Manipur, Mizoram, Goa, Kerala). In case of children, anaemia rates are less than 40 per cent only in the state of Goa (Table 2).⁵ The implications of deficiencies are serious and is especially damaging during pregnancy and childhood. Anaemia during pregnancy accounts for one fifth of maternal deaths and adversely affects the brain development of foetus. In children, anaemia results in poor attention span, lowering of school performance. Micronutrient deficiencies also contribute to stunting.¹⁵

e. Overweight: Overweight problem is increasing in India. This trend has been attributed to change in dietary habits and increase in living life style as well as high incidence of LBW. As per the data of 2005-6, 23.5 per cent women and 15.9 per cent men are reported to be overweight in urban India while the corresponding figure for rural India is 7.4 and 5.6 per cent. The prevalence rate of overweight varies across states. In Punjab, Kerala and Delhi, almost a third of women are overweight (fig 12).⁵ The dual problem of over nutrition and under nutrition, as in many other developing countries, is a great public health challenge in India.

III. Determinants of Under nutrition

Malnutrition is often incorrectly perceived merely as a food problem. Under nutrition, hunger and food insecurity are not the same thing.¹⁶ Malnutrition is a complex multi-determinant problem (fig 5). Malnutrition is a result of impact of immediate causes of malnutrition--diet and infection.

Figure 5: Conceptual framework of under nutrition in children¹⁶



Poor dietary intake refers not only to quantity of cereals consumed but also access and consumption of diversified foods comprising pulses, vegetables, milk and milk products and flesh foods. As indicated in Table 1, only 9 per cent households consume less than 50 per cent RDI of cereals while the consumption of pulses, oils, vegetables is substantially lower.¹⁴ It is also evident that the intake of food items such as pulses, vegetables and milk remains rather low in a higher percentage of child population 1-3 years compared to the entire households. This results in consumption of poor protein quality and intake of micronutrients being much below the recommended dietary allowances (RDA). Over 70 per cent children 1-3 years consume less than 50 per cent RDA of vitamin A, calcium and vitamin C. Over 80 per cent population across all age groups consume less than 50 per cent RDA of vitamin A. Intake of iron appears to be comparatively better but being available from poor source of food is not adequately absorbed.

Table 1: Average Consumption of food items and percentage consuming less than 50 percent of the Recommended Dietary Intake (RDI) of various food items

Food Items	Households		Children (1-3 yrs)		Adolescent girls (10-12 yrs)		Adult women sedentary		Pregnant women (≥ 18 yrs)*
	Median ± SD	< 50% RDI	Median ± SD	< 50% RDI	Median ± SD	< 50% RDI	Median ± SD	< 50% RDI	Median ± SD
Cereal & millets	375±121	9	131±82	33	289±124	20	341±136	14.1	354±138
Pulses	31±33	43.5	15±18	65	25±26	54.4	28±32	48.8	34±39
GLV	18±44	81.6	7±20	89.4	13±31	83.4	19±45	85	18±43
Other vegetables	46±65	54.3	13±26	68.4	34±48	55.7	49±68	48.1	47±65
Roots & tubers	63±73	42.1	21±33	47.1	50±59	39.9	70±78	37.5	60±67
Milk & milk products	85±121	64.9	86±144	80.8	59±95	84.1	82±120	56.7	79±107
Fats & oils	15±13	39.8	6±7	87.5	11±10	65.7	15±13	45	16±13
Sugar & jaggery	13±16	69.7	10±14	77.9	10±15	91.1	13±15	57.2	13±16

*Intake of foodstuff as % RDI not given for pregnant women Source: NNMB Survey, 2012¹⁴

Inadequate dietary intake in children is not always due to lack of food but poor feeding practices. This is supported by the fact that in families where 80 % adults are reported to be consuming 70 per cent of the recommended energy and protein, only 30.1% of 1-3 years age group consume such adequate levels of energy and protein in terms of RDA percentage (Table 2).^{14,17}

Table 2: Under nutrition in children and protein calorie adequacy in adult women and children

States	Prevalence of under nutrition (%)	Distribution (%) Protein Calorie Adequacy – Sedentary Adult Women#	Distribution (%) Protein Calorie Adequacy – 1-3 year children
Andhra Pradesh	36.5	87.7	52.3
Gujarat	47.4	69.8	24.2
Karnataka	41.1	80.2	25.5
Kerala	28.8	78.6	19.4

States	Prevalence of under nutrition (%)	Distribution (%) Protein Calorie Adequacy – Sedentary Adult Women#	Distribution (%) Protein Calorie Adequacy – 1-3 year children
Madhya Pradesh	60.3	77.6	33.7
Maharashtra	39.7	59.2	30.8
Orissa	44.0	93.1	24.9
Tamil Nadu	33.2	80.6	23.2
West Bengal	43.5	84.8	37.1
<i>Pooled</i>	<i>41.6</i>	<i>80.0</i>	<i>30.1</i>

70% requirements defined as energy protein adequacy

Source: NNMB, 2006¹⁷

Poor child feeding practices is a primary cause of under nutrition. Children below 24 months cannot eat themselves, they need to be fed. Poor feeding practices is often due to lack of information on optimum feeding or/and inadequate time available with caregivers for child feeding. Inappropriate feeding practices during illness and convalescence worsen the situation. Available data reveals that not even 3 per cent children are fed additional amount of food during and after episode of diarrhoea. The situation worsens with each episode of infection. Frequent infections sets up a vicious cycle of poor appetite, ill-health, poor nutrient absorption and malnutrition. This implies that food consumption that meets the nutritional requirements needs to be seen in conjunction with non-food factors that enable a person to appropriately metabolise and utilise food. The latter pertains to enabling factors such as appropriate hygiene practices, safe water, adequate sanitation facilities including use of latrines and not open defecation, routine immunisation.

Poor hygiene practices as well as poor water, sanitary and living conditions are critical underlying causes of under nutrition. Data from the State of Uttar Pradesh indicates that only 34.8 per cent of the mothers interviewed had washed their hands with soap and water after defecation.¹⁸ The HUNGaMA report from 100 districts also indicate that hand washing with soap is rather an uncommon practice—only 11 percent mothers washed hands before a meal while 19 percent reported washing hands after a visit to the toilet.⁸ Open defecation, poor sanitation practices is also common. India has one of the highest open defecation rates in the world—much higher than sub-Saharan Africa. According to NFHS3 data, only 44.6 per cent population had access to toilets. There is increasing evidence demonstrating a relationship of open defecation with stunting rates in young children.¹⁹ This implies poor sanitation results in high infection exposure with adverse effect on effective utilisation of dietary nutrients consumed. More research is on-going for conclusive evidence.

Inadequate maternal care both before and after conception are important underlying causes of under nutrition. Low levels of education, early marriage and child bearing, inequitable power relations and inadequate knowledge of critical feeding and caring practices compromise the quality of child care. A recent regression analysis of available NFHS 3 data reveals that the five highest loading risk factors contributing to child under nutrition are related to status of mothers such as nutritional status, health care, education, domestic violence and social status as well as poor toilet facility (Table 3).²⁰

Table 3: Loading factors of under nutrition

ing factors of Under nutrition	
Determinants	Loading factor
UNDERWEIGHT	
Height of mother < 145 cm	1.965
Mothers with no education	1.812
Mothers who did not have institutional delivery	1.374
Mothers who did not watch television at least once a week	1.355
Households with no toilet facility	1.345
Mothers who experienced emotional violence	1.317
Mothers who did not consume IFA tablets for 90 days or more	1.216
STUNTING	
Mothers with no education	1.647
Height of mothers < 145 cm	1.643
Mothers who did not have institutional delivery	1.386
Households with low standard of living	1.346
Households with no toilet facility	1.245

Source: Adhikari et al, 2012²⁰

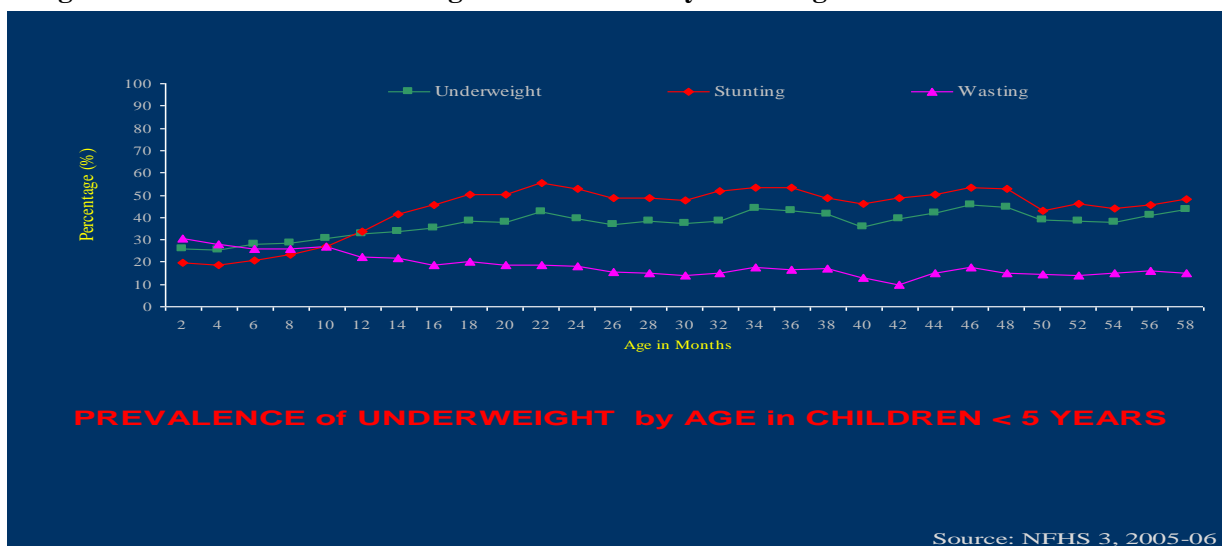
The association between maternal nutrition and birth outcomes is complex and is influenced by many biologic, socio-economic and demographic factors which vary across India. Diet through life and gestational weight gain during pregnancy are major determinants of birth outcomes.²¹ Maternal under nutrition reduces capacity to healthy foetal growth resulting in birth of babies who are small for the gestation or low birth weight. LBW is associated with 2.5 to 3.5 fold higher odds of underweight, stunting and wasting. Poor start in life with birth of low birth weight (LBW) babies or small for gestational age (SGA) baby is the start of the process of under nutrition.

In India, mean birth weights of infants born to mothers below 45 kg is reported to be about 2.63 kg as compared to mean birth-weight of 3 kg in case of mothers 55 kg and above.²² According to the HUNGaMA survey, the prevalence rate of underweight rate in less than two years children with birth weight less than 2.5 kg was reported to be 50 per cent and stunting rate was observed

to be 62 per cent while the corresponding rates in children with birth weight above 2.5 kg was 34 and 50 per cent, respectively.⁸

Growth trend pattern against age has established the fact that under nutrition sets in early childhood itself and continues to rise in the first 24 months of life and then stabilises (fig 6).²³

Figure 6: Prevalence of underweight in children < 5 years of Age



Source: NFHS-3, 2005-06⁵

Adverse impacts on growth and brain development in this period are often irreversible. The growth in infancy is the first point of immediate and intergenerational effects of a poor nutrition. Preventive measures in the first 1000 days of life—from the onset of conception to 24 months—is therefore accepted to be the most critical period to prevent under nutrition.

