

National Policies and Strategic Plans to Tackle Undernutrition in India: A Review

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Institute of Development Studies (IDS)
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Vikas Samvad
Coalition for Sustainable Nutrition Security in India
Save the Children, India
Public Health Resource Network (PHRN)
Vatsalya
Centre for Equity Studies

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ABOUT POSHAN

POSHAN (Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India) is a 4-year initiative that aims to build evidence on effective actions for nutrition and support the use of evidence in decisionmaking. It is supported by the Bill & Melinda Gates Foundation and led by IFPRI in India.

This Report has been prepared as an output for POSHAN, and has not been peer reviewed. Any opinions stated herein are those of the authors and do not necessarily reflect the policies or opinions of IFPRI.

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Acronyms and Abbreviations

ANC	antenatal care	MCHN	maternal child health and nutrition
ANM	auxiliary nurse midwife	MDG	Millennium Development Goal
ANP	Applied Nutrition Programme	mg	milligrams
ASAT	<i>Aanchai Se Angan Tak</i>	MHRD	Ministry of Human Resource Development
ASHA	accredited social health activist	mL	milliliter
AWC	<i>anganwadi</i> center	MMR	maternal mortality rate
AWW	<i>anganwadi</i> worker	MMT	million metric tons
BF	breastfeeding	MNT	medical nutrition therapy
CES	Coverage Evaluation Survey	MoHFW	Ministry of Health and Family Welfare
CF	complementary feeding	MoWCD	Ministry of Women and Child Development
CSSM	Child Survival and Safe Motherhood	MTA	mid-term appraisal
DLHS	District Level Household and Facility Survey	NAC	National Advisory Council
DWCD	Department of Women and Child Development	NCAER	National Council of Applied Economic Research
EBF	exclusive breastfeeding	NCHS	National Center for Health Statistics
eLENA	e-Library on Nutrition Actions	NFI	Nutrition Foundation of India
F-100	Formula-100	NFHS	National Family Health Survey
FAO	Food and Agriculture Organization of the United Nations	NGCP	National Goitre Control Programme
FNB	Food and Nutrition Board	NGO	nongovernmental organization
g	grams	NHP	National Health Policy
g/dL	grams per deciliter	NIDDCP	National Iodine Deficiency Disorders Control Programme
Hb	hemoglobin	NIHFW	National Institute of Health and Family Welfare
HIV	human immunodeficiency virus	NIN	National Institute of Nutrition
IAP	Indian Academy of Pediatrics	NIPCCD	National Institute of Public Cooperation and Child Development
ICDS	Integrated Child Development Services	NNACP	National Nutritional Anemia Control Programme
ICMR	Indian Council of Medical Research	NNAPP	National Nutritional Anemia Prophylaxis Programme
IDD	iodine deficiency disorder	NNMB	National Nutrition Monitoring Bureau
IFA	iron folic acid	NNP	National Nutrition Policy
IFPRI	International Food Policy Research Institute	NPAC	National Plan of Action for Children
IIPS	International Institute for Population Sciences	NPC	National Policy for Children
IMNCI	Integrated Management of Neonatal Care and Childhood Illness	NRC	nutrition rehabilitation center
IMR	infant mortality rate	NRHM	National Rural Health Mission
IMS	Infant Milk Substitutes Act	NSS	National Sample Survey
IU	international unit	NSSO	National Sample Survey Organisation
IUD	interuterine device	ORS	oral rehydration salts
IYCF	infant and young child feeding	PD	positive deviance
kcal	kilocalories	PDS	public distribution system
kg	kilogram	PEM	protein energy malnutrition
LBW	low birth weight		
mcg	microgram		
MCH	maternal and child health		

PFA	Prevention of Food Adulteration Act
PHFI	Public Health Foundation of India
POSHAN	Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India
ppm	parts per million
PRI	<i>panchayati raj</i> Institution
RACHNA	Reproductive and Child Health, Nutrition, and HIV/AIDS
RCH	Reproductive and Child Health Programme
RDA	recommended dietary allowance
Rs	rupees
RTE	ready to eat
RUTF	ready-to-use therapeutic food
SABLA	Rajiv Gandhi Scheme for Empowerment of Adolescent Girls
SAM	severe acute malnutrition
SC	Supreme Court
SCO	Salt Commissioner's Office
SF	supplementary feeding
SNP	Supplementary Nutrition Programme
SUN	Scaling Up Nutrition
THR	take-home ration
µg	micrograms
UN	United Nations
UNICEF	United Nations Children's Fund
USI	universal salt iodization
VAD	vitamin A deficiency
VAS	vitamin A supplementation
WHA	World Health Assembly
WHO	World Health Organization
WIFS	Weekly Iron and Folic Acid Supplementation program

Executive Summary

“Malnutrition in children is a big challenge for us. We have taken steps in many dimensions to deal with this problem. In the last eight years, the number of mothers and children benefitting from the ICDS has doubled. The process of making the ICDS more effective is in its last stages and will be completed in the next 1 or 2 months.”

—Prime Minister Dr. Manmohan Singh
Independence Day Speech, August 15, 2012

Of all the young children in the world, every fifth one lives in India. India also stakes the claim of harboring every third undernourished young child in the world. This reality—dubbed a “national shame” by the incumbent political leadership in the beginning of 2012—needs to be acknowledged in its multiple and complex dimensions as a matter that must be resolved with urgent action. Almost a quarter of India’s newborn babies start life with low birth weight, 50 of every 1,000 live births do not live to celebrate their first birthday, some 42 percent of children in the 0–5 years age group are underweight, and more than two-thirds of infants and children under the age of 3 are anemic (India–MoWCD 2011). The latest Global Hunger Index 2012 ranks India 65th among 79 countries in its efforts to reduce hunger, particularly among children (von Grebmer et al. 2012).

This situation is paradoxical. Substantial economic growth in the country has led to an increase in gross national income, but has not shown itself in the progressively improved nutritional status of millions of people, in improved food security, or in significant reductions in the number of people who sleep hungry each night. Of more importance, India’s response to tackling undernutrition has been spread over at least seven long decades, yet the problem remains chronic. The country’s early efforts to address the issue of undernutrition and hunger can be traced back to a few years before Independence, to the Bengal famine of 1943. By the early 1940s large amounts of data became available indicating the extent of nutritional problems among Indian people. Diverse policy and programmatic initiatives at various levels started to be put in place, and the policy landscape for action against the complex problem of undernutrition has become robust over the last few decades.

Today, as the world’s largest government-owned, community-based outreach program for early child development, the Integrated Child Development Services (ICDS) Scheme, enters its 38th year of operations, it is still being examined for the many challenges it poses in terms of efficiency, reach, vulnerability to malpractice (made evident in the most recent reports by the Office of the Commissioners of the Supreme Court) (ICDS 2012), and effectiveness in being able to deliver good nutrition where needed the most. The ICDS Scheme is still being implemented as a scheme that provides food and take-home rations to communities in many states, and its great potential as an Early Childhood Care and Education initiative has not been explored to the fullest extent. Given that it reaches almost ~~eight crore~~ 800 million children under 6 years of age and ~~1.8 crore~~ 18 million pregnant and breastfeeding mothers through a network of ~~12.96 lakh~~ almost 1.3 million operational *anganwadi* centers across India, the ICDS Scheme’s reform and restructure are essential.

The change now needed is to build a localized response through decentralization and flexibility in implementation, besides focusing more sharply on children under 3 years of age (ICDS Inter-Ministerial Group 2011). In addition to the ICDS Scheme, several other policy and program interventions are available and are being used—albeit suboptimally—for the purpose of reducing the burden of undernutrition in the country. It is evident, however, from the dimensions of the burden that much remains to be done, particularly if action has to be accelerated.

Locating the game-changers that can catalyze this spurt of effective action for tackling undernutrition in India is fundamental to Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India (POSHAN), a collaborative initiative (2011–2015) led by the

International Food Policy Research Institute with its partners, the Public Health Foundation of India (PHFI), and the Institute of Development Studies–Sussex. The goal of POSHAN is to support and strengthen policy and program decisions and actions for the reduction in maternal and child undernutrition in India through an inclusive process of evidence synthesis, knowledge generation, and knowledge mobilization. This goal rests on the well-understood knowledge-to-action system, where the effective mobilization of credible knowledge has been shown to directly encourage positive action with critical impact on developmental issues. Operationalizing such a process requires a knowledge mobilization strategy, which, in turn, requires a greater understanding of the contextual framework. Toward this end, all POSHAN partners undertook specific inception activities—assessments of the nutrition landscape in India related to the current policy and program environment in the country, actor/stakeholder perspectives, and available opportunities with existing or potential knowledge networks.

This national policy review was undertaken by PHFI as part of the policy landscape assessments under POSHAN. The overall objective of this policy review was to assess the policy environment before building perspectives on knowledge flows and mobilization for better decisionmaking. This was done by

- appraising the Indian policy landscape in terms of available policy-level enablers for the direct essential actions to tackle undernutrition, and
- mapping the use of evidence in policy formulation and its presentation so as to better understand the sources, flows, and end points of knowledge

This in-depth desk review of ten national policies and guidelines and nine strategic documents and reports sought to understand what kind of evidence (using the broad definition of *evidence* to include facts and information from datasets and surveys, knowledge generated through research and experiential learning at national and global levels, expert advice collated through working groups and task force activities) has been used to design policy and program instruments that are then used for programmatic action on tackling undernutrition. Furthermore, how this evidence has been used and presented in the policy writing and archiving process was also analyzed. An initial list of 25 policies and strategic documents was selected, and a further short list was prepared for final review (Table 1).

TABLE 1. LIST OF POLICIES AND DOCUMENTS REVIEWED FOR POSHAN

Policies	Strategic documents and reports
National Nutrition Policy (1993)	National Plan of Action for Children (2005)
National Health Policy (MoHFW 2002)	Report of the Working Group on Integrating Nutrition with Health (Eleventh Five Year Plan 2007–2012)
Policy on Infant and Young Child Feeding (2004)	Five Year Strategic Plan (2011–2016) “Toward A New Dawn” (MoWCD)
Policy on Control of Anemia (MoHFW 2004)	Working Group on Food and Nutrition Security, Planning Commission (2006)
Policy on Micronutrient Vitamin A (MoHFW)	Recommendations for a Reformed and Strengthened ICDS (NAC 2011)
Guidelines for Administration of Zinc Supplements (Diarrhea Management; 2007)	Draft Policy Note on Nutrition & Health (submitted to MoHFW, 2007)
National Iodine Deficiency Disorder Control Programme (1992)	ICDS & Nutrition in the Eleventh Five Year Plan
Operational Guidelines on Facility-based Management of Children with Severe Acute Malnutrition (2011)	Report of the Inter-Ministerial Group on ICDS Restructuring (2011)

Policies	Strategic documents and reports
Operational Framework for Weekly Iron-Folic Acid Tablets to Adolescent Girls (2011)	Report of the Working Group on Nutrition for the Twelfth Five Year Plan (2012–2017)
Provision of Supplementary Nutrition to Women and Children under the ICDS Scheme	

Note: ICDS = MoHFW = Ministry of Health and Family Welfare; MoWCD = Ministry of Women and Child Development; NAC = National Advisory Council.

The review is based on the following key questions:

1. How is evidence used for policy formulation and what kind of evidence is used?
2. How does the policy or document record this use of evidence?
3. Is sufficient priority accorded to the direct, essential actions to combat undernutrition?

This report summarizes all the findings of the review that was conducted over a 6-month period in 2012, placing it in the context of the macro-policy environment in India in which decisions have been, and are being, made to tackle undernutrition. An effort has been made to present the findings in such a way that the review and policy assessments can help strengthen the overall enabling environment that is required to fast-track action in India on undernutrition.

KEY CONCLUSIONS

Strengths of the Policy Environment

1. **The commitment to tackle undernutrition is reflected in the policy realm with growing prioritization and an intensification of focus.** The historical background of nutrition-related policymaking in India reveals progressive prioritization to tackling undernutrition as a public health challenge since the 1940s, with several specific policies, programs, and the Five Year Plans of the country committing to action. A significant number of policies and strategic reports address major areas of public health nutrition need, policy focus, and program action-related principles and guidelines.
2. **The rationale for policy decisions has been frequently backed by specific or generic evidence.** Most policies and guidelines are strong on use of evidence. Across the span of policymaking, data, evidence, and knowledge have informed the process, although in diverse ways and to varying degrees. This practice has been followed for the development of nutrition-specific policies and strategic documents and in the development of the Five Year Plans. Global and Indian perspectives have been used to identify core issues that impact nutrition.
3. **Diverse sources of evidence exist and are being used, and knowledge is being mobilized from multiple sources.** Over the last seven decades, evidence from diverse sources has been used for nutrition-related policy formulation, including global knowledge-sharing platforms, such as international conferences, as a means of utilizing international developments and research, recommendations of working and expert groups and task forces, epidemiological surveys and data, and commissioned research. The most common sources have been survey data. The most popular survey data sources are those from the National Family Health Surveys (NFHS)—rounds I to III between 1992 and 2006, and survey data from the National Nutrition Monitoring Bureau (NNMB) and the National Sample Survey Organisation (NSSO). Institutions like the National Institute of Nutrition (NIN) and networks like the Coalition for Nutrition Security are also hubs of knowledge. There has been a trend to flag key global findings and to commission Indian research on technical and operational issues to corroborate and contextualize them for the purpose of taking action.

4. **There is substantial focus on direct, essential actions within policy documents.** In the last few years, there has been significant global emphasis on the 14 essential actions based on the recommendations of *Lancet* 2008, Coalition for Sustainable Nutrition Security in India 2010, and World Bank 2011b. There are policies in support of most of these essential actions.
5. **Multisectoral action is a central theme in the modern macro-policy environment.** The need for multisectoral action (also referred to as indirect actions or convergence) to tackle undernutrition is consistently prioritized, and best practices, especially innovative, experimental schemes across different states, form key evidence for action. For instance, the Ninth and Tenth Five Year Plans have documented several innovative experimental schemes from many Indian states as evidence for convergent action. Key areas for convergence include the economic empowerment of women; food security; food and civil supplies, including the Public Distribution System; and improving access to primary healthcare. The Eleventh Five Year Plan mentions the Mahatma Gandhi National Rural Employment Guarantee Act for income generation and community involvement as essential to effectively deal with undernutrition. The Twelfth Five Year Plan also has comprehensive references on convergence to the Working Group with the National Rural Health Mission and the *Sarva Shiksha Abhiyan*.
6. **Policy formulation processes are systematic and policy revisions are active.** The nutrition policy landscape, as with many other developmental governance agendas, is characterized by continued attention to policy design, active orchestration of technical and expert inputs, and policy revisions as and when required. A number of policies reviewed have revised versions and amendments as addenda, so as to address current issues and evidence that arise.

Challenges and Opportunities for Reform in the Policy Environment

1. **Evidence of evidence use is often missing.** This review has identified a primary challenge in the policy landscape—locating the evidence used during policy formulation is not always possible. This is because the formulation process does not ensure sufficient attention to documenting the evidence used in a systematic way so that it is apparent. Clear mention of evidence is often not in the policy document per se, nor is there direct citation of specific evidence. As a result, any policy review that searches for evidence used must include a simultaneous search for the background documentation used for each policy. Going forward, it would be useful for policymakers and their technical support groups to pay greater attention to recording the exact evidence used, employ systematic methods of referencing this evidence, and provide complete background documents attendant to each policy.
2. **The lack of regular and recent survey data is evident.** With the third and last NFHS providing data relating to 2005–2006, it is already half a decade since fresh information was collected on the same indicators. Considering that so much hinges on the NFHS, as evident from this policy review, regular, systematized, and pan-public health surveys providing periodic epidemiological and other updates are a high priority for India. In a similar vein, the NNMB and NSSO surveys need greater coverage (both geographically and in terms of indicators) and greater regularity of implementation. The Annual Health Survey has limited coverage and goals. Apart from national- and state-level survey data, there is a need for district-level information on nutrition to facilitate program implementation and focused community outreach.
3. **Many policies, many formats.** Variable policy formats that are followed, and there is lack of consistency in policy structure. Some are complex, thinking pieces that address the issue at hand in extensive detail (such as the National Nutrition Policy of 1993), while others are closer to a set of guidelines regarding appropriate action or a catalog of options for individual and community behavior. This variability is a barrier to systematic policy-driven action because it dilutes the real definition of a *policy*.

4. **The practice of using program implementation and evaluation data and information from the field as evidence is infrequent and lacking.** Among the different kinds of information and knowledge used as evidence, a major gap is noted in the use of program implementation-related data and knowledge. The use of evidence gathered through monitoring and evaluation exercises, operational research that focuses on program implementation gaps and barriers, and other field-level knowledge is insufficient. This is a serious gap because most of the limitations of India's response to tackling undernutrition are in the field and at operational levels of programs, cutting across financial, technical, infrastructural, human resource-related, and programmatic efficiency and management. While operational research is commonly being conducted, and evaluations are many, the hard evidence from these efforts needs to move to center stage into the policymaking arena if a difference is to be made in the outcomes of the manifold nutrition programs.
5. **There is a gap in evidence of policy implementation.** Considering that multiple policies have been formulated and rolled out over the last several decades, scant attention has been paid to gathering evidence of effective policy implementation. This is particularly important because many major policy guidelines are repeated in multiple policies, and whether they have been implemented according to the policy commitment is highly relevant to program efficiency. Evidence relating to prior policy implementation is critical because it provides an insight into the realization of policy commitments as concrete action on the ground, which, in turn, affect outcomes. The evidence of policy action, therefore, is a key gap and needs to be addressed. A major example of this gap is that the establishment of a National Nutrition Council was a major policy recommendation of the National Nutrition Policy in 1993, but it was finally realized only in 2011 (India–MHRD 1993).
6. **Strengthening institutional mechanisms within the policy formulation environment is a major need.** While formulation processes are continuous, active, and systematic, they lack adequate documentation of past policy processes and a rich archive of all past activities related to core issues. Multiple policies and strategic documents seem to have overlapping goals and targets, and offer similar recommendations. Current policies are unable to refer to past policy experiences on similar issues as a key learning resource going forward.

This review has clearly revealed that there is recognition within the policymaking leadership that nutrition is a core public health issue that needs to be addressed at multiple levels—this is evident from the large number of policy and strategic documents on diverse issues related to reducing undernutrition. It is beyond doubt that political will at the highest levels has been mobilized, but it is also clear that progress from commitment to action has been slow and is complicated by many management and program-related issues. There is enough evidence and knowledge available on the direct, essential actions and many other priorities. Continuous new research focused on key gaps revealed by this review can also add to the pool of knowledge and contribute to positive outcomes. There are gaps in the use of evidence to guide implementation and the understanding of ways in which knowledge mobilization can help operationalize program guidelines and interventions to help providers and communities deal with undernutrition. A greater mobilization of existing knowledge, along with generation of new knowledge on a continuous basis and its more systematic and institutionalized availability, can improve the efficiency of policies and programs on the ground.

This is a favorable time to be pushing for such action. As Prime Minister Dr. Manmohan Singh said in his speech on India's 65th Independence Day on August 15, 2012:

“Our children are the biggest strength of our country. If our children are provided with good education and are healthy, then our future would be bright. This is the reason why we have paid special attention to the needs of children in our policies and programmes The Mid-day-meal Scheme provides nutritious meals in schools for about 12 crore children every day. This is the biggest scheme of its kind in the world.”

1. Introduction

Undernutrition is among contemporary India's foremost public health challenges. Of all the children under age 5 who die each year, at least half of the deaths are attributed to undernutrition. While policymakers have held forth on the curse of undernutrition, the time has come to act dedicatedly and unflinchingly on the measures that can dramatically reduce morbidity and mortality from undernutrition. This is now an imperative, as after 65 years of independence, large numbers of malnourished people still continue to exist in India. Considering the number of policies, strategies, action plans, and programs that have been conceptualized, resourced, and implemented during these decades to combat undernutrition, serious thought must now be given to see what needs to be done differently to ensure that the high levels of undernutrition be reduced drastically and rapidly.

In early March 2013, a performance audit of the Integrated Child Development Services (ICDS) Scheme, conducted by the Comptroller and Auditor General of India, was tabled in the Indian parliament (ICDS 2012). The report has brought out infrastructural shortfalls, quality issues, a shortage of staff and key functionaries, a greater than 40 percent gap in the number of beneficiaries identified as compared with those actually receiving supplementary nutrition, the diversion of funds to activities not permitted under the scheme, and many other details. However, the report makes the optimistic observation that through the proposed reform and restructure of the ICDS Scheme as proposed in the Twelfth Five Year Plan and the execution of activities in a mission mode, several irregularities may be set right (India–MoWCD 2011b). Doubtless, this is an imperative, given the high levels of undernutrition in the country.

Each time the country has undertaken efforts to bring in systemic reform, the need for mobilization of actionable and credible evidence for the purpose of resolving outstanding challenges related to reducing undernutrition comes into focus. The role of credible knowledge has received scant attention in the past, despite being acknowledged as a critical game changer in any transformational agenda. The availability of such knowledge can often effectively address inaction by helping key stakeholders to do something that can make a significant difference to a complex and unchanging barrier or problem. In the case of undernutrition in India, not enough deliberation has gone into making such knowledge regularly and abundantly available so as to facilitate effective and impactful decisionmaking, be it in the policymaking or program implementation domain. For this purpose, it is important to analyze the nutrition landscape to uncover these gaps, so that they can be addressed.

This report is the result of a landscape analysis of nutrition-related policies in the country, meant to generate new knowledge about patterns of evidence use in policymaking processes. It is an in-depth desk review of relevant policies, strategic reports, and documents of the Government of India, undertaken in 2012 as part of the first phase of activities under Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India (POSHAN), a project led by the International Food Policy Research Institute in partnership with the Public Health Foundation of India (PHFI) and the Institute of Development Studies–Sussex. The review maps the emergence of various nutrition and nutrition-related policies in India, with a specific focus on how each one has used existing evidence to respond to the overall socioeconomic situation and urgent nutrition priorities.

The health policy environment has been described as a complex array of cross-border, interorganizational, and network relationships where policies are influenced by both global decisions and domestic actions (Walt et al. 2008). The ways in which decisions “emerge,” rather than taking place at a single point in time, and the long-term nature of policy development and implementation, capturing key actors, policy processes, and resources, are difficult (Walt et al. 2008). This report is the result of a process meant to develop this understanding with regard to the nutrition policy environment in India, with the larger aim being to understand past policy-related successes and failures and to help plan for future policy recommendations and implementation.

Specifically, the review has tried to study the use of evidence in policy formulation and other policy-related developments in India and other countries that led to policy and program action in India. The methodology is described in detail later in this report, but the main lens used to review each policy is the use of available evidence and knowledge to provide the rationale for policy decisions as articulated, with particular reference to the essential, direct actions that are now globally accepted as the way forward if success is to be achieved in reducing undernutrition in children under 2 years of age (Box 1).

BOX 1. DIRECT, ESSENTIAL ACTIONS REQUIRED FOR REDUCTION OF UNDERNUTRITION AMONG CHILDREN UNDER 2 YEARS OF AGE

1. Timely initiation of breastfeeding within 1 hour of birth.
2. Exclusive breastfeeding during the first 6 months of life.
3. Timely introduction of complementary foods at 6 months.
4. Age appropriate complementary feeding, adequate in terms of quality, quantity, and frequency for children 6–24 months.
5. Prevention of anemia.
6. Safe handling of complementary foods and hygienic complementary feeding practices.
7. Full immunization.
8. Reducing vitamin A deficiency.
9. Reducing the burden of intestinal parasites.
10. Prevention and treatment of diarrhea.
11. Timely and quality therapeutic feeding and care for all children with severe acute malnutrition.
12. Improved food and nutrition intake for adolescent girls, particularly to prevent anemia.
13. Improved food and nutrients intake for adult women, including during pregnancy and lactation.
14. Prevention and treatment of malaria.

Source: Compiled based on recommendations from *Lancet* 2008, Coalition for Nutrition Security in India 2010, and World Bank 2011b.

It is evident that the Indian policy response to the status of undernutrition in the country has unfolded against the broader framework of the state of human development in the country and several geopolitical, financial, and social factors that have influenced this. The results of this review must be analyzed and weighed against this complex background.