IV. Addressing Under nutrition in India---Tracking Actions of the Last Six Decades

The nutrition programme phases in post-independent India, between 1947-2013, could be broadly considered to be the following: the first of three decades focusing on elimination of hunger and clinical nutrition deficiency, the second ICDS centric phase from 1975 to 2009 and the third and current phase of intensive implementation of direct and indirect nutrition interventions.

a. Phase of Nutrition Actions in Post-Independent India

In 1947, India was suffering from acute shortage of food and this led to the introduction of food rationing. The country depended on importing wheat, largely under the PL 480 programme of the United States. The focus was on achieving food sufficiency and maintaining substantial grain reserves. Applied Nutrition Program (ANP) was launched in 1963 to diversify consumption of food items and improve intake of nutrients. In late 60s, following the Green Revolution, India gradually became self-sufficient in cereal production.

In the first two decades of post-independence, food security programmes were followed with an emphasis on efficacy trials, policy formulation and implementation of programs for eliminating deficiency of specific selected nutrient in the country. These nutrition interventions were directed towards eradicating clinical signs of protein-energy and B- vitamin deficiencies. In 1970s, active research was directed towards seeking public health solutions to overcoming deficiencies of vitamin A, iron and iodine. National programs such as the National Goitre Control Program, National Nutrition Anaemia Prophylaxis Programme, National Vitamin A Prophylaxis Programme for Prevention of Blindness were launched. ANP was withdrawn.

b. “ICDS Centric” Nutrition Intervention Phase

The Integrated Child Development Services (ICDS) programme was launched in 1975 on a pilot basis with 33 projects and 4891 AWCs. ICDS was conceptualized as a unique early childhood development programme with holistic implementation of health, nutrition and early development and learning needs of young children. As per ICDS policy, supply of supplementary food to vulnerable population of children 6 months-6 years, pregnant and lactating women and routine growth monitoring were accorded maximum attention. These two actions were viewed as the solutions to the nutrition problems and ICDS the primary programme for addressing malnutrition in the country. Pilot projects mainly experimented with the growth monitoring component of the ICDS. With over emphasis on establishing a system of regular weighing of children, the use of the growth monitoring tool for nutrition education or counselling was decreased. The coverage of ICDS services was reported to be extremely poor—food supplement coverage was only 26.3 per cent children and 23.1 per cent in pregnant mothers while only 31.6 were ever weighed.²⁴

With the focus on ICDS being the main system for improving nutrition situation, the involvement of the Ministry of Health and Family Welfare (MHFW) was diluted except for breastfeeding promotion in institutional set up and rolling out the National Goitre Control Programme (now National IDD Control Programme). Following the global focus on ‘hidden hunger’ the existing policies on micronutrients were modified by MHFW and pilot projects on administration of micronutrient supplements and food fortification were launched.

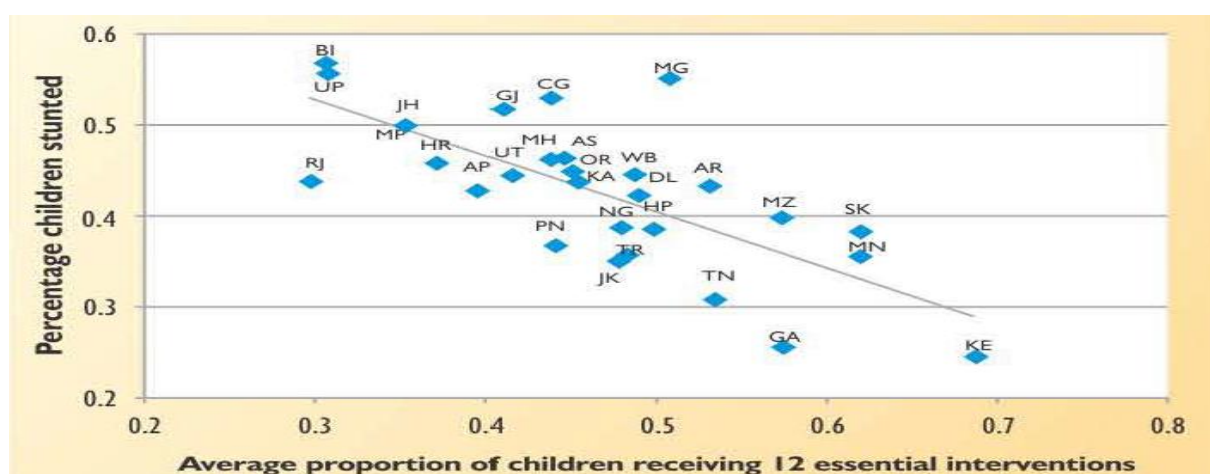
The National Nutrition Policy (NNP) launched in 1993 and the National Nutrition Plan of Action (NNPA) of 1995 was not rolled out.^{25,26} In September 2000, the system of ICDS continued to be viewed as the primary system for achieving the MDG 1 goal and of reducing underweight by 50 per cent. The focus remained on food supplement. The fact that ICDS had only a limited geographical coverage was not well appreciated. In the 10th and 11th Five Year Plan, the nutrition programmes continued to focus on universalization of ICDS with quality, universal provision of food supplement, growth monitoring and promotion of exclusive breastfeeding.

c. Current Phase of Intensive Implementation of Selected Nutrition Interventions

A renewed interest in addressing the persistent problem of under nutrition has been evident since the release of the third National Family Health survey (NFHS) in 2005-6. The survey findings received a remarkable media coverage and malnutrition in India was soon recognised to be a problem at the highest political level.²⁷ Attention of policy makers was directed to accord high priority for improving coverage of selected evidence based direct nutrition interventions in under twos.²⁸ The international development agencies also advocated on the selected high impact evidence based interventions that are critical for making a difference in the nutrition scenario of developing world.²⁹ The forum of the Coalition for Nutrition Security in India, formed in 2009, further facilitated in reaching a consensus on a set of interventions that could make a difference in malnutrition in India.²⁷ These were included in the 12th Five Year Plan.³⁰ (see Box 1). The high impact interventions pertain to appropriate child feeding practices including hygiene practices, maternal and adolescent health - nutrition care and elimination of micronutrient deficiencies through provision of supplements and fortification of selected food items with specific micronutrients.

The significance of these selected prioritised packages of nutrition interventions is evident from the strong and statistically significant association observed between the status of coverage of these interventions and prevalence rates of stunting in various states of India.³¹ States with high level of coverage of key direct nutrition interventions were found to have lower prevalence rate of stunting (Fig 7).

Figure 7: Association between coverage of essential nutrition interventions and prevalence of child stunting in states of India



Source: UNICEF, 1990³¹

BOX 1 : Nutrition Interventions : Prioritised For Action in India Under the 12th Five Year Plan 2012-2017

1. Direct Essential nutrition Interventions

a. *Promoting appropriate infant and young child care and feeding practices and optimal maternal care.*

- Early initiation of breastfeeding (BF), Exclusive BF (EBF) , timely introduction of complementary feed (CF) and continued BF, age appropriate CF, safe handling of CF, including hand washing,
- Improved nutrition care of adolescent girls, including anemia prevention, measures to prevent early marriage and pregnancy.
- Improved food and nutrient intake for adult women, including during pregnancy and lactation.

b. *Combating micro-nutrient deficiencies (vitamin A, iron and iodine) in a holistic manner –(infant and young child feeding practices, promoting dietary diversification, nutrient supplementation and food fortification)*

- Full immunization and biannual vitamin A supplementation and deworming for 6-59 months. weekly IFA supplements for adolescent girls and pregnant women
- Active feeding during and after illness. Oral rehydration with zinc supplementation during diarrhea.
- Universal Iodization of salt

c. *Prevention and Management of Severe Acute Malnutrition (SAM).*

2..Multi-sector program to simultaneously address direct and indirect nutrition interventions

3.. Measures to address the emerging problem of over nutrition

As per India policy, ICDS is the leading system for implementation of the selected nutrition interventions. Following the evaluation by the Planning Commission in 2011, universalization of ICDS as well as re-structuring of the system and higher attention to reach under 3 years gained focus.³² The system of ICDS with almost 1.4 million ‘Anganwadi centers’ –first community or village outpost for nutrition, health and early child development-- is estimated to be reaching 7.9 crore children 6 months to 6 years and 1.82 crore pregnant and lactating mothers.²⁹ Recognizing that ICDS has the potential for delivering on nutrition outcomes, if invested and managed well, ICDS Mission has also been launched recently by the Ministry of Women and Child Development.³³ At the same time, the role of the health sector, through the National Health Mission, is being increasingly recognised for reaching under two more effectively and rolling out existing policies pertaining to increasing coverage of selected direct nutrition interventions referred above in Box 1.

Along with scaling up of direct nutrition interventions, India has vertical interventions in place that have indirect impact on nutrition situation such as food security measures through the Public Distribution System (PDS), cash transfer schemes such as Janani Shishu Suraksha Yojana (JSSY), poverty alleviation effort or increasing purchasing power through Mahatma Gandhi Rural Employment Guarantee Act (MNREGA) and improving sanitation

situation through the Total Sanitation Campaign(TSC).²⁹ The outcome of these efforts are expected to be further enhanced through a multi-sector convergence and by the operationalization of the National Food Security Act (NFSA) launched in October 2013 as a ‘right to food’ measure.³⁴

V. Nutrition Interventions --Key Experiences and Learning

It may be noted that India is not a signatory to the Scaling Up Nutrition (SUN) movement but the package of essential direct nutrition interventions that are being accorded highest priority in India (Box 1) are the same as those being advocated by the SUN. The 65th World Health Assembly (WHA) also enlists these interventions as “essential interventions to meet the WHO goals on improving nutrition.”³⁵ It was earlier estimated that universal coverage of these interventions could reduce under nutrition by almost a third .³⁶

There is global agreement on which direct nutrition interventions to scale up, much less is known about how to implement these interventions at scale in a cost-effective manner. India has noteworthy experiences in terms of policy and strategy formulation as well as in the development of operational guidelines for rolling out most of the essential direct nutrition interventions listed in Box 1. In this context, the following four interventions and a set of innovative community based experiences for reducing under nutrition are presented below with emphasis on approaches used, successful elements of the interventions as well as strategy or actions which remain questionable or have made no value addition to improving the nutrition situation. The nutrition interventions which were not supported by any existing policy or evidence are excluded.

- i. Promotion of Infant and young Child Feeding (IYCF) Practices
- ii. Community Based Under nutrition Reduction Initiatives
- iii. Prevention and Management of Severe Acute Malnutrition (SAM)
- iv. Micronutrient Supplement :Vitamin A Supplementation Programme
- v. Food Fortification. Universal Salt Iodization

i) Promotion of Appropriate Infant and Young Child Feeding (IYCF) Practices

The promotion of IYCF in the country initially focused only on promotion of breastfeeding with slogan “Breast is Best” with emphasis on advantages of breastfeeding and discouraging use of diluted formula milk or use of unhygienic practice of bottle feeding. One important measure was introduction of legal measure in 1980s for protecting feeding practices from commercial and other negative influence environment.^{35,37} Marketing of commercial milk formula was banned with the introduction of Infant Milk Substitutes, Feeding Bottles and Infant Foods (regulation of Production, Supply and Distribution Act, 1992 , amended in 1993 ,commonly known as IMS Act). Simultaneously, efforts were channelized to promote feeding breast milk, especially at the institution level by establishment of legal framework for protection and promotion of

breastfeeding and launch of medical hospital based activities under the Baby Friendly Hospital Initiative (BFHI). Both these actions discouraged use of milk formula. However, these were not adequate for ensuring adoption of the appropriate breastfeeding practices at family level. Intensive promotion of breastfeeding practices at community and family level were therefore intensified through the health and ICDS systems to ensure timely introduction of breastfeeding to a newborn and exclusive breastfeeding for the first six months.