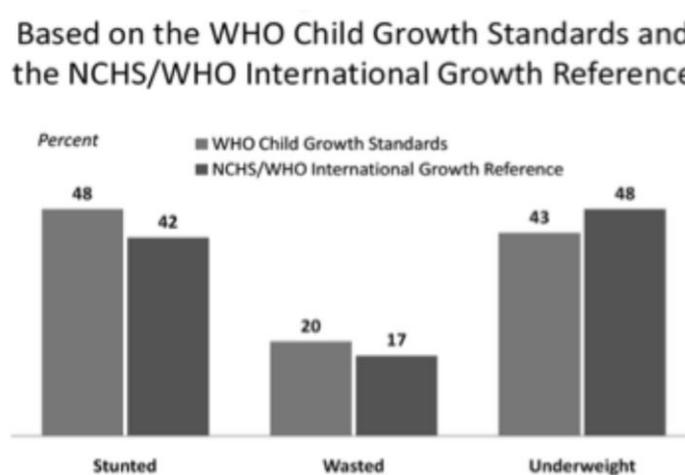
UNDERNUTRITION IN INDIA: THE GLARING GAP

While India has made great strides as an economic superpower, with an impressive growth rate in the last several years, the nutrition scenario in the country has remained discouragingly stagnant, with extremely slow rates of improvement and a continuing high burden of undernutrition (Figure 1). In fact, nutrition inequalities across different states and socioeconomic groups are large and growing. According to the last survey results available from the NFHS-3, 46 percent of children under 3 years of age were underweight as of 2005–2006 (Arnold et al. 2009). The NFHS-3 also pointed to just a marginal annual reduction of 0.5 percent in the number of underweight children in 6 years. The 2009 United Nations Children’s Fund (UNICEF) Report on Tracking Progress on Child and Maternal Nutrition states that of the 195 million stunted children under 5 years of age in the developing world, 90 percent live in Asia and Africa, 80 percent of the stunted children live in 24 countries, and 5 of these countries (including India) contribute to 50 percent of the global child stunting prevalence rate (UNICEF 2009). Levels of undernutrition in India declined to some extent in the 1990s, but the reduction was much slower than in other countries with similar economic growth rates (World Bank 2006).

According to NFHS-3 data, 47 percent of children under 3 in India were underweight and 18 percent were severely underweight. Further, 26 percent were slightly underweight, amounting to almost three-quarters of Indian children as underweight (Arnold et al. 2009). Nutritional deficiencies in India are evident right from the time of birth, and stunting and underweight rise rapidly in the first 2 years of life. Other facts are equally disturbing:

- The proportion of stunted children rises sharply from 0 to 20 months of age, peaking at 59 percent, fluctuating thereafter between 48 percent and 60 percent.
- The proportion of children who are underweight also rises rapidly for the first 20 months of life to 47 percent. At older ages, the proportion of underweight children has a similar pattern of fluctuation as observed for stunting, but at a lower level.
- The proportion of children with symptoms of wasting rises from 24 percent in the first month of life to 32 percent at the age of 1 month, and generally declines thereafter. About one out of every six children age 38–57 months is wasted. The decline in wasting with age is a result of the more rapid increase in stunting than in underweight with increasing age.
- NFHS survey data indicate that the first 2 years of life is a critical period in the growth and development of children, but it is clear that nutritional deficiencies generally worsen during that period (Arnold et al. 2009).

FIGURE 1. MALNUTRITION AMONG CHILDREN UNDER 5 YEARS OF AGE IN INDIA AS OF 2006



Source: Arnold et al. 2009.

Dealing with undernutrition is obviously an urgent national priority in view of the implications it has for overall health and development of children in India. Given that even mild malnutrition is linked to a twofold increase in mortality, and to much lower productivity levels, these levels of undernutrition significantly compromise the health and productivity of large sections of the Indian population. Physical retardation, increased vulnerability to diseases through childhood and adulthood, impaired cognitive and motor development, and limited educational accomplishments are major characteristics of the overall burden of ill health caused, and reduced productivity perpetuates poverty.

Undernutrition often occurs before the birth of a child. About one-third of newborns are low birth weight (LBW), and the association between LBW and undernutrition is significant, including that of mothers. More than one-third (36 percent) of all women in India age 15–49 are undernourished, with a body mass index of less than 18.5. Employed women are much more likely than unemployed women to have chronic deficiency, reflecting the significance of the increased energy cost of the work women have to do (Arnold et al. 2009).

Another major challenge that India faces is extremely high levels of micronutrient deficiencies. Often called “hidden hunger” and related to the lack of access to foods rich in micronutrients, since they

are also unaffordable (pulses, vegetables, fruits, and meat products), this gap in the provision of key vitamins, iron, zinc, calcium, and iodine can have a serious negative impact on long-term development (Saxena 2008). Although India's Tenth Five Year Plan recognized the importance of micronutrients and included many of the interventions required in the country to address micronutrient deficiencies, access to essential vitamins and minerals, particularly for the country's poor, remains suboptimal (India–PC 2002). Calorie intake data from the National Sample Survey Organisation (NSSO) showed how at any given point in time, the calorie intake of the poorest quartile continues to be 30 to 50 percent less than the calorie intake of the top quartile of the population, despite the poor needing more calories because of harder manual work. The data also show higher reliance of the poor on cereal-based calories because of a lack of access to fruits, vegetables, and meat products.

Undernutrition has an adverse impact on all stages of the life cycle, but some of the most damaging effects occur from conception to 24 months of age. Besides contributing significantly to child mortality, irreversible brain damage occurs in this period of life. There is documented evidence that the problem of being underweight sets in most frequently between 9 and 11 months when the child needs to be fed adequately and appropriately and is also exposed to frequent episodes of infection and diarrhea. In India, 0–2 years is the period of highest prevalence of underweight and stunting in children; therefore, preventive measures need to address children under 2 years. Moreover, prevention of undernutrition during this period also requires initiatives to ensure children are born healthy and with adequate weight. Therefore, program actions are required for ensuring that women enter pregnancy healthy, well nourished, and armed with information about appropriate childcare practices.

THE CASE FOR ACTION

The Twelfth Five Year Plan (2012–2017) of the Planning Commission for the Government of India states a clear case for action—that of a vision to move toward nutrition security, for infants, young children, adolescents, and women, in particular. It thereby seeks to position children at the center of the nation's development agenda, recognizing nutrition as a critical tool for this vision to be achieved (India–MoWCD 2011b). There is a lingering sense that nutrition is not being prioritized enough, resourced enough, and still not fully on the political agenda.

The Lancet's Series on Maternal and Child Undernutrition 2008 articulated a golden interval for intervention: from pregnancy to 2 years of age. The reason for this was clear, because undernutrition would have caused irreversible damage by the age of 2, impairing the child forever as she or he progressed toward adulthood. Thus, the first 1,000 days of life are viewed as the most critical window of opportunity to undertake preventive measures to tackle undernutrition (Horton 2008). The series also set out how maternal and child undernutrition is the underlying cause of 3.5 million deaths, 35 percent of the disease burden attributable to children younger than 5 years, and 11 percent of total global disability-adjusted life years. Other causes of disease burden are vitamin A and zinc deficiencies, iodine and iron deficiencies, and suboptimum breastfeeding (especially nonexclusive breastfeeding in the first 6 months of life). Suboptimal breastfeeding results in 1.4 million deaths and contributes to 10 percent of the disease burden in children younger than 6 years.

Several interventions that influence maternal and child nutrition and nutrition-related outcomes have been reviewed in another article of *The Lancet* series (Bhutta et al. 2008). These include promotion of breastfeeding, strategies that promote complementary feeding (with or without food supplements), micronutrient interventions, general supportive strategies to improve family and community nutrition, and the reduction of the disease burden (promotion of hand washing and strategies to reduce the burden of malaria in pregnancy). Management of severe acute malnutrition (according to World Health Organization [WHO] guidelines) reduced case-fatality rates by 55

percent.¹ One study reports that interventions on mothers and children in 36 countries where 90 percent of the children have stunted linear growth reduced stunting at 36 months by 36 percent.

It has been noted that to eliminate stunting in the long run, interventions should be supported by improvements in the underlying determinants of undernutrition, such as poverty, poor education, disease burden, and lack of women's empowerment. Nutrition counseling (especially in relation to breastfeeding and supplementation) and conditional cash transfers also have the potential to reduce stunting and the burden of disease. Data from the National Nutrition Monitoring Bureau (NNMB) in 2006 indicate that in addition to LBW, faulty breastfeeding and poor complementary feeding habits increase the prevalence of undernutrition among 0–6-month-old infants (26 percent) and reach 39 percent in 12–23-months-old children (India–MoWCD 2011b).

There have been multiple calls for nutrition to become a national and subnational priority and be supported by policies that address poverty, trade, and agriculture, since these developments have been associated with rapid improvements in nutrition. An assessment of actions that have addressed undernutrition in countries with the highest burden of the problem showed that if interventions and actions supporting nutrition in these countries are accelerated, they can meet Millennium Development Goals (MDGs) 4 and 5 (Bryce et al. 2008). Key challenges cited were making nutrition a priority and keeping it there, taking effective action, acting at scale, reaching those in need, using data-based decisionmaking, and building strategic and operational capacity. The period from pregnancy to 24 months was identified as a crucial window of opportunity for reducing undernutrition and its adverse effects, and program efforts, including monitoring and assessment, should focus on this segment of the continuum of care.

A World Bank report that discusses the rationale for countries to invest in nutrition cites studies examining the productivity losses associated with foregone wage employment resulting from child malnutrition (World Bank 2005). The estimates of loss are as high as US\$2.3 billion (or Rs 103 billion). Other studies cited suggest that micronutrient deficiencies alone may cost India US\$2.5 billion annually, and that the productivity losses (manual work only) from stunting, iodine deficiency, and iron deficiency together are responsible for a total productivity loss of almost 3 percent of gross domestic product (World Bank 2005).

The India Micronutrient National Investment Plan (Laviolette et al. 2007) was prepared as part of an advocacy strategy to increase awareness among key decisionmakers in India of both the magnitude of micronutrient malnutrition and the remarkably low cost of available and effective solutions. The investment plan was intended to increase government and private-sector commitment and enable larger financial allocations that would accelerate progress toward freedom from hidden hunger and the directly related MDGs. The plan, which calls for an estimated additional investment of US\$128–161 million (Rs 5,770–7,250 million) per year in micronutrient interventions to reach 206 million targeted beneficiaries, has been an input for the Eleventh Five Year Plan (India–MoWCD 2006). It demonstrates that the additional resources required to accelerate progress in the fight against micronutrient malnutrition represent a very small fraction of current government allocations to public health and other government budgets.

The Scaling Up Nutrition (SUN) framework for action (World Bank 2011b) states that undernutrition is largely preventable, and that there is evidence to support exceptionally high development returns for a number of direct nutrition interventions. Also, success in addressing undernutrition is essential for both meeting the MDGs and contributing to the human rights relating to health and freedom from hunger. The SUN framework emphasizes country-level action and states that what ultimately will make a difference to undernutrition is what happens in individual countries in terms of implementing nutrition strategies and programs, while drawing on international evidence of good practice. However, ownership and stewardship built on the foundations of country-specific needs and capacities are key to successful interventions. The SUN framework also calls for scaling up

¹ Refer to <http://www.who.int/nutrition/topics/malnutrition/en/index.html>.

evidence-based, cost-effective interventions to prevent and treat undernutrition, with the highest priority placed on the 9- to 24-month window of opportunity “where we get the highest returns from investments” (World Bank 2011b).

This review of national-level policies and guidelines is meant to provide a broad landscape analysis of the policy environment that is currently available to accelerate action for nutrition in India. The policies, programs/schemes and their attendant guidelines, Five Year Plans of the Planning Commission, and other strategic documents and reports point to a clear commitment for action. However, the critical window of opportunity that the first 1,000 days of life provide needs to be optimized, for which it is important to understand the need for greater knowledge mobilization. This review seeks to set out the patterns of use of knowledge in policymaking in the nutrition landscape in India, thereby allowing a clearer analysis for knowledge mobilization.

2. Purpose and Methodology of the National Policy Review

PURPOSE

This in-depth review was undertaken to provide an overview of the key facts related to undernutrition in India: some evidence that establishes the need for India to implement both direct and indirect nutrition interventions; traces events that led to nutrition being included in India's Five Year Plans; and reviews the policies, relevant acts, and guidelines that are related to nutrition policy and program action in India. Thus, the review sought to understand the use of knowledge and evidence to develop nutrition policies and decisions by stakeholders involved in the policy formulation process.

The purpose of this policy review is to

- understand the Indian policy landscape that supports globally accepted essential actions to tackle undernutrition,
- map the use of evidence (therefore, knowledge) in policy formulation and how it is presented and documented, and
- use information to address gaps in the uptake of relevant evidence, with a view to strengthening the policy environment for tackling undernutrition in India (the expected outcome of this review phase).

The rationale for investing in the nutrition of women and children has been recognized by the Government of India, even before the formulation of the Five Year Plans.

METHODOLOGY

This review has followed definitions set by WHO that clarify the difference between the terms *policy*, *strategy*, and *program*. WHO defines a policy as a “written statement of commitment (generally written in broad terms) by a nation state. Strategy may be similar to a policy. Program: provides the detail of the implementation of the action plan; with specific projects defined within a program” (WHO 2010).

Table I in the Executive Summary presents the list of documents reviewed. The review involved content analysis of policies and strategy documents relevant to addressing undernutrition in India, to understand use of evidence for action. The framework for analysis was

- identification of key themes covered,
- evidence use, and
- focus on essential direct actions and indirect policy instruments to prevent and treat undernutrition.

The documents were selected for review by taking into consideration the fact that they were created as policies, program guidelines, and operational guidelines to facilitate key nutrition actions. Alternatively, there are frameworks for nutrition actions, or there may be defined strategies spelled out as written statements of commitment or course of actions by the Government of India and/or the Ministry of Women and Child Development (MoWCD) or Ministry of Health and Family Welfare (MoHFW).

Broadly, the following themes were used for the review:

- The problem (where stated)
- Objective(s) of the policy

- Essential elements of the policy
- Key evidence and events
- Operationalization of the policy (including limitations and challenges)
- Current status and the way forward

The review sought to map the use of specific evidence and facts for the development of policies, guidelines, and working group reports and recommendations, with a particular focus on how the essential direct actions to accelerate action to tackle undernutrition have been addressed.

3. The Macro-Policy Environment for Tackling Undernutrition in India

HISTORICAL BACKGROUND

Systematic efforts to improve the nutrition situation in India can be traced to a few years before Independence to the Bengal famine of 1943. By the early 1940s, a large quantity of data became available, indicating the extent of nutritional problems. To quote Dr. C. Gopalan, former director-general of the Indian Council for Medical Research, former director of the National Institute of Nutrition, India, and president of the Nutrition Foundation of India: "... this was also the time when India was a veritable museum of frank and florid nutritional deficiency diseases.... Beri-beri, both wet and dry, was rampant along the eastern seaboard, accounting for much morbidity and mortality. Classical pellagra was common among the sorghum eaters in the south-central Deccan region. Kwashiorkor and keratomalacia in children were major public health problems, especially in the south and east of the country" (Gopalan 2010).

With the establishment of the National Institute of Nutrition (earlier known as the Nutrition Research Laboratories), clinical or medical measures were introduced to reduce the prevalence of nutritional deficiencies of specific nutrients, such as B vitamins. However, in the early years, all action was directed toward individuals with malnutrition. The concept of prevention and the importance of the community were either unknown or inadequately acknowledged. Therefore, it is not surprising that nutrition programs during this period were mostly concentrated in hospitals or health centers and were directed toward the treatment of malnutrition. The health program consisted mostly of distribution of vitamin tablets. During this phase, even the First Expert Committee on Nutrition of the Food and Agriculture Organization of the United Nations (FAO/WHO) recommended that developing countries should be assisted to produce synthetic multivitamin tablets (Bagchi 1981).

The lessons learned from this period were that malnutrition is a community problem and that an individual approach of diagnosis and treatment will not even touch the fringes of the problem. Moreover, there was increasing recognition of the fact that the causes of malnutrition do not lie within the purview of the health sector alone and that other measures outside the health sector are also necessary.

During the late 1940s, there was a shift in program strategy. Food production became the central focus. A new emphasis on protein or protein crises was considered the most critical solution for reducing undernutrition. Measures like fortification of wheat with amino acid (such as lysine) to improve the protein quality of wheat flour, production of protein-rich weaning foods, and extraction of protein from leaf and algae gained momentum. By the late 1970s, the emphasis shifted from addressing the protein gap to the calorie gap in the diets of children in developing countries. Development plans directed investment primarily for increasing production of cereals, such as wheat and rice. India's Green Revolution efforts resulted in accelerated cereal production and subsequently in a movement toward food sufficiency.

THE CURRENT CONTEXT: INTERNATIONAL AND NATIONAL POLICY EVENTS OF SIGNIFICANCE

The Indian policy landscape has always been responsive to various international developments. The post 2015 development agenda of the United Nations (UN), as a follow-up to the MDGs reaching their deadline in 2015, clearly places food and nutrition security as issues to cover. India became a signatory to the MDGs in September 2000. Setting out a series of time-bound targets to be achieved by 2015, MDG 1 refers to the eradication of extreme poverty and hunger, with two targets:

- halve, between 1990 and 2015, the proportion of people whose income is less than US\$1 a day; and
- halve, between 1990 and 2015, the proportion of people who suffer from hunger.

Improving the nutrition of women and children is recognized as central achieving most of the MDGs.

A global policy on food and nutrition after the 1974 World Food Conference placed emphasis on food production as the solution to world hunger. Then a number of global directions (e.g., emphasis on the food access issue pertaining to food security in the 1980s, complemented by concerns related to food entitlement in the 1990s), and of global events (e.g., the 1979 Convention on the Elimination of all Forms of Discrimination Against Women, the 1989 Convention of the Rights of the Child, the World Summit for Children in 1990, the Hidden Hunger Conference of 1991, and the International Congress on Nutrition in 1992) led to increased attention in India on the aspects of malnutrition, especially improving household food security and micronutrient malnutrition and promoting breastfeeding.

In another instance of global developments resulting in an Indian policy, at the International Conference on Nutrition in 1992, WHO and FAO called all developing countries to formulate a National Nutrition Policy (NNP). India, which had already initiated actions in the early 1980s, adopted its NNP in 1993. In fact, India was one of the first developing countries with an NNP in place. In 2002, WHO and UNICEF jointly developed the Global Strategy for Infant and Young Child Feeding, thus drawing international attention to the impact that feeding practices have on the nutritional status, growth and development, health, and overall survival of infants and young children. The Global Strategy was endorsed, by consensus, on May 18, 2002, by the 55th World Health Assembly, and on September 16, 2002, by the UNICEF Executive Board (WHO/UNICEF 2003).

Despite the articulation of the NNP early on in India, the overall issue of undernutrition received very little attention in the post-NNP phase, except for increased attention to the supplementary feeding component of the ICDS Scheme. Various measures were taken to ensure universal access to iodized salt and effective operationalization of the revised policy guidelines of the early 1990s, such as those for addressing anemia and vitamin A deficiency through innovative strategies linked to MoHFW's Reproductive and Child Health (RCH) Programme. Despite these developments, efforts to integrate health and ICDS activities as well as to develop monitoring mechanisms to measure outcomes and impact remained weak, and undernutrition remained a low political priority and an insignificant development issue.

In the 1990s, various measures introduced to reduce malnutrition were equated with hunger and poverty. Provision of nutrition supplements to children under 6 years of age through the ICDS network remained the highest priority, despite the fact that mere provision of food in the absence of active feeding and high incidence of gastroenteritis and diarrhea would have limited impact.

Politicians as well

as policymakers remained attached to the view that the universalization of the ICDS Scheme “with quality” within the country was a major solution for undernutrition.

Following the confirmation from NFHS-3 survey data of 2005–2006 of the persistence of malnutrition in the country, a number of efforts have been undertaken to develop an optimal strategy to ensure rapid improvement of the nutrition status of women and children (Arnold et al. 2009). Meanwhile, based on global evidence, *The Lancet* 2008 nutrition series short listed high-priority, direct nutrition actions (Box 2) (Bhutta et al. 2008). This was the first time an internationally acknowledged, peer-reviewed journal was doing so, listing actions that, if universally covered, would reduce the prevalence of undernutrition by at least one-third. In 2009, the World Bank also conducted an estimation of the cost of scaling up nutrition programs in 36 high-burden countries, based on a set of 13 interventions, supported by the latest scientific evidence (World Bank 2009).

Box 2. EVIDENCE-BASED DIRECT INTERVENTIONS TO PREVENT AND TREAT UNDERNUTRITION**Promoting good nutritional practices (\$2.9 billion^a)**

- Breastfeeding
- Complementary feeding
- Improved hygiene practices, including hand washing

Increasing intake of vitamins and minerals—provision of micronutrients for young children and their mothers (\$1.5 billion^a)

- Periodic vitamin A supplements (excludes neonates^b)
- Therapeutic zinc supplements for diarrhea management
- Multiple Micronutrient Powder^b
- Deworming drugs for children
- Iron folic acid supplements for pregnant women
- Salt iodization (iodized oil if iodized salt not available)
- Iron fortification of staple food

Therapeutic feeding for malnourished children with special foods (\$6.2 billion^a)

- Prevention or treatment of moderate undernutrition^b
- Treatment of severe undernutrition with ready-to-use therapeutic foods

Sources: *The Lancet* 2008; World Bank 2011b SUN framework.

^a The projection costing study cited in the *Scaling Up Nutrition* document estimates that the cost of coverage for 100 percent of the target population is unlikely to exceed effective coverage for 90 percent (World Bank 2011b). The estimate covers 36 countries (also covered by *Lancet*), accounting for 90 percent of cases of undernutrition.

^b These three interventions are not included in the 2008 *Lancet* series, but are mentioned in the World Bank 2011b SUN framework.

Further, a study carried out by the World Bank in 2009 examined the programmatic feasibility and cost-effectiveness of these key interventions (World Bank 2009). Based on the study, 13 highly cost-effective interventions were identified (Box 2). Both *The Lancet* series and the World Bank report recommended that the primary focus should be on the “window of opportunity”—i.e., focusing on children under age 2 and maternal malnutrition. Box 1 in the Executive Summary summarizes key evidence from these studies to support the fact that direct nutrition interventions help address undernutrition.

The following key challenges for addressing undernutrition at the national level were also identified:

- According government priority.
- Focusing on doing the right actions (*those interventions that have a strong evidence base*).
- Ensuring not selecting and implementing the “wrong” interventions (*interventions that either are not proven or have been shown to be ineffective*).
- Acting at scale.
- Reaching those in need.
- Using data-based evidence for decisionmaking.
- Building strategic and operational capacity (Bryce et al. 2008).

The Coalition for Sustainable Nutrition Security, comprising policy and program leaders, was formed in 2008. The coalition is committed to raising awareness, fostering collaboration, and advocating for improved programs to achieve nutrition security in India. The coalition identified evidence-based high-impact, cost-effective, direct country-specific nutrition interventions with the greatest potential to reduce rates of undernutrition among infants and young children (0–23 months) in the country. Six overarching recommendations and ten essential interventions to reduce malnutrition were

identified under the coalition’s Leadership Agenda for Action (Box 3). The emphasis was on continuum of care and measures for integrated prevention and treatment.

BOX 3. COALITION FOR NUTRITIONAL SECURITY IN INDIA—LEADERSHIP AGENDA FOR ACTION

Overarching recommendations

- Focus on proven, essential nutrition and primary health care interventions.
- Promote personal hygiene and environmental sanitation, including drinking water and food safety.
- Integrate household food and nutrition security consideration into programs and government missions.
- Expand and improve nutrition education, involvement, and accountability at the community level.
- Convert the unique to the universal (scale up proven success).
- Build institutional structures for coordinated action in nutrition from the *panchayat* up to the state and national levels.

Essential interventions to reduce malnutrition in infants and young children

- Early initiation of breastfeeding.
- Exclusive breastfeeding.
- Timely introduction of complementary feeding and continued breastfeeding.
- Age-appropriate complementary feeding.
- Safe handling of complementary feeding, including washing hands, avoiding feeding bottles, cleaning utensils.
- Full immunization and biannual vitamin A supplementation and deworming for children 6–59 months.
- Active feeding during and after illness. Oral rehydration with zinc supplementation during diarrhea.
- Therapeutic feeding for severe acute malnutrition cases.
- Improved nutrition care of adolescent girls, including weekly iron folic acid supplements, biannual deworming, and measures to prevent early marriage and pregnancy.
- Improved food and nutrient intake for adult women, including during pregnancy and lactation.

Source: Coalition for Sustainable Nutrition Security in India, Overview of the Leadership Agenda for Action, p. vi.

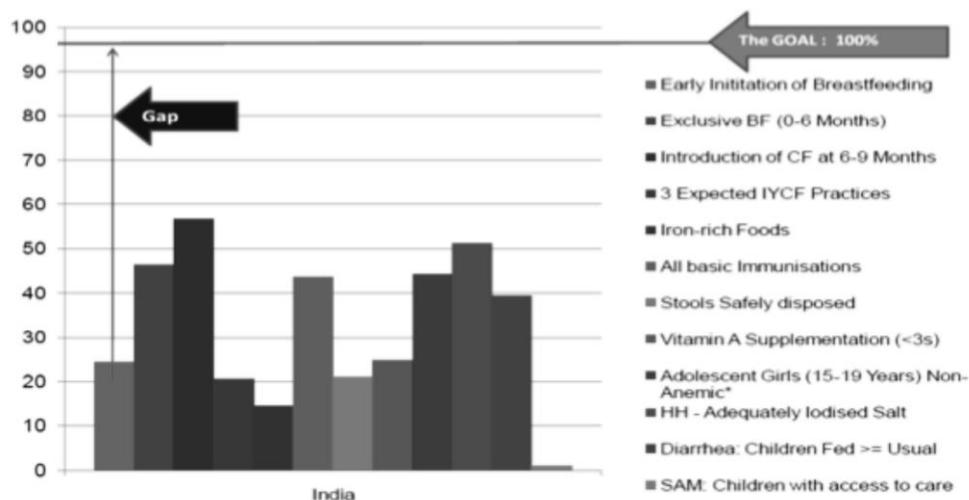
Seven of the ten interventions identified and advocated for pertain to child feeding actions in various situations, ranging from normal conditions to therapeutic care of children with severe acute malnutrition. The remaining actions pertain to maternal and child health services, such as full immunization with biannual vitamin A supplementation and biannual deworming, anemia prevention and care of adolescent girls, and antenatal care (ANC), including improved food and nutrient intake for women during pregnancy and lactation. Maternal care includes actions to improve access to sufficient quality and quantity of food, iron folic acid (IFA) supplements daily to reduce maternal anemia, and regular use of iodized salt. These actions are an integral part of both the ICDS and the RCH initiatives. The health sector plays an important role in the provision of key services listed under these direct actions, while the MoWCD through the ICDS Scheme plays a leading role in promotion of appropriate child and maternal feeding and care practices and in the supply of free supplementary nutrition.