Involvement of national level NGO such the Breastfeeding Promotion Network (BPNI) and professional bodies such as the Indian Academic of Paediatrics (IAP) acted as catalysts to draw and sustain attention to the crucial role of exclusive breastfeeding (EBF) in improving child survival, building immunity and cognitive development. The fact that caregivers/mothers required not only knowledge but appropriate skills in sustaining EBF was soon recognised. The training curriculum was modified to improving the skills of mothers to breastfeed. Training of frontline workers was accordingly revised. Opportunities of antenatal and postnatal contacts with mothers were encouraged to be given special attention besides group counselling.

Skilled inter-personal counselling was noted to be much more effective than mere group counselling, such as on Village Health Nutrition Days (VHNDs), in influencing adoption of exclusive breastfeeding (EBF) practices.²⁰ Systematic studies were undertaken to understand the constraints in promoting EBF and accordingly efforts were directed to actively discourage feeding of water to exclusively breastfed children even in the peak of summer. Additionally, practical suggestions were also included in counselling sessions to instil confidence in mothers regarding sufficiency of breast milk produced and to discourage use of milk other than breast milk for feeding. The problem of working mothers to EBF is also recognised and is being addressed through encouraging implementation of policy on paid maternity leave to post-natal mothers and by encouraging provision of crèches for infants in work places. Recent Annual Health Survey (AHS) undertaken in eight states of India indicate a substantial increase in timely introduction of breastfeeding and EBF.³⁸

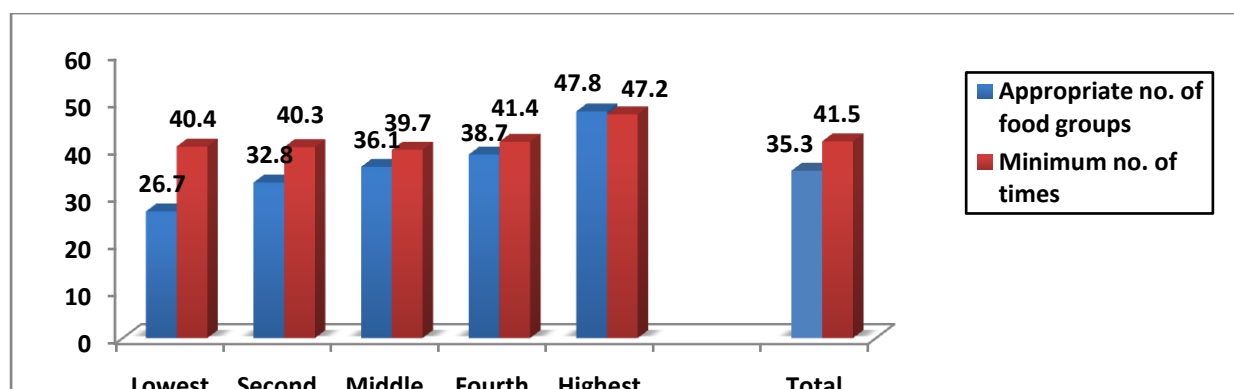
Unfortunately in India, attention to complementary feeding (CF) has been neglected and not actively introduced as a part of IYCF until a few years back. One of the reasons is possibly related to equating the provision of supplementary food of ICDS with solution to overcoming the problem of poor CF. In fact, universal provision of supplementary food gained higher attention following the orders of issued by the Supreme Court in 2004 and 2006.^{39,40} Unfortunately, despite no evidence of positive impact of supplementary food on nutrition situation, the emphasis of ICDS remained primarily on universal coverage of defined beneficiaries with supplementary nutrition and weighing of children. To date, the emphasis on promoting appropriate child feeding practices remains neglected and the growth monitoring and promotion (GMP) approach continues to disregard the implementation realities. Weight record keeping remains the priority and not counselling. It is crucial that an operational and impact

study is undertaken with a view to assess the cost-effective benefits of ICDS programme design and introduce modifications. In this context, advantages of shifting from universal supply of supplementary food to selected disadvantaged groups needs to be considered along with alternative delivery mechanism.

In the past five years, strong advocacy by UNICEF drew attention to the importance of appropriate CF i.e. timely introduction of CF, frequency of feeding, nutrient density and food diversity. These feeding issues gained attention following the ‘Global Strategy for Infant and Young Child Feeding’ and follow up joint statement by UNICEF and WHO in 2002 revitalizing world attention to the impact of appropriate child feeding practices on survival, nutrition status, growth development and health.⁴¹ Advocacy by WHO and UNICEF resulted in the launch of the IYCF Policy by the Government of India –first in 2004 and modified in 2006.⁴² Attention to CF gained attention by the MHFW in the context of Integrated Management of Neonatal care and Childhood Illness (IMNCI) which highlighted the significance of appropriate child feeding. Attention was also directed to the fact that the care of children under 24 months of age was crucial for improving nutrition situation and reducing under- five mortality. Besides policy, the need for development of an operational guideline was considered essential for rolling out comprehensive breastfeeding and complementary feeding strategies. In 2013, the MHFW issued guidelines entitled “Guidelines for Enhancing Optimal Infant and Young Child Feeding Practices ”.⁴³ This IYCF guidelines also placed special emphasis on using the available opportunities to the optimum i.e. contacts with mothers during antenatal care (ANC) and routine immunisation to promote IYCF. However, the guidelines made no reference to the issue of feeding LBW babies which is crucial and needs to be addressed soon since such infants often grow to be undernourished unless special care is taken of them.

The fact that CF practices are poor not only in low wealth index group but also in the highest wealth group (fig 8) highlights the fact that the issue of lack of awareness regarding appropriate child feeding practices needs to be tackled even in this section of the population. Mass awareness campaigns have been launched. It is also recognised that there are three following distinct family situations of malnourished children —those living in households with adequate food, adequate food but inadequate quality and inadequate food. Each situation needs to be appreciated and addressed.

Figure 8: Diet diversity in children 6-23 months old according to wealth quintiles



Source: NFHS-3, 2005-06⁵

Recognising the fact that majority of households fall in the first two categories, actions are now being taken to intensify actions for inter-personal counselling as well as group counselling. Methods such as regular counselling, demonstration feeding, use of positive deviance approach along with social mobilisation activities have proved useful for improving food density and diversifying food fed to children based on local situations and dietary habits.^{44,45,46,47}

Positive impact on child feeding practices has been observed in a number of projects and state level initiatives (described below under the subheading on community based initiatives). For example, the Mitanin initiative in Chhattisgarh state where the calorie density of CF has been successfully promoted by introducing the simple practice of addition of extra tea spoon of oil or fat in the semi-solid feed mixture of a child.¹² The positive impact reported on family level practices is attributed to frequent contacts of community worker /community volunteer or a women from Self -Help group with caregivers for interpersonal or group dialogue and counselling. This was feasible due to a low ratio of community mobiliser to population. Available evidence from various experimental approaches also indicate that a low ratio of community mobiliser or health volunteer to “at nutrition risk” households (one counsellor being in-charge of only 20-25 households with young children or pregnant mothers) is effective in influencing feeding practices even in the absence of monthly weighing or the GMP approach. There is therefore a need to systematically study this strategy of intensive interpersonal counselling of “right message at the right time” against using the GMP approach for effective counselling and prevention of under nutrition. The cost-benefit of the two approaches need to be studied in the country in the context of scaling up the appropriate nutrition programme approach.

Inter-personal and group counselling combined with promotion of home level production of local traditional energy and nutrient rich sweet “laddu” (comprising 20 g peanut powder, 20 grams milk powder, 30 g ground sugar) and amylase rich cereal gruel mix (process of drying and pounding sprouting cereals) by Maharashtra Mission or Nutri-mix production by CINI has also proved useful.^{48,49}

For both interpersonal and group counselling, understanding local feeding practices, is crucial and has proved very important for developing an effective counselling strategy. Standardization

of technical messages of IYCF and its adaptation in local situations is crucial. The Mother-Child Protection (MCP) card, developed jointly by NRHM and ICDS, have standard technical messages and MCPs are being used for counselling cum monitoring. The MCP card has been adapted by a number of state governments and is reported to have been rolled out in 6305 of 7076 ICDS projects by the end of the 11th Five Year Plan.²⁹

Promotion of appropriate feeding during illness deserves special attention in training and communication plan. Very often the prevalent traditional practice of discontinued feeding during illness adds to the problem of malnutrition. The gravity of the situation is evident from the fact that only about 3 per cent mothers are reported to follow the recommended practice of additional food during illness.⁵ The diarrhoea management guidelines also include details on appropriate IYCF practices but is often ignored during training and implementation. Another dimension of feeding which needs special focus, based on India study, is promoting psychosocial stimulation practices along with feeding for enhancing impact on overall child development, including physical growth of child.^{50,51} These new dimensions are being taken into consideration in the training of trainers and training of the frontline workers of both health and ICDS. A training gap which is being accorded special emphasis is equipping frontline workers with information on the rationale associated with each of the IYCF messages since recent research indicates that in the absence of such a focus in training curriculum, counselling sessions undertaken by frontline workers is not convincing and the impact is poor.⁵²

Besides supply of supplementary food and counselling, another new initiative launched for improving the IYCF practices is the conditional cash transfer (CCT) scheme, referred as the Indira Gandhi Matritva Yojna (IGMSY).⁵³ The conditions for cash payment is linked to adoption of correct IYCF practices ---currently being tested in 52 districts and has been launched as the “MAMTA Scheme” in the entire state of Odisha.⁵⁴ The evaluation findings are expected to add value in streamlining the operation and scaling up promotion of both the breastfeeding and complementary feeding practices.

ii). Community Based Under nutrition Reduction initiatives

Following the expansion of the ICDS in early 80s, the following initiatives were launched primarily in pilot phase for improving the nutrition situation –Tamil Nadu Integrated Nutrition Project (TINP I and II), Positive Deviance (PD) Project of West Bengal, Dular project of Bihar and the Integrated Nutrition Health Project (INHP) of CARE and Maternal Child Health Nutrition (MCHN) in UP state.^{48,55,56,57} Interestingly these projects had impact on significantly reducing the prevalence rate of severe underweight and not in improving nutrition scenario. In the past five years, a number of comprehensive nutrition improvement activities have been intensified at the state level under the State Nutrition Mission mode such as in Maharashtra, MP and Gujarat. Additionally, in the state of Chhattisgarh, nutrition interventions have been linked to the on-going health programme in the Mitani Initiative.⁵⁸

The emphasis of all these initiatives has been to improve infant and child feeding practices with special attention on under three years children unlike the ICDS programme which focusses on children 6 months to 6 years. Washing of hands after defecation and prior to feeding were stressed in only three projects—MCHN, Mitani initiative and Maharashtra projects. Interpersonal counselling or group counselling, with or without growth monitoring sessions, proved successful. The impact on nutritional status was reported to have been significantly influenced by increasing demands for health services as well as simultaneously ensuring provision of routine primary health care services such as antenatal care, routine immunisation and timely response to care during infection and illness. Counselling on use of family resources for preparing feeds was noted to be critical. Such use of resources was stressed through the use of positive deviance (PD) approach or cooking demonstration with the use supplementary food of ICDS or by promoting home level preparation of energy-nutrient dense food using simple, low cost recipes. The issue of food security at household level was noted to be not normally dealt with as a part of the project design except in the Mitani initiative of Chhattisgarh state. The state has a strong public distribution system and a newly added component of homestead gardening introduced in the project in the past few years.