The interventions recommended by the coalition in early 2010 fall well within the general set of interventions recommended by *The Lancet* 2008 Maternal and Child Undernutrition Series, except for the interventions related to adolescent health and nutrition.

For each of the interventions presented in Box 3, policies are already in place (except a policy with a focus on improving maternal nutrition) in India. This is significant and implies a fairly robust policy and programmatic framework. The implementation of these policies is poor, as evident from the data on gaps in achieving the goals (Figure 2). The challenge is to achieve and sustain universal

coverage of key direct interventions, so as to enable the reduction of malnutrition at least by one-third. There is obviously a need for special efforts to target populations that are most vulnerable (such as the poor, illiterate, those belonging to a scheduled caste or tribe, or those who are geographically isolated).

FIGURE 2. COVERAGE OF ESSENTIAL NUTRITION INTERVENTIONS TO REDUCE STUNTING (NFHS-3, 2005–2006)



Source: Menon and Augayo 2011.

Note: BF = breastfeeding; CF = complementary feeding; IYCF = infant and young child feeding; SAM = severe acute malnutrition.

Although it is established that the time period from pregnancy until the child is 2 years old is of highest priority, the same focus is not always seen in the nutrition policy and program design. For example, the policy for infant and young child feeding (IYCF) refers to children under 2 as the priority group, but in terms of program implementation, the ICDS Scheme continues to focus on children 0–3 years old. The implications of adding children over 2 years of age to the target group needs to be examined. The addition of the over 2 up to 3 years age group in program design implies adding almost 30 percent more children in the target group and thus diluting the use of available resources in reaching the 0–2 age group. Focused attention on children under 2 instead of under 3 would imply a smaller number of individuals and families to be contacted regularly. Such prioritization may lead to greater frequency of contact of ICDS and health frontline workers or community volunteers with families that deserve the highest priority and contribute more effectively in making a difference to beneficiaries.

During the period when the Nutrition Coalition recommendations were being finalized, another global movement on nutrition gained attention in 2009–2010. The Scaling Up Nutrition Framework, originally initiated by the World Bank, involved various United Nations and multilateral agencies. A number of bilateral agencies, including the Department for International Development, have identified the SUN framework as the basis of their policy action. The framework focuses on key interventions and emphasizes the need to scale up actions for children under 2. It stresses principles and priorities for consideration for action for addressing undernutrition, as well as for mobilizing support for increased investment in a set of nutrition interventions across different sectors. Although the SUN strategy has not been formally endorsed by India, most of the key interventions are a part of Government of India policies and are also recommended by the coalition. There is a need to invest concentrated resources and clearly articulate strategies with a high level of government support for scaling up. This is critical for achieving the goal of achieving almost one-third reduction in stunting with over 90 percent coverage.

The role of the two primary sectors, as addressed through the MoWCD and the MoHFW, is evident. Moreover, the essential direct interventions are actually feasible, and the RCH program of India's

primary health care system is designed to reach the most vulnerable sections of the population. Under the RCH program, all pregnant women are expected to be reached for ANC, and all children below 1 year of age are to be contacted for immunization. In fact, with the recent policy of introducing the second dose of measles in the second year of a child's life, the health sector is expected to reach not only all children 0–1 years old, but all children in the 0–2 years age group.

The United States Agency for International Development-supported 2012 IYCN project report highlighted the success of global efforts to prevent malnutrition during the first 1,000-day window from pregnancy through a child's second year of life (USAID 2012). The focus of the project was on prevention through optimal feeding practices and nutrition care in the critical period below 2 years. Efforts were directed toward actions that start at the community level by training a wide range of community workers and volunteers to counsel and monitor caregivers at home, since IYCF actions are undertaken at the family level. The success in improving IYCF practices was attributed to both assessing need in order to tailor activities to the existing local situations, and developing policy guidance to lay the foundation for coordinated action. These actions were considered essential to create an enabling environment for nutrition programming, which was achieved by adapting the international nutrition recommendations into national policies and guidelines. The latter came about as a result collaboration among the government, nongovernmental organizations (NGOs), and international organizations; development and execution of a comprehensive Behavior Change Communication strategy; strengthening of health systems and the capacity building of workers in contact with caregivers and the community; and monitoring and evaluation.

In addition to the key direct nutrition actions, the underlying causes of undernutrition can be addressed through interventions in agriculture and horticulture, increasing accessibility to food, improving purchasing power, and ensuring universal access to water and sanitation. The operationalization of such actions falls within the purview of nonhealth and non-ICDS sectors that address poverty, food production, and women's status, and ensuring universal access to water and sanitation under the Total Sanitation Campaign. Recognizing the significance of these programs and the contribution made by each toward achieving a specific objective, the expected contribution of each sector to nutrition improvement outcomes needs to be clearly articulated, and efforts need to be directed to achieve the stated goal. This implies increased policy coherence and agreeing to monitor by including in the package at least one appropriate indicator of undernutrition as one of the key measures. This in turn entails increased "policy coherence" in other nondirect nutrition sectors and complementing these with direct nutrition interventions—something that cannot be realized without strong leadership from the government to forge a multisectoral approach to coordinate the actions of a number of ministries.

The nutrition mission approach is also being viewed as the solution by many states for scaling up multisectoral nutrition interventions. Such an approach to address undernutrition has been adopted by a number of states, such as Maharashtra (*Rajmata Jijaju Mother-Child Health and Nutrition Mission*), Madhya Pradesh (*Atal Bal Mission*), and Karnataka. This approach facilitates significant investment of finances, administration, and human capital, which are essential for scaling up national nutrition interventions. State plans under these missions are placing special emphasis on nutrition surveillance, district planning, and district-level monitoring, with clear indicators of progress for each of the departments involved. With the goal of reducing undernutrition at a desirable rate, many of these plans stress creating a force of community volunteers and training them in management, social mobilization, and interpersonal communication. Additionally, a well-designed simple and manageable monitoring system is being included for systematically monitoring progress. Fund commitments are also being recommended for a longer period (at least 10 years), to be drawn from a variety of sources and programs.

At present, numerous nutrition intervention actions (including the ICDS Scheme) are far from reaching the universal coverage goal. The overall implementation of these actions remains a low priority, despite evidence of their benefits in improving nutrition and reducing morbidity and under-5 mortality. A lack of focus on feasible interventions for a defined age group remains a hindrance for

the development of an operational plan and an appropriate program implementation design. An example is low emphasis on the highest-priority, age-specific target age group, despite evidence of the significance of reaching children under 2 in the first 1,000 days of life.

Such a limitation is evident from the Planning Commission's 2010 report on India's nutrition challenges (India-PC 2010). The Executive Summary section of the report states, "The key issue is preventing and reducing maternal and child undernutrition as early as possible, across the life cycle—especially in utero and in the first two years of life, in adolescent girls and women." The report mentions strengthening ICDS and flexible implementation in the mission mode; convergence at all levels, provision of more resources to ICDS, including an additional worker at the *anganwadi* center (AWC) to focus on reaching children under 3 in the community. However, this report does not refer to the important role of the health sector in prevention of undernutrition. Reference to the health sector is made primarily in the context of institutional arrangements, such as "empowered department of nutrition within the MoHFW and MoWCD and setting up a similar structure at the state level."²

Effective implementation of nutrition interventions, with a commitment to scaling up the selected actions, requires institutional support and arrangements at national, state, and district levels and linkages with village *Panchayats* and self-help groups. There are immense gaps in institutional support for nutrition interventions. The national institutes involved in conducting nutrition surveys, research, training, and technical support for programs primarily include the National Institute of Nutrition (NIN), the National Institute of Health and Family Welfare (NIHFW), the National Institute of Public Cooperation and Child Development (NIPCCD), select home science and medical colleges, and a few NGOs. There is a proposal in the Twelfth Plan for strengthening the institutional system of the Food and Nutrition Board network in the country (which today operates within a rigid framework with negligible impact on the nutritional status of infants, children, and mothers). Establishment of a center of excellence on public health nutrition and a suitable system for the capacity development of various institutions and programmatic support at the state level is critical.

According to current evidence, the key available nutrition interventions with the capacity to avert at least one-third of the cases of stunting are known and can be addressed through short-term strategies. Successful planning and implementation of these nutrition interventions require high levels of political support, appropriate investment, intensive advocacy, managerial skills, building technical and program capacity, as well as an effective monitoring system. Advocacy by professional bodies, such as the Indian Academy of Pediatrics (IAP), the Nutrition Society of India (NSI), the Federation of Obstetric and Gynaecological Societies of India, the Society of Community and Public Health Medicine, and similar health human development sectors is critical to build government and private-sector commitment for upscaling key direct, short-term interventions with concentrated efforts targeting children under 2, and a long-term strategy targeting other critical population groups, using a life-cycle approach. At the same time, there is need to involve professional bodies of agriculture, horticulture, water sanitation, and allied sectors for actively participating in long-term, indirect interventions for making a difference in the nutritional status of women and children.

Today, it is imperative to position the nutritional improvement of women and children as central to the overall development agenda of India and suitably reflect the commitment to nutrition in various sectoral policies. The nutritional status of children should be recognized as an indicator of development. The WHO nutrition report of April 2010³ recommends an accelerated decrease in undernutrition, with a relative rate of decrease in stunting of 3.9 percent per year during 2012–2025. In this context, building technical capacity in program planning, monitoring, impact study, epidemiology surveys, and regular undertaking of impact surveys remain a challenge. It is critical that the national nutrition policy and the specific roles of health, ICDS, and various other sectors, are

² http://planningcommission.nic.in/reports/genrep/multi_nutrition.pdf.

³ WHO and the World Bank report joint estimates of child malnutrition for 2011 and trends since 1990.

revisited, and desirable modifications incorporated. Additionally, it is essential that an institutional support policy is developed for enhancing techno-managerial support at state and district levels for effective implementation and scaling up of direct nutrition intervention actions, besides the planning, designing, and implementation of long-term multisectoral policies.

4. Landscape of Policies and Programs: Key Findings from the Review of Evidence

The policy landscape that has been created to support actions to tackle undernutrition in India is characterized by a number of policy articulations and several strategic vision documents; there are also many program documents that include operational guidelines and frameworks for action. Since POSHAN's goal is to support and strengthen policy and program decisions and actions to accelerate reductions in maternal and child undernutrition in India through an inclusive process of evidence synthesis, knowledge generation, and knowledge mobilization, this national policy review is an attempt to provide a current scenario so that reformative policy action can be well informed. More specifically, there has been an effort to understand the kind of evidence used to inform policymaking so as to better understand how improved knowledge flow can result in improved policy action with a clear focus on nutrition outcomes in the Indian population.

POLICIES FORMULATED FOR NUTRITION ACTIONS IN INDIA

National Policy for Children, 1974

The National Policy for Children (NPC) was issued on August 22, 1974, following the UN Declaration on the Rights of the Child. The policy did not cite any evidence, apart from stating that the needs of children and citizens' duties toward them have been expressed in the constitution. However, it focused on the importance of nurturing children who were viewed as the nation's "supremely important asset," and to address these issues adequately, a comprehensive policy on children (beyond the existing National Policy on Education) was developed. The NPC stated: "[I]t is the policy of the state to provide adequate services to children, both before and after birth and through the period of growth, to ensure their full physical, mental and social development" (India 1974). NPC measures included implementation of nutrition improvement programs that would remove dietary deficiencies that occurred in children. The NPC focused on the integrated delivery of early childhood services and those for expectant and nursing mothers.