The improvement in nutrition situation is reported to be significant in the states of Chhattisgarh and Maharashtra. In both these states, the success factor is attributed to a high political commitment. As a result, some special inputs and invest are in place for scaling up of direct nutrition interventions such as intensive counselling and family level follow up.^{4,58} The projects have active involvement of the health department. The unique feature of Chhattisgarh state is that it is spearheaded by the state health department and not the ICDS. Moreover, this is the only nutrition initiative where a linkage with the Public Distribution System (PDS) has been established. As per the revised programme design, an active effort is made to inform community of the entitlement of the food basket which includes pulses, oil, double fortified salt besides rice. Food basket has also been expanded to include pulses and oils at a subsidised rate. The computerised PDS has resulted in over 90 per cent households using the PDS food.

In the Maharashtra Mission project, frequent interpersonal and group discussions with mothers on nutrition care during pregnancy and care of children under twos has been intensified. Weighing of pregnant mothers and promoting adequate weight gain is promoted. Higher attention to care of undernourished children is emphasised through detection and special care of severely underweight children by providing special five to six feeds at the ICDS centre. Additionally, a strong link with the health system has been ensured for timely health services and supply of micronutrient supplement. Production of home based amylase rich foods using home level germination technique and preparation of energy-nutrient dense preparations using simple home level recipes are encouraged for meeting the nutrient gap. Both these projects reveal the significant benefit of establishing a system for effective supervision and timely support to frontline workers. In Maharashtra, state district/regional project coordinators have

been appointed for coordinating activities of health and ICDS as well as to provide continuous training and guidance to frontline workers. Similar supervision support is noted in the Mitadin initiative and this has been achieved by appointment of an independent supervisors cadre.

The community based nutrition projects are evidence that support of community based worker, elected from community or through self-help groups, is an important component of the programme design. The fact that ICDS frontline workers or health worker actually have very little time for conducting frequent inter-personal counselling sessions for promoting nutrition and health care needs to be recognised. As mentioned earlier, a small ratio of community based counsellor or a community elected mobiliser, in-charge of only 250-500 households or only 20-25 families with under- twos i.e. including pregnant women, appears to be effective in giving “right advice at right time” even in the absence growth monitoring records. This raises the question of continuing to invest in the on- going growth monitoring activities by ICDS which is in actual practice is often limited to weighing and not on assessing trend in growth and counselling. An in-built system for ensuring continuous training and routine supervision is extremely helpful and essential for sustaining quality performance of counsellors.

Community based nutrition programmes also reveal that programmes led by health sector or with the active involvement of health sector is effective. This can be attributed to better response to demands of the community for preventive health services such as routine immunisation, diarrhoea management, antenatal care services, micronutrient supplement coverage etc. Commitment of both health and ICDS sectors and their convergence is facilitated by fixing roles and responsibilities of each sector towards achieving the goal of under nutrition. Additionally, health sector commitment in terms of supply and finance also enhances convergence at every level of implementation. Timely health services for prevention and management of infections/illnesses combined with inputs for improving the IYCF practices is crucial for improving nutrition scenario. The lessons emerging from innovations have now been incorporated in the ICDS Mission strategy of organising “Sneh Shivar” for prevention and care of undernourished in 200 “high burden” districts.⁵⁹

iii) Management of Severe Acute Malnutrition (SAM)

The Ministry of Health and Family Welfare has issued the policy on institutional management of SAM cases -- “Operational Guidelines on Facility Based Management of Children with Severe Acute Malnutrition (SAM)”.⁶⁰ In India, one child out of ten is estimated to be suffering from SAM. Children with SAM have nine times higher risk of dying than well- nourished children. Intensive advocacy by WHO and UNICEF with the Ministry of Health and Family Welfare ,who are concentrating on meeting the MDG of rapid reduction of high under-five mortality rate, has resulted in a high interest in management of SAM. Measure of mid-upper arm circumference (MUAC)and /or oedema for rapid identification of SAM cases has been added to the National rural Health Mission (NRHM) activities. For referral of such cases, norms

for establishment of Nutrition Rehabilitation Centres (NRCs) and a protocol for the treatment of SAM cases has also been recommended in an institutional set up.

Today, India has over 800 NRCs.⁶¹ The states of Madhya Pradesh and Jharkhand have taken the lead in the establishment of NRCs in the country.^{62,63} The impact on reducing child mortality is reported. Early evaluation has, however, identified number of constraints such as mothers being reluctant to stay at NRCs for 10-15 days at a stretch despite being compensated for lost wages, poor follow up of cases discharged from NRCs and poor attendance in referral clinics. The discharge criteria are noted to have some practical constraints. The relapse rate is also reported to be high. This is attributed to inadequate care and feeding of the discharged cases of children at community/family level being far from optimum. The challenge is to reduce the relapse of discharged cases from NRCs by building the capacity of mothers and other caregivers regarding appropriate feeding and caring practices at home level. The other concern is slow weight gain when locally produced nutrient dense foods are used. The rationale of the policy of the government on not allowing to use “Ready to Use Therapeutic Feed” or (RUTF) is being questioned by experts and needs to be revisited in the context of experiences of a number of pilot projects undertaken by NGOs in West Bengal, Bihar and Maharashtra.⁶¹

It is also evident that 80 per cent SAM children in India, like in many other developing countries, have no medical complications and can be managed at family level. Experiences from the on-going pilot experience from the states of West Bengal indicate the success depends on rapid screening of SAM cases, timely advice to caregivers and frequent follow up. Appropriate use of locally or home level produced energy-nutrient dense food is encouraged but has not been viewed to be as cost-effective as RUTF.^{64,65}

ICDS has not adopted the guidelines of the health system of usage of MUAC measure for identification of SAM cases. The focus of ICDS continues to be on identification and care of severe underweight cases using weight for age -3SD criteria. Such different focus by the two primary systems has resulted in confusion in understanding the difference between severe underweight and SAM children by the ICDS workers as well as community. The fact that ICDS system has actively discouraged use of MUAC for the identification of SAM cases has further confused the situation. There are no specific guidelines for community based management of SAM cases and this remains a big challenge. Moreover there are no guidelines for management of the SAM cases who are under-six month's infants.

In brief there are three major issues which need to be resolved for effective management of SAM cases. The first issue pertains to absence of a universal policy for screening of SAM children while the second issue is a lack of a well-defined policy on the food product to be used at community level management of SAM cases. This issue is of significance in India where the use of Ready to Use Therapeutic Food (RUTF) has not been approved by the Government of

India. The issue of food product is expected to be resolved soon following the results of operation research being conducted in India and documentation of experience from selected states.⁶⁶ The third constraint is absence of guidelines on community based management of SAM cases.⁶¹ Lessons learned from the on- going experimental projects and community management of discharged NRC cases are expected to facilitate in development of policy on community based management of SAM children through an integrated comprehensive strategy.

iv) Micronutrient Supplement Programme : Vitamin A Supplement

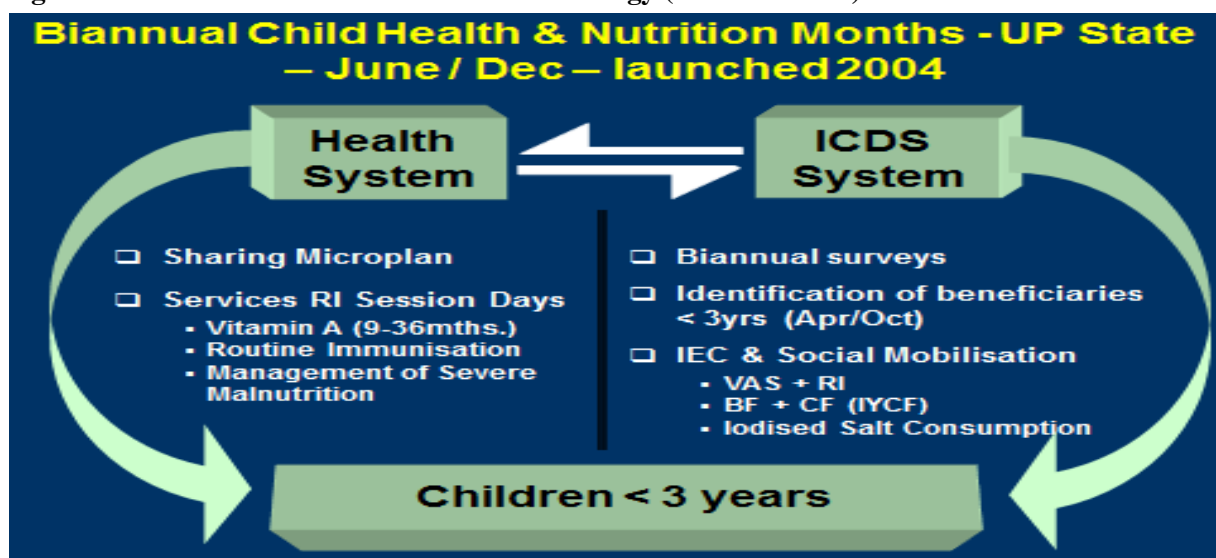
Micronutrient supplements of vitamin A, Iron-Folic Acid and Zinc are cost-effective interventions with clearly defined policy guidelines in the country. India has in fact played a leading role globally in the establishment of vitamin A supplementation programme and weekly IFA supplementation (WIFS) for addressing anaemia in adolescent girls.^{67,68,69} Positive experience with reference to zinc supplement in the management of diarrhoea is limited.⁷⁰ Global research of the last decade have demonstrated the benefits of multi-micronutrients on birth weights but India evidence is limited to one hospital study.⁷¹ Further multi-centre trials in India are required for considering formulation of a policy on multi-micronutrient supplement. Policy on calcium supplement to pregnant women is expected to be issued soon by the Ministry of Health and Family Welfare (MHFW) while folic acid supplement to women in pre-pregnancy stage is included in the recently issued Reproductive, Maternal Neonatal, Child health plus Adolescent (RMNCH+A) approach for prevention of neural tube defects (NTDs).⁷² The micronutrient supplement programme which has been documented to be rolled out most successfully in the country is the vitamin A supplement (VAS) programme which is described below with a view to present lessons learned.

In 1990, VAS was globally recognised to be a cost-effective child survival tool. Intensive advocacy by UNICEF, including organising participation of policy makers and senior technocrats in the International Vitamin Consultative Group (IVACG) meetings and other international and national consultations, facilitated in dissemination of impact of VAS on child survival. A revised VAS policy was issued and VAS as an integral part of the Child Survival Safe Motherhood (CSSM) Programme.⁷³ The implementation remained poor. The global 'Call to Action' on UN Special Session on Children in 2002, which set elimination of VAD by 2010 to be one of the goals, resulted in generating the interest for accelerating coverage of VAS.^{74,75} An innovative biannual VAS administration strategy was formulated for universal coverage of children 6-60 months (initially limited to 36 months) with six monthly massive defined dose of vitamin A supplement (VAS).⁷⁶ In the pilot phase, international agencies---- UNICEF/MI/USAID-MOST --provided technical, financial and vitamin A supply support in the development of programme design and catalysing the implementation of the various components of the project.

As per the biannual VAS programme strategy, two months in a year were fixed for administration of VAS. The design took into consideration the sustainability of the programme.⁷⁷ The programme strategy involved both the health and ICDS systems but was spearheaded by the health sector. The roles and responsibilities of each sector was clearly defined and took into consideration the fact that any add on responsibilities for VAS interventions should strengthen the on-going sectoral responsibilities and not dilute it. The First dose was linked to measles administration to the child. The biannual operational model was linked to the routine immunization (RI) micro-plan and administration of RI by the health sector while the identification and mobilisation of children was linked to the on-going routine bi-annual surveys by ICDS (Fig 9).⁷⁸ The programme design of the biannual Child Health and Nutrition Months also used VAS administration as an entry point for operationalizing a set of other crucial child health and nutrition activities i.e. activities pertaining to biannual de-worming, intensive IEC activities for promotion of IYCF, rapid identification of severe underweight cases and spot testing of salt for iodine levels.⁷⁶

The roles and responsibilities of each of the sectors were clearly defined and the benefits of the VAS biannual programme design on improving output of the day to day tasks of the health as well as the ICDS sector was also highlighted. The advantage of collaboration of the two sectors on day to day functioning was also emphasized. These facts were also included in the advocacy and training materials to facilitate convergence.

Figure 9: Biannual child health & nutrition strategy (Uttar Pradesh)



Source:78

One of the most important components of the VAS programme was assessment of the supply requirement and streamlining management of supply of VAS. It was ensured that the supply was received at the district level, at least a month prior to the fixed biannual VAS months and at the last health post (sub-centre level) at least 15 days in advance. The number of vitamin A syrup

bottles to be carried by the health worker on the VAS cum RI day was also worked out for each sub-centre. By 2007, the supply system was well established and was fully taken over by the state government under the NRHM plan and budget.

The system for monitoring and recording VAS dosage was strengthened. VAS administration of each child was recorded in a separate register designed for VAS to ensure no child received an additional dose. The data generated was recorded in the on-going immunisation monitoring system. A communication and social mobilisation strategy was planned with focus on the role of VAS in improving immunity and protecting a child from severity of a disease and death.⁷⁸ The lessons of the “Pulse polio” campaigns were applied for formulating the IEC and social mobilisation design of the VAS programme. Consistent technical messages and information on date and venue of VAS administration were highlighted. These included organisation of community rallies, announcement in school assemblies 1-2 days prior to the day of the administration.

Joint training modules for ICDS and Health sectors were developed and training of the two sectors team was organised at state, district, block and village levels. Taking into considerations the earlier media report of incidents of VAS toxicity which had disrupted the programme, the training programmes stressed on the significance of measuring and administering correct dosages of VAS. Safety of high dose VAS was also stressed. Training was outcome linked and focused on periodically updating data base of beneficiaries, assessing supply requirements, logistic management and skills for counselling on VAS as well for organising social mobilisation drives. The staff members of the community health departments of local medical colleges were involved in the training and monitoring activities. Later for continuous training, monitoring and implementation, short term consultants were also appointed for a cluster of 3-5 districts with the support of UNICEF and USAID. These add on staff played a catalytic role in rolling out the biannual strategy.⁷⁶

The emerging lessons of pilot project in the state of Uttar Pradesh were analysed and scaled up in many other states. The biannual strategy was later included as one of the important components of the National Rural Health Mission in the 10th Five Year Plan.⁷⁹ A strategy for reaching the unreached pockets through regular outreach events was added on to the bi-annual programme design. By 2010-11, every second child aged 6-35 months in most disadvantaged states was reported to have received VAS in the preceding 6 months.^{3,38} VAS coverage (two VAS doses per child per year coverage) was over 80 per cent in 51.4 per cent of the 255 districts studied as compared to only 9.4 per cent in 2006.⁸⁰

v) Food Fortification: Universal Salt Iodisation (USI)

For addressing the problem of micronutrient deficiencies, fortification of staple foods such as wheat flour, rice, oils, and dairy products is on an increase. India has experience in salt, cereal

and oil fortification. Industrially produced fortified flour (often with iron and folic acid) is available in open market and has been supplied through the Public Distribution System (PDS).^{81,82} Trials have also been conducted in Gujarat and Madhya Pradesh for fortification of flour milled by local small millers or chakki in village situations.⁸³ Fortification of rice with micronutrients is being experimented at a small scale in rice eating states of Karnataka, Orissa and Andhra Pradesh.^{83,84,85} Production and supply of oil fortified with vitamin A (25 IU) and vitamin D (2 IU) through the PDS is limited to Gujarat and Tamil Nadu.^{86,87} Use of multiple micronutrients or sprinklers has been experimented through efficacy trials.^{88,89} The country has a well- documented established programme for universal salt iodisation (USI).

The success story of salt iodisation in India began with the country based evidence of the famous Kangra Valley study of 1955. Intensive advocacy led by a team of renowned scientists resulted in the launch of the National Goitre Control Programme (NGCP) with the central strategy of salt iodisation. With the technical and financial support of UNICEF, salt iodisation plants were established in the public sector salt plants of the Government of India. In 1984, Iodization of edible salt for edible purposes was made mandatory since supply to geographical pockets was neither feasible nor desirable. For meeting the increase in demand of iodised salt, a unique public-private sector partnership was agreed in India for the first time for addressing a public health problem. Using the available secondary data, a data base on salt production, iodization capacity, cost-implications for production of iodised salt was generated. This was widely publicised to facilitate the move towards accelerated production of iodized salt.

Following the Global event on ‘Hidden Hunger’ and participation of government representatives in international IDD and USI meetings with the support of international donors, a high political priority was accorded to the programme of USI.⁹⁰ The evidence on serious implications of iodine deficiency on brain development and IQ levels of children were disseminated through effective advocacy by UNICEF. The nomenclature of India programme was changed from the “National Goitre Control Programme” or NGCP to the “National Iodine Deficiency Control (IDD) Programme” or NIDDCP. Field visits to observe iodised salt programme in other countries such as China were arranged and funded by international donors. Participation of senior government persons from health and Salt Departments in the international IDD and USI events/meetings and training programmes continued to receive special focus in the initial programme stage. Legal measure, under the Prevention of Food Adulteration Act, was introduced. A ban on sale of non-iodised salt for edible purpose was implemented by the central and state governments. The state-wise ban notification was widely disseminated. Levels of minimum levels of the fortificant to be present at production and consumption levels were defined by the government and system for monitoring iodine levels at consuming level was established.⁹¹

The salt commissioner’s office was provided support by international development agencies such as UNICEF, WFP, MI to sensitise iodised salt producers to their role in preventing brain damage and reducing IQ levels in children and for adversely affecting school performance was

highlighted. Data base on various salt associations of private salt producers was updated and regular sensitisation meetings were organised. Private producers were encouraged to invest in iodisation of common salt.

The salt producers were ensured of the market for the fortified product by introducing measures for monitoring adherence to the legal ban, under the Prevention of Food Adulteration Act. Further, issue of clear guidelines by the central government regarding level of iodine at production and consumption level, iodisation plant technology and design specifications, standardisation of iodine testing method to be applied at the laboratories at production site, setting up minimum packaging norms and introduction of use of iodised salt logo facilitated in production and marketing of iodised salt by producers. Supply of the fortificant, potassium iodate at a reasonable price was assured by exempting import tax on iodine and sanctioning setting up of private plants for production of potassium iodate from imported iodine. Moreover, the subsidized transport of iodized salt by a well- planned rail ‘zonal scheme’ was established and this encouraged the iodized salt producers to invest in iodization of salt. Legal measures, banning sale of iodized salt, were issued in all states with special emphasis on issue of ban in the three primary salt producing states to facilitate movement of only adequately iodized salt in and out of the state. At production level, the Salt Commissioner’s office played the leading role in coordinating actions on USI at salt production level. The role of Ministry of Industry was to issue policy guidelines to salt producers through the nodal Salt commissioner’s office. The health department was mainly responsible for undertaking goitre surveys, training laboratory technicians and in issuing policy regarding monitoring and evaluation.

Intense advocacy and information dissemination strategy was planned and executed at the state level with the involvement of all the stakeholders including health, industry, ICDS , private salt producers and traders, education systems.⁹² Roles and responsibilities of each stakeholder in achieving the goal of Universal Salt Iodization(USI) was defined. The state governments were assisted by the international development agencies for developing and executing the state plans for creating demand for iodized salt and monitoring the iodine levels in salt at consumption levels. The state activities were spearheaded by the health sector and involved other stakeholders such as education and ICDS departments, transport authorities, nodal salt traders etc.

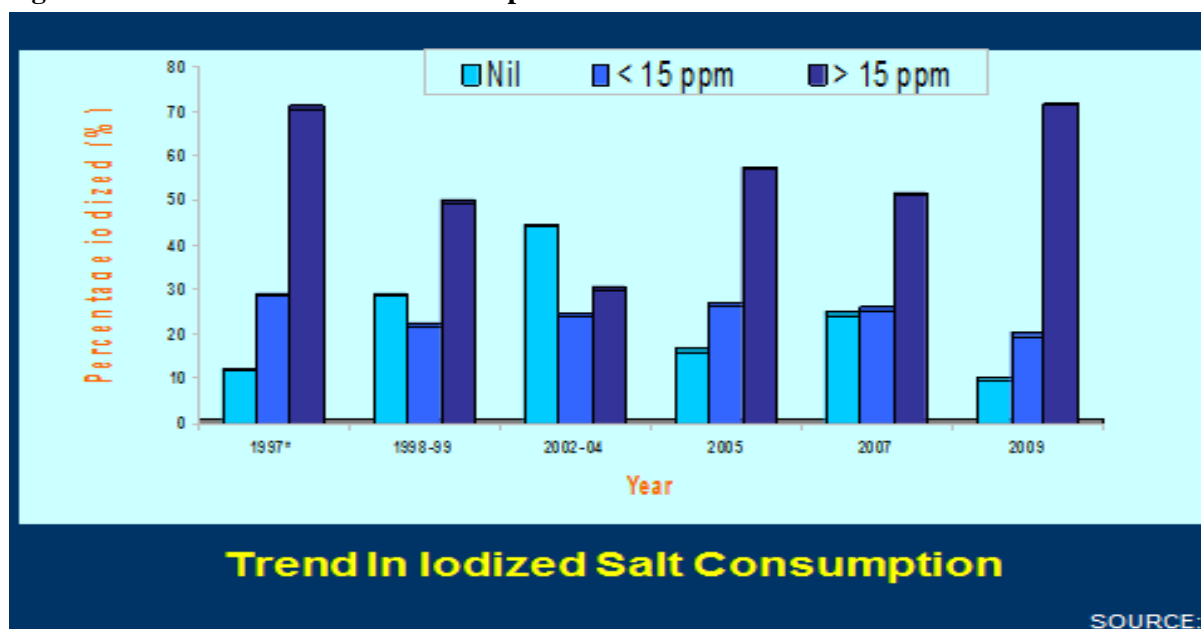
International development agencies, such as UNICEF, played a very important catalytic role by providing technical and financial support to central and state government departments. An innovative strategy of mapping and reaching salt wholesalers in non-salt producing state proved successful .For example, in a large state of Uttar Pradesh, mapping resulted in identification of 340 wholesalers who were sensitized to procure only iodized salt. ¹²

A well planned communication strategy was launched at consumption level to create demand for iodized salt. The communication strategy emphasized on serious implications of iodine

deficiency on “non-visible” issues such as the adverse impact on brain development and physical growth of foetus as well as IQ levels and school performance.⁹³ As a part of the communication strategy, a ‘smiling sun’ logo was developed and widely used. Communication strategy focused on the significance of iodized salt and its linkage to brain damage, poor brain development of foetus, birth of cretins, poor school performance. A well planned and executed strategy with standardized message created demand for iodized salt by consumers and also sustained the interest of the producers and wholesalers.