Rather than citing an evidence base, the NPC referred to the formulation of programs in different sectors, including

1. preventive and promotive aspects of child health;
2. nutrition for infants and children in the preschool age, along with nutrition for nursing and expectant mothers;
3. maintenance, education, and training of orphans and destitute children;
4. *crèches* and other facilities for the care of children of working or ailing mothers; and
5. care, education, training, and rehabilitation of handicapped children (India 1974).

National Nutrition Policy, 1993

Essential elements

India was among the first countries to articulate a national policy on nutrition. The efforts for formulating a National Nutrition Policy (NNP) started in the early 1980s, when the Government of India Planning Commission constituted a Task Force on the Projection of Minimum Needs and Effective Consumption Demand. On the basis of a systematic study of nutritional requirements, this task force recommended a national norm of 2,400 and 2,100 kilocalories per day for rural and urban areas, respectively (the difference being attributed to the lower rates of physical activity in urban areas). These figures were derived from age-, sex-, and occupation-specific nutritional norms by using the all-India demographic data from the 1971 census (India 1979).

Objectives

Formulated in the national development context, the NNP viewed undernutrition “as a part of a larger set of processes that produces and consumes agricultural commodities on farms, transforms them into food in the marketing sector, and sells the food to customers to satisfy nutritional, aesthetic, and social needs” (India–MRHD 1993). While the policy recognized that economic development or even the adequacy of food at the household level is no “guarantee for a stable and satisfactory nutritional status,” it also stressed the fact that while nutrition interventions need to be tackled independently, they should be an integral part of an overall development process. The NNP strategy stated that “nutrition is a multisectoral issue and needs to be tackled at various levels.” In this context, the NNP referred to direct and indirect interventions, as well as short- and long-term strategies. Based on evidence of data on dietary intake, food production, and poverty, among other variables, the policy considered the following undernutrition problems:

- undernutrition—both protein energy malnutrition and micronutrient deficiencies,
- low birth weight,
- Overnutrition, overweight, and obesity,
- seasonal dimensions and undernutrition,
- natural calamities and the landless and impact on nutritional status,
- market distortion and disinformation and their relationship to undernutrition,
- increasing urbanization and undernutrition, and
- special nutritional problems of hill people, industrial workers, migrants, and others.

The NNP positioned nutrition as a complex development problem linked to agriculture, food production, and poverty. Although post-independence India has a recorded dramatic increase in food production, endemic malnutrition and ill health resulting from malnutrition remain problems. The 1987–1988 round of the National Sample Survey (NSS) indicated a drop in the population who lived below the poverty line since 1960 (from 56.3 to 29.2 percent) (NSSO 2012). However, it also noted the prevalence of chronic and endemic hunger in the prevailing patterns of intrahousehold food distribution, particularly in rural families, constituted a threat to the nutritional status of women and children. The NNP discusses such problems as protein energy malnutrition (PEM), iron deficiency and nutritional anemia, iodine deficiency disorder, vitamin A deficiency, and prevalence of LBW children. Issues like seasonal disturbances in agricultural production and lack of employment in subsistence agriculture led to fluctuations in food intake, especially in very poor households; women and children fell below the poverty line during these lean periods. Therefore, economic development or adequacy of food at the household level was not perceived as a guarantee for a stable and satisfactory nutritional status, and the NNP needed to be grounded in the overall development strategy of the country.

Key evidence

Evidence from the 1978–1988 round of the NSS estimated that nearly 29.2 percent of India's population is falling below the defined poverty line. While at the macro level, this group constitutes a nutritionally at-risk population, women and the children within it represent nutritionally the most fragile and vulnerable sections.

Data from the NNMB have also been stated in the policy. This refers to calorie and protein intake, which showed a steady increase in aggregate consumption of calories at the household level. During 1957–1979, in urban areas, the aggregate intake levels of protein were above the Indian Council of Medical Research (ICMR)-recommended level for all income groups, except slum dwellers. Between 1975 and 1989, aggregate consumption levels of all groups in rural areas taken together were higher than the recommended levels. In fact, time trends showed that the average intake of calories among the lowest income group had a definite rising trend during the 1970s. Data on micronutrient intake during 1975–1979 in urban areas and aggregate intake levels of iron were above the ICMR-

recommended levels for all groups. For vitamin A, however, deficiencies existed among all groups, except high-income groups.

An NNMB-NSSO survey of 1983–1984 showed that even at an aggregate level, in terms of monthly household income, around 34 percent of households earned considerably less than the average food expenditure of the sampled families (NNMB 1985).

NNMB and NIN data were cited to show that PEM is the most widespread form of malnutrition among preschool children, a majority of whom suffers from varying grades of malnutrition. An NNMB report on repeat surveys (1988–1990) was cited to show that 43.8 percent children suffered from PEM, and 8.7 percent suffered from extreme forms of malnutrition (NNMB 1991). Survey data also indicated that between 1975 and 1990, an increase in the percentage of normal children was appreciable in all states, except Karnataka and Orissa, where the increase was marginal. The percentage of severely malnourished children in Gujarat and Madhya Pradesh did not show any marked upward trend.

Various studies by the NIN (1989–1990) have been cited, showing that roughly 56 percent of preschool children and almost 50 percent of expectant mothers in the third trimester of pregnancy suffered from iron deficiency. Nutritional anemia among preschool children and expectant and nursing mothers was due to inadequate or poor absorption of iron from a predominantly cereal-based diet, and presented as an eminently preventable health problem. Low iron intake, coupled with hookworm infestation and infections, further aggravates the problem.

Operationalization

The NNP recommended both direct and indirect nutrition interventions. Direct intervention measures included meeting nutrient gaps in the diet of the most vulnerable section of the population—i.e., provision of food supplements to children under 6 years, pregnant and lactating women, and adolescent girls. Additional direct interventions included nutrition education for creating appropriate behavioral changes among mothers; improving growth monitoring of children 0–3 years old; fortifying essential foods, such as cereals, salt, and oil; popularizing economical nutritious foods prepared from indigenous and low-cost materials; and intensifying a pharmaceutical supplement program, such as vitamin A supplementation (VAS) and IFA supplements.

The NNP included the following indirect interventions:

- Food security, with an emphasis on increasing the production and availability of protective foods, improving purchasing power, ensuring equitable food distribution through an effective public distribution system, implementing land reforms, and preventing food adulteration.
- Actions regarding health services listed in the policy, such as immunization, antenatal and postnatal care, small-family norms, basic health and nutrition knowledge with focus on wholesome infant feeding, and use of communication and media for promoting “sound feeding practices.”
- Improvement in women’s status, nutrition surveillance, monitoring, research, and community participation in generating nutrition awareness and creating demands for services, as well as establishing kitchen gardens, food processing, and management of nutrition programs.

The NNP also enumerated the following measures for effective administration and monitoring:

- Close collaboration between the food, agricultural, health, education, rural development, and nutrition policymakers.
- Special working groups to be constituted in the Ministries of Agriculture, Rural Development, Food, and Women and Child Development to analyze the nutritional relevance of sectoral proposals and to incorporate nutritional considerations in them wherever necessary.
- Functioning of an Inter-Ministerial Coordination Committee in the Ministry of Human Resource Development under the Chairmanship of the Secretary, Department of Women and

Child Development, to oversee and review the implementation of nutrition intervention measures, with representation by concerned ministries and departments, such as Health and Family Welfare, Education and Agriculture, Food and Civil Supplies.

- A National Nutrition Council to be constituted in the Planning Commission, with the prime minister as president, as a national forum for policy coordination.
- Monitoring of the national nutrition by the NIN.
- Role of state governments: the successful actualization of the NNP depends on an effective role played by state governments. Apex state-level nutrition councils to be chaired by the chief ministers and comprised of concerned state government ministers. An interdepartmental coordination committee to function under the chief secretary to coordinate, monitor, and oversee the NNP (special working groups set up in the Departments of Agriculture, Rural Development, Health, Education, Food, and Women and Child Development would be responsible for analyzing various sectoral schemes from the nutrition angle).
- Mobilizing community resources to ensure the sustainability of these interventions; involvement of local bodies (*panchayats* and municipalities), NGOs, cooperatives, professional organizations, and pressure groups.
- Constituting state coordination committees and state nutrition councils as well as similar bodies at the district level.

Way forward

The NNP was followed by the launch of the National Plan of Action on Nutrition in 1995 (India–MoWCD 1995), which identified the roles of 14 sectors. Resource allocations were not stated and state-level actions were expected to be undertaken, depending on resources allocated by states and their departments and those in the Union Territories.

National Health Policy, 2002

Essential elements

The National Health Policy (NHP) was launched in 2002 with the objective of achieving an acceptable standard of good health among the general population of the country (India–MoHFW 2002). The main objective of the NHP was to achieve an acceptable standard of good health for the general population of India through increased and equitable access to a decentralized public health system. The focus areas of the policy were to establish infrastructure in deficient areas, upgrade infrastructure within existing institutions, strengthen capacities of the public health administration at the state level to provide effective service delivery, and garner the contribution of the private sector in providing health services to those who could afford to pay for them. Primacy was accorded to preventive and first-line curative initiatives at the primary healthcare level through increased sectoral share of allocation, on the rational use of drugs within the allopathic system, and increased access to tried and tested systems of traditional medicine.

Objectives

One of the 13 NHP goals was to reduce the infant mortality rate (IMR) to 30 per 1,000 live births and the maternal mortality rate (MMR) to 100 per 1,000 in the period between 2000 and 2015.

Key evidence/events

Despite such goals, the NHP gives inadequate recognition to the problem of undernutrition and its correlation with morbidity and mortality. Reference to adequate nutrition is made only in the context of intersectoral contribution with the following statement: “The health status of citizens would, inter alia, be dependent on adequate nutrition, safe drinking water, basic sanitation, clean environment, primary education, especially for girl child.” There is no reference to undernutrition prevention for reducing the IMR or MMR (Chaudhary 2011).

The NHP recognizes differences in health status among states and across the rural-urban divide. Data cited from the Sample Registration Survey (SRS 1999) show IMR per 1,000 live births at 70, and NFHS-3 (2005–2006) data show under-5 mortality per 1,000 live births at 94.9 (Arnold et al. 2009). Differentials in terms of rural and urban areas indicate 75 per 1,000 live births (SRS 1999) and 103.7 under-5 mortality per 1,000 (NFHS-3) in rural areas. In urban areas, IMR stands at 44 per 1,000 live births and under-5 mortality is reported at 63.1 per 1,000. The NHP mentions the persistence of macro- and micronutrient deficiencies among women and children leading to LBW babies and the serious consequences of retarded physical and mental growth. It also recognizes that the overall health and well-being of citizens depend upon such determinants as adequate nutrition, safe drinking water, basic sanitation, a clean environment, and primary education, especially for the girl child. Therefore, the policies and functioning of each of these sectors would contribute to the health status of communities.

Policies for the Control of Anemia, 1971, 1991, 2005–2006

Prophylaxis against Nutritional Anemia among Mothers and Children, 1971

Essential elements

India was one of the first developing countries to launch a nationwide program for the prevention of anemia among pregnant women. This anemia control program was included in the Fourth Five Year Plan of the Government of India (1969–1974). It was viewed as a scheme within the Family Planning Programme for preventing disease and promoting health among mothers and children.

Objectives

This policy targets prevention of anemia and acknowledges the chronic nature of the problem as leading to serious undernutrition-related challenges in India. The dose recommended was 60 milligrams (mg) of elemental iron and 500 micrograms (μg) of folic acid during pregnancy for nonanemic women. The pediatric dose was 20 mg elemental iron and 100 μg of folic acid. According to the plan of operation, the beneficiaries of IFA supplements were “women with hemoglobin (Hb) levels of 10 g [grams] and above and children showing Hb levels of 8 g and above who can be put on the prophylaxis program.”

Operationalization and limitations

This policy was implemented as a part of the Maternal Child Health Programme, but the stated selection criteria do not appear to have been recognized by the central- or state-level program managers and, in practice, the eligibility for IFA tablets remains the same for all pregnant women.

The details of implementation were not well defined. In operational terms, there were no clear guidelines as to the beneficiaries and their selection process, and neither the roles nor the responsibilities of the program officers or health functionaries were defined. While the program envisaged that Hb levels would be regularly estimated, this was not feasible. No new guidelines were issued and, in practice, pregnant mothers, irrespective of Hb levels, were covered. The policy had no guidelines on the production, procurement, or distribution policy of IFA supplements, and made no reference to demand creation and efforts for improving compliance. Fund allocation was extremely inadequate for the expected coverage; the program remained a low priority in the health system.

This policy also has gaps. For instance, IFA supplements were recommended for prevention of anemia without taking into consideration the fact that most women were anemic at the time of pregnancy. There was no reference to universal coverage. Moreover, the minimum number of days for supply and consumption of IFA tablets was not specified. The supply system and quality of tablets supplied remained far from satisfactory.