Another important breakthrough in the rolling out of the NIDDCP was the development of the simple rapid tool for monitoring iodine levels of salt (referred to as salt testing kits or STKs) by an Indian company based at Chennai. In fact, India subsequently became the global supplier of low cost STKs. Use of STKs facilitated in community and school level monitoring of iodine levels in salt. Involvement of school children proved to be an advantageous strategy for demand creation and monitoring of iodized salt. STKs were very useful in advocacy efforts and for

Figure 10: Trend in Iodized salt consumption



Source: CES, 2009⁶⁷

generating demand for iodized salt at community level. The comprehensive strategy of Universal Salt Iodisation (USI) in India resulted in an accelerated production and consumption of iodized salt (fig 10).⁶⁷ The momentum was maintained despite the removal of the central legal ban in late 2000.

An analysis of iodized salt consumption pattern was undertaken to understand the gap in reaching the goal of universal consumption of iodized salt. The findings revealed an inequity in consumption with reference to wealth index—84.7 per cent population in high wealth index consumed adequately iodized salt compared to only 30.4 per low wealth index⁶⁷ This problem of inequity is being addressed currently through marketing of lower cost subsidized iodized salt

through the Public Distribution System (PDS) network. About 15 states have included iodized salt in the food package of PDS.⁹⁴

The major challenge in salt fortification programme has been the continuous increase in the cost of iodine at the international market. Such escalation adversely influences production of iodized salt with adequate levels of iodine. Re-introduction of legal ban on sale of non-iodized salt therefore continues to be a major challenge.

Iodization of salt offers a number of lessons in food fortification in the country. The key learning ranges from effective intensive advocacy for seeking political commitment to developing guidelines for production, building country capacity for quality production and the marketing of iodized salt and preventing unreasonable escalation in price of the fortified food items. These lessons are critical for rolling out production of double fortified salt (DFS or salt fortified with both iodine and iron) and also are warnings in rolling out the DFS programme unless a mechanism is in place for rapid testing of both iodine and iron levels in salt.

VI. Challenges Ahead

India has the expertise and policy in place. However, the implementation of policy remains poor. This is attributed primarily to poor political commitment, lack of a comprehensive nutrition and food security policy, inadequate system to spearhead policy, poor investment and a number of challenges described below.

- **Political commitment and investment**

Today, reduction of malnutrition is at the top of the international health and development agenda. The 65th World health Assembly states clear time bound nutrition targets. Policy makers and planners in India have yet to accept nutritional status of children as an indicator of national development and have a mechanism established to monitor progress through a monitoring information system (MIS) or an external evaluation mechanism. There is therefore poor accountability to address the persistent problem of under nutrition.

Generating high level of political will at state level is a challenge. An enabling environment with the commitment at political level with sustained interest to develop and roll out state and district plans of actions continues to be lacking in most of the states. The momentum and thrust for reducing under nutrition needs to be strong with sustained interest and investment. Substantial increase in public investment is required by the government to accelerate and scale up the positive elements of programme. In this context, collaboration with the international development partners in the initial implementation phase has proved successful in the past and could be explored.

Active and strong advocacy not only with the government counterparts but with leading NGOs and private sectors involved in Corporate Social Responsibility (CSR) is crucial. This implies acknowledging right from the start the contribution of each concerned sector and stakeholder who influence the nutritional status of women and children in the country at state, district and village level is imperative to address the persistent problem of under nutrition in the country.

- **Common understanding for development of a comprehensive nutrition and food security policy framework**

India's challenge is a lack of comprehensive understanding of the determinants of malnutrition and intervention issues by experts resulting in inadequate political support and inadequate investment. In India, food availability, affordability, and accessibility are often viewed as the only key determinants of malnutrition and are focussed in isolation. This is possibly due to the fact that the issues of food are often raised by development economists and food activists who with their position and strong advocacy dominate the development planning scenario of the country. Their voices are heard at the highest level by policy makers. Moreover, the solutions offered by them are also visible and tangible solutions which appeal to the politicians and policy makers. Elimination of hunger by provision of mere cereals is often viewed as the solution to address the cause of under nutrition. The fact that a quarter of children from high wealth index are reported to be underweight or stunted is ignored. The various measures to align food security at household level with simultaneous delivery of package of direct evidence based essential nutrition interventions are not stressed.

On the other hand, efforts by public health nutritionists in actively contributing to and building household food security through a sustainable, equitable and resilient food systems is often missing. In fact, with the launch of ICDS, the earlier emphasis on food diversity through homestead gardens, poultry keeping etc, as executed under the Applied Nutrition Programme (ANP) in 1970s, has been totally missing. Emphasis is on supply of supplementary nutrition despite the fact that there is no evidence of its impact on nutrition scenario continues to receive support for political reasons.

The result is nutrition and food issues are not considered with the same understanding for addressing nutrition and food security. The end result is that the country does not have a comprehensive "Nutrition and Food Security Policy" (Nutrition is the situation and food security is a key determinant. Nutrition is therefore positioned before food security) which aligns food security strategy with nutrition improvement interventions.

- **ICDS –Programme design**

India's challenge is to ensure that the undue emphasis on provision of food supplement through the ICDS network is not at the cost of other critical interventions. With the policy of universal

supply of food supplements to children, adolescent girls, pregnant and lactating women, ICDS is today functioning as a “feeding centre”. The rationale of large investment in supplementary nutrition has been raised in the past and continues to be questioned to date.⁹⁵

Under the 12th Plan, ICDS Mission is proposed to be used as platforms for “centres of nutrition care of under twos”. This implies ICDS would be the primary platform for delivery of the various direct nutrition interventions as well as being a catalyst for multi-sector interventions. An additional worker in some selected centres is proposed to undertake the task. One needs to critically examine whether this would solve the problem in the environment of constant work pressure for supply of supplementary food as cooked food or Take Home Ration (THR) for about 80-100 beneficiaries daily per centre.

Today, there is global and India evidence on essential nutrition interventions that would make a difference. Supplementary food is not included in this package of interventions except for provision of such food to pregnant mothers in disadvantaged population. Research studies in India and elsewhere indicate beneficial effects of such supplementary nutrition on pregnancy outcome if the supply is targeted to disadvantaged pregnant women who habitually consume low calories intake despite excess energy expenditure or whose body weight is less than 40 kg.⁹⁶ Such evidence of the positive impact of universal nutrition supplement of ICDS on nutritional status is lacking. The World Bank in 1999 computed the information on expenditure relating to nutrition supplement and nutritional status in 12 major states. Expenditure on supplementary nutrition did not demonstrate any co-relation with level of under nutrition or state domestic product. Kerala which was spending much less on the supplement had the lowest under nutrition rates. The reduction in the rate of under nutrition was attributed to proper feeding; equitable distribution of food and effective health care.⁹⁷ The challenge is to revisit the ICDS policy of food supplement as against concentrating on direct nutrition interventions which have made the difference.

- **Using Public distribution System (PDS) for reaching disadvantaged families of pregnant women**

The scope of using the PDS as an alternative delivery mechanism to provide diversified food supplements to disadvantaged pregnant mothers needs to be examined. Disadvantaged population are covered as Antodaya Anna Yojana(AAY) beneficiaries and are registered with the PDS. The AAY families continue to be the special category of beneficiaries under the National Food Security Act (NFSA). Pregnant mothers belonging to the AAY families could be registered and tracked. With an incentive scheme linked to ANC, more and more women are getting registered for antenatal care (ANC) services. Today, the ANC coverage is estimated to be over 80 per cent. These registered ANC mothers can be tracked through the mother-child tracking system, being established by the Ministry of Health and Family Welfare. An alternative system for provision of supplementary food basket comprising highly subsidised pulses and oil to the entire family of pregnant women who are in AAY category through PDS is a challenge. Such an alternative model of supply of supplementary food could be developed and tested. Such

a model of an alternative system for supply of supplementary food distribution would also reduce the work load of the ICDS workers and streamline food supply welfare programme through a suitable mechanism.

• **Universal Coverage of Direct Nutrition Actions: Significance of Health sector Spearheading the Implementation**

Today, the biggest challenge is in effectively rolling out policies and scaling up coverage of evidence based essential nutrition interventions to at least 90 per cent from the current national coverage of not more than 55 per cent for any of the ten interventions. Such a coverage is expected to reduce malnutrition by at least 20 per cent.⁹⁸

In this context, it is observed that the Ministry of Health and Family Welfare (MHFW) is the nodal Ministry which has issued policy guidelines for each of the ten interventions except for IYCF stated in Box 1. The MHFW has also recently issued the operational guideline for implementation of IYCF Policy. Additionally, the MHFW has a system in place for reaching under twos since the health sector is responsible for providing antenatal care and institutional delivery services to pregnant women as well as routine immunization (RI) to children and timely health services for the appropriate management of diarrhoea and ARI. Today, the contacts of the health sector with pregnant women and infants is estimated to be over 80 per cent and expected to continue to increase. Moreover, the health sector also reaches children 6-59 months during the biannual vitamin A supplementation programme or the “Child Health Nutrition months”. Ensuring health services along with promotion of appropriate IYCF practices are essential for addressing the immediate causes of malnutrition.

The health sector appears to be in a position to reach the ‘under twos’ and make the best of the “window of opportunity” of the first 1000 days of lives. In comparison to the health sector, the geographical coverage as well as the system of ICDS to reach pregnant women and infants with services is comparatively poor. Moreover, the ICDS workers with the immense responsibility of supplementary food distribution and early child development are not able to provide the desired direct nutrition services, including regular counselling to mothers /caregivers. Despite these facts, as per the Government of India policy, the responsibility for the subject of malnutrition reduction is with the ICDS sector. Most of the technical and financial support of the international development agencies is also channelized by the Government through the ICDS and not the health sector. Such a system is not able to increase the coverage of direct nutrition interventions. This has led to nutrition programme design being implemented by the ICDS sector in collaboration with health sector and ensuring active involvement of both the health and ICDS sectors by undertaking joint planning, training and implementation from village to state level.

To improve the implementation of nutrition interventions, ‘Nutrition Mission’ approach has been adopted by a number of states and the mechanism aims to coordinate the services of health and

ICDS sectors at every level. This requires additional financial and human resources which are often supported in the initial phases by the international development agencies. In many states, ICDS sector becomes the lead agencies and the coordination of two sectors remains poor despite the Mission approach. The challenge is therefore to study both the health and ICDS mechanism and consider reorganisation of programme responsibilities for designing the most cost effective implementation system for selected direct nutrition interventions. A systematic study is required to understand the cost-effectiveness of the existing approach and the current over dependency on ICDS compared to a model where nutrition issues of under twos is spearheaded by the health sector.

- **Community nutrition worker –an essential link**

The well documented pilot projects focusing on under nutrition in India have demonstrated that frontline person of either health (ASHA) or ICDS (AWW), with the existing work load, are not able to effectively plan or counsel families for influencing adoption of appropriate maternal-child care and feeding practices. In addition to these workers, family level counselling requires local community support of a community nutrition counsellor who has time and skills to assess as well as analyse family situations and propose actions. Involvement of community based counsellor or a member of women's group in a smaller ratio, such as one worker for a cluster of 15-20 households or 250-500 population, has been effective in influencing family care practices in a number of pilot projects or state initiatives.^{47,58,99}

Strong one to one counselling along with social mobilisation is therefore a well proven effective strategy for making a difference in family level child feeding and care practices. The challenge is to study the community support strategy, synthesise the positive elements of implementation process and adapt the positive innovations appropriately for addressing the diverse health and nutrition care situations existing in the concerned districts of a state. The task ahead is studying the financial implications of adding on a cadre of such community counsellors in the proposed ratio against other interventions by the ICDS and health. The former includes provision of high cost supplementary food or regular weighing of children –often without undertaking an effective counselling of caregivers. The challenge is that despite the political weight age attached to provision of ICDS food supplements, systematically study the options and consider reorganising the programs and resources for nutrition interventions.

- **Comprehensive multi-sector programme -Addressing Nutrition Influencing Interventions**

The challenge is to synthesis the best practices from the ongoing innovations to simultaneously address the immediate and underlying causes of malnutrition i.e. food, health, water, open defecation and sanitation, women's empowerment, education. Policy coherence along with a strong leadership from government is imperative to coordinate actions. To some extent, this is reflected in the operational guidelines issued by MWCD for effective implementation of a

centrally sponsored multi-sector nutrition programme (MSNP), under the National Nutrition Mission of ICDS.^{29,100}

For effective programme design, systematic study and documentation of the mechanism that are positive elements of the on-going following multi-sector projects need to be synthesised---- Surguja District Project of the Health Resource Centre of Chhattisgarh state, Koraput district project of Odisha and the various multi-sector projects of the World Vision in selected states of Uttar Pradesh and Madhya Pradesh.^{101,102,103} Additionally, the good practices emerging from social safety nets such as Mahatama Gandhi Rural Employment Guarantee Act (MNREGA), women's empowerment programs through Self-help groups, Livelihood programs such as by Ekjut need to be systematically analysed with reference to the processes used for improving financial conditions of women as well as for improving nutrition situation.^{104,105,106} The recently launched nutri-farm scheme is also a task ahead for improving nutrition situation. Another important challenge is to link the public distribution system for care of under twos and reaching the most disadvantaged women with health and nutrition services.⁸⁴

It is also a challenge to examine whether it is cost-effective to ensure implementation of each of the vertical nutrition influencing sector programmes or to put in resources for development of multi-sector convergence of programs in specific geographic areas to make a difference in nutrition situation.

- **Addressing the emerging problem of over nutrition**

Besides under nutrition, India faces a rapidly emerging problem of overweight and obesity with its serious implications on rising incidence of non-communicable diseases. Interestingly, this dual burden of malnutrition is also often observed within the same households i.e. a family having an overweight mother but an undernourished child.¹⁰⁷ Research of the last decade confirms that the rising problem of over nutrition in adulthood in developing countries like India is not only a result of poor dietary habits and life style but has its genesis in foetal growth restriction and low birth weight. The urgent challenge is to address this problem of dual burden of malnutrition by simultaneously addressing the problem of LBW through the life cycle approach along with education campaigns to advice on diet and healthy life style.

- **Enhancing Technical resource capacity at state and district levels**

One of the major challenges at state and district levels is absence of technical support at central and state levels to design, deliver, manage and evaluate implementation of nutrition interventions. There is a shortage of public health nutritionists in the country despite the fact that formal university level teaching courses in nutrition or public health programme or medical colleges are in existence in each and every state of the country. The current curriculum requires substantial modifications with reference to focus on development of skills in programme

designing and implementation, operation research, evaluation and documentation of implementation process.

Recognising the gap in availability of technical or programme management support, a number of international development agencies are providing financial support for training and appointing consultants attached to the central and state governments. Most of the consultants are with public health background and require training in public health nutrition. Some states such as the state government of Gujarat has created positions and financed appointment of state and district nutrition officers, attached to the State Nutrition Mission managed by the health sector.

Development of a cadre of public health nutritionists is urgent and a big challenge in the country. The MHFW also plans establishment of “National/State Resource Centres or Centres for Excellence Maternal Child Health Nutrition” within existing institutions and/ or in partnership with professional networks.²⁹ Such nutrition centres of excellence are imperative for policy and programme guidance as observed in other Asian countries --Thailand and Vietnam.⁹⁹

- **Timely update of information on nutrition situation**

Updated national, state and district level dietary and anthropometric data is essential for proper planning, generating evidence for effective advocacy and for seeking political commitment as well as for investment. Unfortunately in India, since the National Family and Health Survey-3 (NFHS-3) in the year 2005-6, no systematic national nutrition survey has been undertaken. Dietary survey of the National Nutrition Monitoring Bureau (NNMB) is limited to only 10 states and is a four yearly activity.^{5, 14} The District Level Health Survey 2 (DLHS) is the single survey with district level anthropometric data on nutritional situation and anaemia status.¹³

In accordance with global guidelines, a set of suitable indicators have been proposed for monitoring high impact direct nutrition interventions. Most of these indicators have been incorporated in survey designs of the NFHS as well as the Coverage Evaluation Surveys.³¹ However, it is imperative that the monitoring mechanisms are established at state and district levels linked to health and ICDS for timely review of progress and multi-sector actions. The analytical and documentation skill training remains a challenge.

The available nutrition data sets of NFHS and NNMB have negligible information on food production, availability and other important agriculture indicators. However, data on safe water, latrines and other sanitation indicators is available. Undertaking periodical surveys at short intervals and integrating indicators of agriculture and nutrition is essential and a crucial task for sustained interest in reducing malnutrition in the country. There is a need to build on the integrated agriculture-nutrition Village Dynamics Survey of Asia Data (VDSA) of ICRISAT and TANDI II project planned to be undertaken in collaboration with the National Institute of Nutrition (NIN).^{108,109}

- **Active Involvement of Professional Bodies**

For positioning nutrition high in the development agenda of India, it is a challenge to actively involve professional bodies such as Indian Association of Pediatricians (IAP), Nutrition Society of India (NSI), National Obstetric and Gynecological Society, Society of Community and Public Health Medicine. It is imperative these professional groups are sensitized to spearhead a movement for addressing under nutrition in the country with a common voice. Involvement of professional bodies of other sectors which play a very important role in addressing underlying causes of under nutrition is important. The challenge is to generate interest in malnutrition issues in the associations and development organizations dealing with agriculture, horticulture, water-sanitation, education, women's development etc.

Section 2. Low Income Countries (LIC): Mapping Nutrition Focus and Projecting Possible Support Requirement

As per the World Bank classification, 36 countries are identified as Low Income Countries (LIC), and of these four countries are based in South Asia ---Afghanistan, Bangladesh, Nepal and Myanmar while 24 countries are based in Africa region.(Annexure I).¹¹⁰

Annexure II presents the nutrition programme focus of LIC countries. This is based on analysis of the existing reports and literature as well as through dialogue with international development agencies (Annexure II).^{1,28, 110,111,112,113,114} A shift from the earlier focus on elimination of hunger to scaling up of essential nutrition interventions is evident. The focus is primarily on promotion of appropriate infant and young child feeding (IYCF) practices and elimination of micronutrient deficiencies through micronutrient supplements and food fortification^{1, 2,111,113}. Attention to maternal nutrition and management of Severe Acute Malnutrition (SAM) is rather poor across LICs while over nutrition is still not a public health concern. Effort is also being made by LICs to mainstream attainment of nutrition objectives through implementation of nutrition influencing interventions by launch of multi-sectoral strategies.

Most of the interventions observed to be the priority of LICs are also the focus of the global Scaling Up Nutrition (SUN) movement launched in September 2010. The SUN movement has been endorsed by 100 organizations and 35 countries and is the main driver of the international commitment.^{96; 112,115,116}The G8 has also included these actions to address stunting and other forms of under nutrition in its agenda. According to UNICEF 2013 “A unified international nutrition community has been using the Scaling Up Nutrition movement to successfully advocate for reduction of stunting, acute malnutrition and micronutrient deficiencies.”²Of the 41 SUN member countries, fifty per cent are LICs from Africa and South Asia (Annexure II). These member countries are committed to scaling up the above direct nutrition interventions with focus on the first 1000 days of life, between pregnancy and child’s second birthday.¹¹³The two strategic approaches of SUN being (i) rapid scaling up of the specific nutrition interventions of proven effectiveness and (ii) implementation of sectoral strategies that are nutrition sensitive. The latter include increase in access to affordable nutritious food, clean water, sanitation health care and social protection.¹¹⁷Pre-pregnancy and maternal improved nutrition through balanced diet and adequate intake of key nutrients (such as folic acid) is also included in SUN movement.

The package of essential nutrition actions (ENAs), proposed by the 65th World Health Assembly (WHA) in May 2012, also reinforce the global ‘SUN’ strategy. These ENAs also comprise primarily direct nutrition interventions such as IYCF, appropriate nutrition care of sick and malnourished children, adequate intake of micronutrients by women and children and adequate intake of iodine by all members of the household. However, a higher focus than before on maternal nutrition and management of moderate acute malnutrition (MAM) is included.WHA

estimates that the universal coverage of each and every direct nutrition interventions or ENAs could dramatically reduce the rate of malnutrition and would help to achieve the following six global targets by 2025 (Box 2), provided the annual rate of reduction is also increased to at least 3.9 per cent.³⁵

Box2: 65th WHA :Maternal, Infant and Child nutrition - Global Targets and Priority Actions

Global Targets

- 40% reduction of the global number of children younger than 5 years who are stunted
- 50% reduction in anaemia in women of reproductive age
- 30% reduction of low birth-weight
- No increase in childhood overweight
- An increase the rate of exclusive breastfeeding in the first 6 months to at least 50%.
- A reduction in childhood wasting to less than 5%

Priority Actions:

- Create a supportive environment for the implementation of a comprehensive food and nutrition policies.
- Include all required effective health interventions with an impact on nutrition in the comprehensive national nutrition plans.
- Stimulate development policies and programmes outside the health sector that recognize and include nutrition.
- Provide sufficient human and financial resources for the implementation of nutrition interventions.
- Monitor and evaluate implementation of policies and programmes.

recommended by WHA. Such a rate of AARR has been achieved globally by only four countries (Mauritania, Senegal, Mali, Ghana).¹¹⁶ LICs therefore need to intensify implementation action to increase the coverage of each of the proposed interventions to at least 90 per cent with an AARR of 3.9. Special support to LICs is crucial for strong advocacy to ensure higher level of political commitment. Additionally, support is required for formulation of policy, establishing legislation mechanism, designing suitable programme strategy and operational support in terms of technical consultancy, arranging supply of required items and organising funding for rolling out policies.