Revised Policy on Control of Nutritional Anemia— National Nutritional Anemia Control Programme, 1991⁴

Essential elements

In 1971, the MoHFW issued the National Nutritional Anemia Prophylaxis Programme (NNAPP) addressing anemia, and modified it in 1991. Based on evaluation of the program and the fact that most women entered pregnancy already with anemia, in 1991 the MoHFW released a revised anemia control policy titled the National Nutritional Anemia Control Programme (NNACP). This program was implemented in 1992 as a part of the national Child Survival and Safe Motherhood (CSSM) program.

Key evidence/events

- According to the 1966 article “Observations on Anemia during Pregnancy in India,” anemia during pregnancy was recognized as directly or indirectly responsible for 20–40 percent of maternal deaths, as well as increased delivery complications, premature births, and infections (Devi 1966). In 1968, the Study Group on Nutritional Anemia reported that 30–50 percent of pregnant mothers had an Hb level of less than 10 grams per deciliter (g/dL) (NSI 1968). Preventive measures were considered important, and the dose level of 60 mg of iron was recommended by NSI following a study by the NIN.
- The development of the policy was also influenced by the 1968 WHO guidelines recommending 60 mg of iron per day, as well as increasing global and national evidence on the serious implications of anemia for pregnant women (WHO 1968).
- The NNAPP was evaluated with support from UNICEF and ICMR (ICMR 1989). The evaluation survey was conducted in 11 states during 1984–1986, and findings were published thereafter. The evaluation emphasized the need to redefine beneficiary groups and revise the recommended dose of the IFA supplement. It also emphasized supply estimates; streamlining logistics; training; information, education, and communication; and monitoring systems. The chemical analysis of tablets supplied was found to have inadequate levels of folic acid. There was no difference in Hb levels between women receiving and not receiving supplementation. Side effects were reported by only 9.2 percent of the population surveyed. Gastrointestinal tract/constipation, and nausea were reported by 6.8 percent of the 999 pregnant women sampled, by 3 percent of the 2,130 lactating women sampled, and by 2,424 of the family planning acceptors sampled.
- An ICMR research study was designed to reflect actual field conditions where the intake of iron was unsupervised and carried out through six centers in India. Pregnant women were randomized to receive 60, 120 or 180 mg of iron daily for 180 days, starting from 20–24 weeks of gestation. The design of this trial was informed by previous reports from WHO and the International Nutritional Anemia Consultative Group in 1977 and 1984, respectively. The ICMR research study showed that 120 mg iron with 500 µg of folic acid was the optimum dose under field conditions as evaluated by a rise in haemoglobin as well as the side effects associated with the iron dose (ICMR 1989). The Indian diet’s high phytate content leads to poor bioavailability of iron to the body. In addition, repeated intestinal infections and low iron absorption make recommending the higher dosage of 120 mg of iron imperative. The report noted that when considering minimum side effects and efficacy, the 60-mg dose could also help in the control of anemia, and stressed that supervision of compliance and health education should be made an integral part of the program.
- There were no separate efficacy trials for recommending the dosage for severe cases of anemia. ICMR’s research findings were analyzed to provide recommendations for severe cases, although there was no focus on efficacy trials of such cases.

⁴ Prophylaxis Against Nutritional Anemia among Mothers and Children (commonly known as the National Nutritional Anemia Prophylaxis Programme 1971).

Expert group meetings and core group consultations also informed the policy:

- A national meeting on Prevention and Control of Nutritional Anemia was organized on September 21–22, 1989, by MoHFW, with UNICEF support, to review the findings of NNAPP's evaluation and revisit the program (India–MoHFW and UNICEF 1989). The meeting attendees recommended that the focus of the program should shift to a control and not a prophylaxis program. They also recommended that “priority should be given to pregnant and lactating women and preschool children. The problem of anemia in adolescent girls should be recognized and given due attention.”
- A meeting of the Core Working Group on Anemia Control resulted in the formation of a scientific expert group comprising representatives of the MoHFW, WHO, UNICEF, a national public health expert, and a hematologist, with the objective of revisiting the NNAPP and proposing any required modifications. Based on the consultation of the expert group, the NNAPP was modified and the program name was changed to the National Nutritional Anemia Control Programme. The expert group also recommended improved packaging of supply in the form of blister packs. The importance of undertaking periodic quality tests of IFA tablets was totally missing in these recommendations.

Operationalization

Operationalization consisted of

- promotion of regular consumption of foods rich in vitamin A,
- provision of IFA supplements in the form of tablets (folifer) to the high-risk group, and
- identification and treatment of severely anemic cases.

The iron amount per tablet was increased from 60 mg of elemental iron to 100 mg. The content of folic acid was retained at 500 µg.

Regardless of Hb levels, all pregnant women were recommended to receive a minimum of 100 IFA tablets (one tablet a day). IFA consumption was advised after the first trimester for 100 days (this was later interpreted as a minimum of 100 days). Women diagnosed as severely anemic (Hb <7 g/dL or clinical signs) were recommended to take two tablets (each tablet of 100 mg elemental iron and 500 µg folic acid) instead of one tablet per day for 100 days. Severe cases of anemia were recommended for hospital referral and follow-up.

In the event of adequate supply being available, the policy indicates provision of tablets to lactating women and interuterine device (IUD) users for 100 days. It was recommended that distribution could be effectively undertaken by establishing links with pregnant women during their antenatal visits and administration of tetanus toxoid. The role of ICDS workers in undertaking distribution of IFA is also stated in the NNACP policy, along with the roles and responsibilities of the health and ICDS sectors. The NNACP is implemented through the primary health centers and its subcenters. The multiple-purpose workers (female) and other paramedics working in the primary health centers are responsible for the distribution of iron tablets (adult and pediatric doses) to pregnant and lactating women, IUD users, and children age 1 to 5 years. ICDS functionaries serving under the MoWCD assist in the distribution of iron tablets to children and mothers in the ICDS blocks and impart education to mothers on prevention of nutritional anemia.

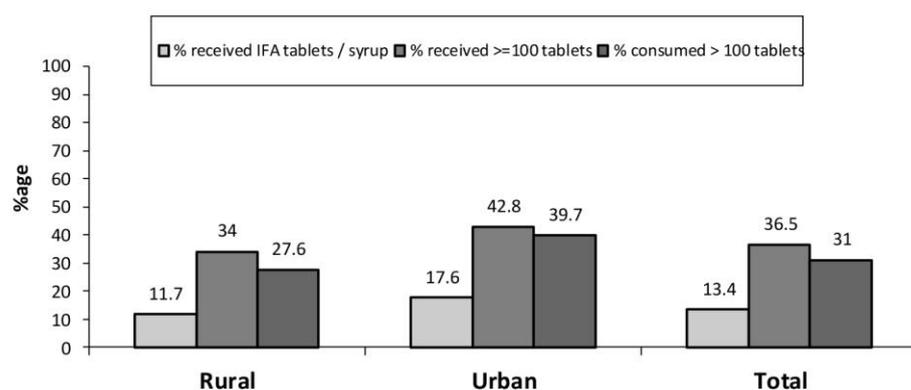
Preventive measures in the policy include improving dietary intake of iron and vitamin C-rich foods by pregnant and lactating women, adolescent girls, and children under 5 years of age. Drinking tea is prohibited following IFA consumption. Dosage for children 1 to 5 years is also defined: 20 mg of elemental iron and 100 µg of folic acid. Priority is accorded to children in tribal areas and those attached to ICDS blocks.

The NNACP policy was included in the CSSM program in 1992 and later as a part of the RCH program in 1997 (Vir 1998). The details for estimating supply were presented in the CSSM manual.

The policy does not state clearly how the minimum 100 tablets are to be given. Moreover, most health officials view 100 tablets as the maximum number and concentrate on provision of only 90 tablets. The blister packaging of tablets has been accepted, and a pregnant woman is often supplied three blister packets (with each packet containing 30 tablets).

Despite the existence of the IFA supplementation program over the last 40 years, anemia prevalence rates in pregnant women remain a major public health problem. According to the UNICEF Coverage Evaluation Survey (CES) of 2009, only 40.6 percent of women receive the minimum doses of 100 tablets and 31 percent actually consume the tablets (Figure 3) (India–MoHFW and UNICEF 2010). There is wide variation across states regarding supply and consumption of IFA supplements. In Kerala, 8.4 percent of women are reported to consume the tablets for at least 100 days, compared with only 5.4 percent in Nagaland.

FIGURE 3. SUPPLY AND CONSUMPTION OF IFA TABLETS BY PREGNANT WOMEN



Source: India–MoHFW and UNICEF 2010.

India's Tenth Five Year Plan (2002–2007)⁵ refers to parenteral iron as an effective measure for correction of severe anemia, which means Hb levels between 5 and 8 g/dL for women who do not have any obstetric or systemic complication. Hospital admission and intensive personalized care are prescribed for women with Hb less than 5 g/dL, but the actual implementation of this directive in the rural public health setting has not been reported. There are a number of constraints for conducting blood tests for universal checking of Hb levels. Some states have introduced parenteral iron to mothers as part of the ANC care if Hb is less than 5 g/dL.

Current status and the way forward

According to a Government of India directive, IFA tablets were to be given to women from registration of pregnancy at 20 weeks to delivery. Taking into consideration the high doses of IFA required to cover the entire pregnancy period, only 100 tablets, instead of about 140 tablets, were included in the policy. Going forward, there is a need to consider earlier introduction of IFA tablets for a minimum of 24 weeks of pregnancy—i.e., 168 tablets, or one tablet to be administered per day. Moreover, the dose of iron to be administered needs to be revisited in the context of the global WHO recommendation of 60 mg of elemental iron per day for pregnant women.

The protective effect of folic acid is critical in the first month of pregnancy. Moreover, most women in India are anemic when they become pregnant. The NNACP policy needs to consider this issue and include newly married women under the anemia policy to address the serious irreversible implications of IFA deficiency in the health of both women and children.

⁵ <http://planningcommission.nic.in/plans/planrel/fiveyr/10th/10defaultchap.htm>.

To support implementation of the NNACP policy, effective use of the Mother–Child Protection Card for maintaining records of supply and distribution of IFA tablets needs to be introduced countrywide for effective monitoring of supply and compliance.

Policy on Anemia Prevention in Adolescents: An Operational Framework— Weekly Iron and Folic Acid Supplementation for Adolescents

The problem

Adolescent anemia is a critical public health problem in India. Adolescence is a period of transition from childhood to adulthood and is characterized by rapid physical, biological, and hormonal changes. In fact, because adolescence is the second growth spurt of life, there is a significant increase in nutritional requirements, including for iron. Moreover, during adolescence in girls, menstruation sets in and results in loss of nutrients, which further increases the demand for iron.

Anemia in this age group is common, since dietary iron is often not well absorbed and is inadequate to meet the body's high requirements. The prevalence of anemia in girls is alarmingly high in India and other developing countries, compared with the developed world. Studies indicate that every second girl in India is anemic. According to the NFHS-3, almost 56 percent of adolescent girls age 15 to 19 years suffer from some form of anemia—more than 39 percent adolescent girls are mildly anemic, while 15 percent and 2 percent suffer from moderate and severe anemia, respectively (Arnold et al. 2009).

Iron-deficiency anemia adversely affects transportation of oxygen to tissues and accounts for diminished work capacity and physical performance. Anemia affects the physical development of adolescents, diminishes their concentration in daily tasks, limits their learning ability and productivity, and leads to poor school performance. The grave consequences of anemia during the entire reproductive life period of adolescent girls are well documented. Iron deficiency in adolescent girls influences the entire life cycle, since anemia during adolescence results in poor prepregnancy iron stores, and leads to serious negative pregnancy outcomes, since the period of pregnancy is too short to build iron stores to meet the requirements of the growing fetus. Anemia during pregnancy causes adverse impacts on the physical and mental growth of the fetus and presents a higher risk of preterm delivery and birth of babies with poor or low weight.

Objective

The primary objective of the Weekly Iron and Folic Acid Supplementation (WIFS) program is to reduce the prevalence and severity of anemia in the adolescent population (10–19 years), with high priority given to both school-going and non-school-going adolescent girls.

Essential elements of the policy

The WIFS program is planned to be implemented for adolescent girls and boys who are school-going and are in government or municipal schools (in the 6th to 12th standards) and for adolescent girls who are either in school or out of school in both rural and urban areas.

Therefore, WIFS is an integral part of the package of services for the school health program of the health sector and of SABLA (renamed Rajiv Gandhi Scheme for Empowerment of Adolescent Girls) of the ICDS sector. The health sector addresses anemia in adolescent girls and boys in schools, while the ICDS program addresses anemia in non-school-going girls. SABLA was launched in 2011 in 200 districts of India to provide adolescent girls with a package of health and nutrition services (including WIFS, life skills, and family life education).