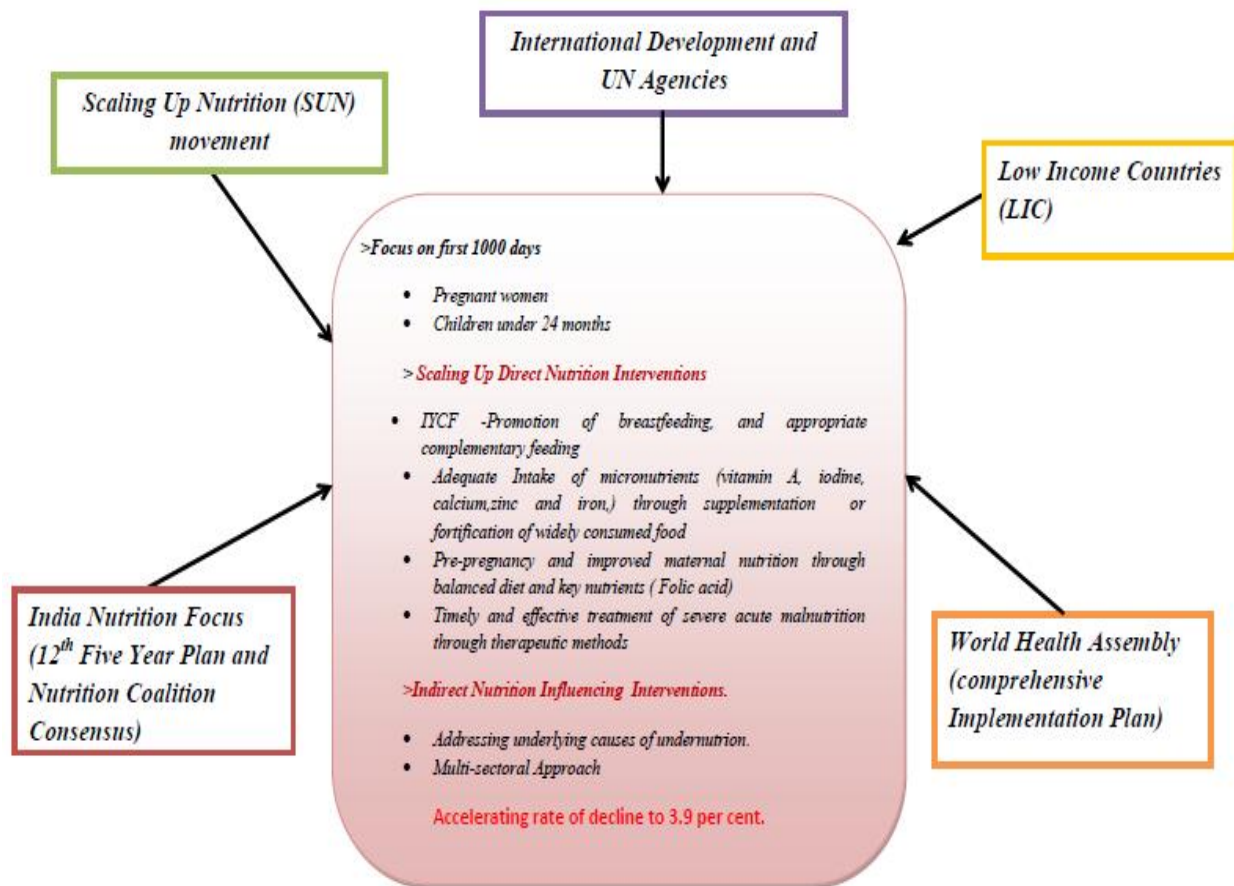
Section 3.Partnership with LICs—Drawing on India’sExperience

India is not a member of the SUN movement.¹¹⁷ However, like most other developing countries, India is focussing on scaling up the essential direct high impact nutrition interventions which is part of global SUN movement and WHA focus. As described in section I, India has experience in implementing most of the direct nutrition interventions.

There is a need to intensify support to LIC countries for creating an enabling environment to generate higher interest, investment, commitment towards ensuring the planned outcomes are achieved at a much higher AARR. In India, in the last five years, the AARR for underweight has been reported to have improved to 2.9 in 100 districts surveyed.⁸ In Mitadin initiative in Chhattisgarh state which combined direct nutrition interventions with the indirect food security measures through PDS, a high AARR of 4.22 for underweight and an AARR of 5.64 for stunting has been reported.⁵⁸ India has a number of pilot projects with good results. Lessons learned are valuable for planning nutrition improvement programs in LICs.

The UN organisations and various international development agencies are supporting the effort of developing countries for universal coverage of selected high impact nutrition interventions (fig 11).It is estimated that an addition of US \$ 10.3 billion a year is required for effective implementation and scaling up of direct nutrition interventions on a world-wide scale.³⁵According to Lancet 2013, the cost of scaling up these interventions to 90 per cent coverage in 34 countries with higher level of stunting is 37 per cent for micronutrient interventions including supplements, 10 per cent for educational interventions, and 27 per cent for management of SAM.³ The remaining 24 per cent is estimated for provision of food for pregnant women and children 6-23 months in poor households.

Figure 11: Global Focus on Selected Nutrition Interventions



The challenge for LIC is scaling up coverage of direct nutrition actions in a cost-effective manner with proper implementation of a well-designed programme. In the LICs, much less is known on how to implement the direct nutrition interventions at scale, how to replicate or adapt how to deliver in a cost-effective manner, what strategies to actively discourage, how to sustain, how to minimise costs etc. Low income countries, in general, require strong advocacy for creating an enabling political and resource environment, a proper system for ensuring effective delivery of services, support for producing suitable technical expertise in public health nutrition and assistance for essential programme related supplies. In addition, political commitment needs to be backed by appropriate support for establishing legislation framework for successful implementation of policies and programs.

Scaling up therefore requires programme expertise for the development of suitable policies, implementation guidelines and programme designs along with technical support in defining goals, targets, timelines and deliverables. India, with the financial support of international development agencies, could take a leading role to support LICs. As presented earlier in section I, India has made significant progress in terms of advocacy, policy formulation, strategy

formulation, programme planning, establishing of delivery mechanisms for each of the selected nutrition specific interventions. Additionally, India has demonstrated expertise in system development, execution of a comprehensive communication strategy, training and capacity building of programme managers and workers, community mobilization as well as monitoring and evaluation. Inter-personal as well as group counselling skills and social mobilisation are essential components of nutrition programme design. India has experience, expertise and capacity to work with LICs in conducting training, developing the required institutional capacity and competence for the execution of programme implementation tasks.

Use of community based delivery platforms such as Village Health Nutrition Days (VHNDs), identification and training of community mobilisers, involvement of women groups etc. is well documented in various projects.⁵⁸ The country has evidence of successfully launching micronutrient supplement coverage such as vitamin A and weekly IFA to adolescent girls. India's experience in policy formulation and in designing and executing legal framework is well known with reference to banning sale of commercial milk formula for child feeding and non-iodised salt for edible purposes. These actions have played a central role in IYCF and food fortification programs.

India could offer support in establishment of fortification plants for salt, flour or rice as well as for the production of fortificants required such as for potassium iodate or pre-mix of micronutrient. A mechanism could also be considered to arrange export supply of fortificants to LICs. India also has the technology for production of nutrient dense supplementary food suitable for women and children such as different type Ready to Eat (RTE) foods. This technology could be shared with LICs along with support for the formulation of a suitable local energy-nutrient rich product and a framework for working on a sound public-private partnership. Quality control guidelines and mechanisms for monitoring execution of guidelines for RTE and fortified foods also exist and could be value to LICs.

India's experience in implementing nutrition influencing interventions is comparatively limited. The country, however, has the experience of launching a number of programmes which has indirect impact or provide a platform to scale up nutrition direct interventions. These include the following programmes – social safety net programs such as the Public Distribution System (PDS) and Mahatma Gandhi National Rural Employment Guarantee Act (MNRGEA), poverty alleviation programme such as the National Livelihood Programmes, Conditional Cash Transfer schemes such as the Janani Shishu Suraksha Yojna/Indira Gandhi Matritva Surkshana Yojana (JSSY/ IGMSY) and Agriculture extension programmes such as the Krishi Vigyan Kendras (KVKs) and Total Sanitation Campaign(TSC). In this context, India's experience in implementing each of these sector programmes is immense and would be of value to LICs in reaching out to a wide range of nutrition influencing sectors.

Besides rolling out policies and programmes, India is also in a position to offer technical and managerial support for conducting country-wide dietary and nutrition surveys. Additionally, technical support could also be provided for generating data base and analysing findings for appropriate programme planning. India's experience in conducting ethnographic studies for planning behavioural change communication (BCC) program and support in the production of information-education materials would be of great value to LICs for strategic planning and implementation. Additionally, India could offer support in building technical expertise by establishing teaching centres of public health nutrition or linking with existing distance education or organising short courses in public health nutrition.

The discussion with government and international agencies and a review of the past record indicates that LICs in the past have expressed interest in visiting and learning from ICDS programme and universal salt iodisation and iodisation plants. In addition LIC have expressed partnership with India regarding manufacture of Ready to Eat (RTE) supplementary food and supply support for Iron-folic acid tablets and salt testing kits. This is possibly due to the fact that there is wider dissemination of information on these activities in the international forums such as workshops and consultations meet. Moreover, there is published literature and web site update on ICDS and USI. The fact that India has expertise in designing and implementing programmes pertaining to each of the essential nutrition interventions is not well publicised. There is therefore a need to disseminate the information on what India could offer to LICs. These could be undertaken through organisation of workshops with participation of LICs, arranging the field visits of LICs to India programmes, documentation of India programmes and sharing the experience and success stories with LICs as well as supporting visits of India's experts /nodal implementers to LICs. Such activities would require funding support .International development agencies, such as DFID/UK Aid, could facilitate development of a comprehensive action plan for scaling up of the direct and indirect nutrition interventions and building on the activities which are the focus of the selected LICs, as presented in Annexure II.

Annexure I

List of Low Income Countries

The following countries were listed on the World Bank's country classification as Low Income Countries as of July 4th 2012.

Afghanistan	Bangladesh
Benin	Burkin Faso
Burundi	Cambodia
Central African Republic	Chad
Comoros	Congo, Dem. Rep.
Eritrea	Ethiopia
Gambia, The	Guinea
Guinea-Basu	Haiti
Kenya	Korea, Dem. Rep.
Liberia	Madagascar
Malawi	Mali
Mauritania	Mozambique
Myanmar	Nepal
Niger	Rwanda
Sierra Leone	Somalia
Tajikistan	Tanzania
Togo	Uganda
Zimbabwe	

Annexure II: LICs--Current Focus on Nutrition Interventions

Name of the country	U5MR /1000 live births)	Key actions/ Solutions										Comments
		IYCF	Micronutrient supplementati on		Fortificatio n		Matern al nutritio n	SA M	Over nutrition	Dewormi ng	Multisector al prog	
			VAS	Iron	Salt	Staple						
SOUTH ASIAN LIC#												
Afghanistan	257	√	√	√		√	√			√		
Bangladesh*	54	√	√	√								
Nepal*	51	√	√	√	√	√				√		
AFRICAN LIC												
Burkinfaso*	169	√	√	√	√					√	√	
Burundi*	168	√	√	√	√					√	√	
Central African Republic	173	√	√	√	√					√	√	
Comoros	105	√	√	√	√					√	√	
Eritrea	58	√	√	√	√					√	√	
Ethiopia*	109	√	√	√	√					√	√	
Gambia*	106	√	√	√	√					√	√	
Guinea Bissau	195	√	√	√	√					√	√	
Guinea*	146	√	√	√	√					√	√	
Kenya*	128	√	√	√						√	√	
Liberia	110	√	√	√	√				√	√	√	
Madagascar*	72	√	√	√	√					√	√	
Malawi*	100	√	√	√	√					√	√	

Mali*	194	√	√	√	√					√	√	
Mauritania*	118	√	√	√	√				√	√	√	
Mozambique*	138	√	√	√	√					√	√	
Niger*	167	√	√	√	√					√	√	
Republic of Congo*	127	√	√	√	√					√	√	
Rwanda*	112	√	√	√	√					√	√	
Sierra Leone*	83	√	√	√	√					√	√	
Tanzania*	116	√	√	√	√	√				√	√	
Togo	98	√	√	√	√					√	√	
Uganda*	135	√	√	√	√					√	√	
Zimbabwe*	96	√	√	√	√					√	√	
India	69	√	√	√		√	√			√		
India	69	√	√	√		√	√			√		

*SUN country # Myanmar is LIC country but no data available in World Bank nutrition profile Source: 134, 135, 136, 137, 139

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