Key evidence/events

Evidence for policy formulation was as follows:

- Prevention of anemia in adolescents is critical and is much more serious in the case of girls. Timely interventions are essential to address the problem of anemia in adolescents, especially girls. Since the 1990s, anemia in adolescent girls has been recognized as a serious public health problem in the country. Findings of a recent study showed covering rural and urban

areas of 35 states or union territories and found prevalence rates of anemia in adolescent girls as high as 99.9 percent in Jharkhand and in eastern India (Bharati 2009).

- The administration of weekly IFA tablets, rather than daily, was advised. Initially, this was based only on the theoretical assumption that the absorption of iron would be better if IFA were consumed weekly rather than daily, since intestinal mucosa turns over once every 5–6 days. Daily administration of IFA to adolescent girls was discouraged, since there was a scientific observation that frequent consumption would block the mucosa and obstruct iron absorption. Weekly iron supplementation was considered to be a better option for the adolescent population. Daily IFA supplementation for pregnant and lactating women was recommended.
- In the mid-1990s, efficacy trials on weekly and daily doses of IFA administered to adolescent girls were undertaken in three cities of India—Vadodara, Mumbai, and Delhi. There was no consistent response to daily dosage, but weekly IFA was noted to be as effective as daily doses. Side effects of iron consumption were also reduced. Preliminary findings revealed that IFA supplementation for 25 weeks resulted in changes in Hb levels, which were positive but not significant in all the three trials, compared with a daily dose of 100 mg of elemental iron and 500 µg of folic acid.
- Based on Indian studies and other global trials on weekly, biweekly, and daily IFA given to children and adolescents, a meta-analysis was undertaken by Beaton and McCabe in 1998–1999. They concluded that weekly supplementation of IFA to children and adolescent girls was as effective as daily supplementation, if delivered under supervision and when compliance was ensured, and considered weekly dosage to be cost-effective as well (Beaton and McCabe 1999).
- A National Consultation on Control of Anemia in India organized by the MoHFW in 1997 recognized nutritional anemia to be one of the most serious public health problems related to nutrition during pregnancy. The consultation discussed preliminary findings of the weekly supplementation of IFA tablets and recommended: “Adolescent girls on attaining menarche need to consume one IFA tablet containing 100 mg of elemental iron plus 500 µg of folic acid once a week. This should be accompanied by dietary counseling.” It was recommended that large-scale pilot projects be implemented in selected districts.
- In 2000–2005, the Adolescent Girls’ Anemia Control Programme was launched in selected districts of eight states as the WIFS program with UNICEF support. The IFA tablet composition was the same as that for pregnant women, but the frequency of administration recommended was weekly, not daily. The IFA tablet contained 100 mg of elemental iron and 500 µg of folic acid. On the basis of field data, an evaluation of the WIFS program was undertaken in seven states. Two states reported a compliance rate of WIFS of 90 percent, while in two states, the compliance rate was 60–65 percent. A statistically significant decrease (<0.0001) in anemia prevalence was noted, with an average 24 percent point decrease after 1 year of implementation. Adolescent girls who consumed IFA reported feeling better, healthier, more energetic, and said they were feeling less fatigued and were having regular menstrual cycles. Their complexions also improved. As a result, there was demand for IFA tablets.
- Between 2007 and 2010, WHO undertook a global analysis of ten large WIFS programs for adolescent girls and synthesized the lessons learned for effective implementation. Four of the ten programs included in the WHO study were Indian. Only one of the country programs, Egypt, covered boys along with girls in the WIFS program. Reduction in anemia prevalence rates was reported for eight of the ten WIFS programs, ranging from 8.9 percent to 56.8 percent over an intervention period of 6 to 16 months. WIFS was found to be an effective strategy, with a high compliance rate for reducing the prevalence of anemia in adolescent boys and girls. The effectiveness of scale-up strategies was also analyzed, and formed the basis for in-country policy formulation. In 2010, WHO issued guidelines on anemia prevention in women in the reproductive age group, recommending that every woman in the

reproductive age group should consume WIFS containing 60 mg of elemental iron and 2,500 µg of folic acid.

Operationalization

The MoHFW developed programmatic guidelines for the WIFS program for adolescents, which were issued through the RCH program. Titled Operational Framework: Weekly Iron and Folic Acid Supplementation for Adolescents, the policy focuses on using schools as the delivery channel for school-going boys and girls, and ICDS centers for reaching out-of-school girls (India–MoHFW 2012).

However, there are gaps in the policy. For example, the roles of the three primary sectors involved—health, ICDS, and education—are not clearly enunciated in the policy. Moreover, the definition of adolescent population and the target groups are 10–19 years and for the health sector and 11–18 years is for the ICDS sector. Guidelines on the production, procurement, distribution, and other logistics of IFA tablets need to be clearly stated, with details of the roles and responsibilities of each of the three primary sectors. The policy also needs to clearly elaborate on the coverage of adolescent boys.

The policy is being implemented through two systems—through the school health program of the health sector, and as a part of the SABLA program of ICDS for the non-school-going girls. Based on global experience, the implementation design focuses on using a fixed-day-per-week approach for implementation of the WIFS program. The policy stresses the need for regular supply, consistent demand creation, and efforts for improving compliance. Dietary counseling is also a part of the policy.

Since anemia is common also in adolescent girls of middle and high socioeconomic groups, advocacy for purchase and consumption of WIFS through a social marketing strategy is essential.

In operational terms, the policy provides no clear guidelines on how the beneficiaries who are not in school will be selected and how newly married adolescent girls will be reached. The roles and responsibilities of the program officers of health, ICDS, and school functionaries also need to be clearly defined.

Current status and challenges ahead

The WIFS program covers married, nonpregnant adolescent girls in order to increase their prepregnancy iron stores, and covers pregnant adolescent girls in order to decrease the prevalence of anemia among them. The package of services comprises the following:

- WIFS is administered for 52 weeks of the year. Each IFA tablet contains 100 mg of elemental iron and 500 µg of folic acid. Pregnant adolescent girls are advised to consume one IFA tablet daily according to the ANC guidelines.
- Target groups are screened for moderate and severe anemia. These cases are referred to an appropriate health facility.
- Deworming is administered (albendazole 400 mg) every 6 months for control of helminthes infestation. Education is provided on actions for preventing intestinal worm infestation.
- Information and counseling are provided for improving dietary intake.
- IFA supplements are distributed free of charge to adolescent girls and boys enrolled in government/government-aided or municipal schools and only to adolescent girls who are out of school. In addition, deworming tablets are administered to school-going adolescents through the school system and out-of-school adolescent girls through the ICDS.
- The WIFS program stresses information, counseling, and support to adolescent girls for increasing WIFS compliance, as well as information on how to improve their diets, especially intake of iron-rich food as well as iron absorption.

Production and distribution of quality IFA tablets for the WIFS program need to be streamlined for program implementation and sustaining momentum. Adequate allocation of funds needs to be ensured for the coverage proposed for almost 133 million adolescent girls in the 11–18-year-old age group. Moreover, according higher political priority to the WIFS program and a high priority within the health and ICDS systems is critical for effective implementation.

National Plan of Action for Children, 2005

Essential elements

Increased global attention to the nutrition of young children is also reflected in several Government of India policies. In 2005, the MoWCD released the National Plan of Action for Children (NPAC), which was preceded by two earlier versions in 1974 and 1992.

Objectives

The NPAC 2005 committed to ensuring all rights to children up to the age of 18 years (India–MoWCD 2005). Three of the 12 key areas listed pertained to reducing IMR, MMR, and undernutrition among children. The NPC 2005 also referred to improving water and sanitation coverage in rural and urban areas. Unfortunately, it did not present key policy program interlinkages. However, it stated the following nutrition goals:

- Eliminate child undernutrition as a national priority.
- Reduce undernutrition and LBW in children under 5 by half by 2010.
- Ensure adequate neonatal and infant nutrition.
- Reduce moderate and severe undernutrition among preschool children by half.
- Reduce chronic undernutrition and stunted growth in children.
- Effectively implement the Infant Milk Substitutes, Feeding Bottles and Infant Foods Act (regulation of Production, Supply and Distribution Act 1992, as amended in 1993).

Operationalization and limitations

Review of the NPAC 2005 indicates that the above goals lack clarity and have a great degree of overlap. The strategies for achieving these goals generally consist of addressing undernutrition (including micronutrient undernutrition), vitamin A deficiency, and anemia in children through promotion of optimal infant and young child nutrition, food fortification, and age-specific pharmaceutical supplements. Under the section on addressing undernutrition, the NPAC refers to promoting correct infant and child feeding practices, as well as universalizing access to ICDS centers in the country (in compliance with the Supreme Court order of 2001⁶ on the universal provision of supplementary nutrition under the ICDS program). However, the NPAC does not mention children under 2 years of age, and refers to children under 3 years only in the context of monitoring and promoting growth.

Policy for Elimination of Vitamin A Deficiency through the Vitamin A Supplementation Program, 1970, 1991, 2006

The problem

Vitamin A deficiency (VAD) resulting in blindness was reported to be common in the country among preschool children. The following initiatives were taken and to address the problem:

- 1970–1971—National Prophylaxis Programme against Nutritional Blindness due to Vitamin A Deficiency.
- 1991—National Prophylaxis Programme for Prevention of Blindness due to Vitamin A Deficiency.

⁶ The Judgment of the Supreme Court Regarding Revision of Nutritional and Financial Norms under the Supplementary Nutrition component of ICDS.

- 2006—The VAD program was revised to include all children 6 months to 5 years of age.

National Prophylaxis Programme against Nutritional Blindness due to Vitamin A Deficiency, 1970–1971

Essential elements

Launched in 1971 by the MoHFW, the program was initially limited to 11 Indian states and was upscaled following an evaluation.

Objective

The program's specifically aimed to prevent nutritional blindness caused by VAD leading to keratomalacia (a clinical sign of eye damage attributed to VAD). It focused on administration of six monthly dosages of 200,000 international units (IUs) of VAS to children 1 to 5 years old. There was no reference in the program to treatment doses of VAS.

Key evidence/events

The evidence for this policy was based on the following:

- A survey conducted in the 1960s in the southern and eastern states of India revealed that 30–50 percent of the child population had eye signs of VAD. During this period, it was also found that PEM and VAD coexisted.
- The dietary data of the NNMB revealed a high prevalence rate of Bitot's spots and very low consumption of vitamin A (about 246 micrograms [mcg]).
- In 1968, a field trial was undertaken involving 2,500 preschool rural children. Administration of 300,000 IU of vitamin A in oil in these children once a year over a period of 5 years reduced the prevalence of ocular signs of VAD by 75 percent for a baseline level of 10 percent. No new cases of corneal lesions were formed.
- Based on the results of this and other extensive studies on absorption, the NIN recommended that all children at risk be given massive biannual doses of vitamin A of 200,000 IU, mainly to prevent blindness. Such a dose, however, was not expected to completely build stores of vitamin A and prevent VAD. This led to the formulation of India's VAD policy.
- These findings also led to NIN's launch of efficacy trials in a community-with-hospital-based study for the reduction of keratomalacia.
- The positive impact of periodic vitamin A mega doses as protection against keratomalacia was studied and provided evidence for community programs. This study was published in *The Lancet* in 1984, and the findings were widely disseminated.
- Following 2 years of implementation, an interim evaluation was undertaken in two states—Kerala and Karnataka. The findings indicated 75 percent coverage and 80 percent reduction in clinical VAD. A subsequent evaluation in eight states studied impact as well as efficiency in terms of coverage, operation, and community acceptance.
- In 1978, NIN undertook an evaluation in 13 states where the program was operational for at least 2 years. The study identified several operational problems and proposed recommendations for improving supply, creating awareness, and shifting to a community approach rather than a clinical approach.

Operationalization

VAS was implemented as a part of the MCH program. Multipurpose workers (female) and other paramedical staff were given the responsibility for VAS administration and nutrition education. However, no guidelines were incorporated for reaching children 1 to 5 years old with VAS. Inadequate supplies, poor supervision, and a clinical approach were diagnosed as problems related to outreach. Coverage of VAS remained as low as 25 percent for a single dose. Despite such poor coverage, the overall trends in clinical VAD declined. However, corneal lesions continued to be

reported from all regions of the country up to the mid-1990s. Although vitamin A coverage was reported to be very low, clinical signs of VAD reduced significantly.

National Prophylaxis Program for Prevention of Blindness Due to Vitamin A Deficiency, 1991

Essential elements

An estimated 5–7 percent of children in India were reported to suffer from eye signs of VAD. The essential elements of the policy included six monthly administrations of a massive dose of VAS in the form of a vitamin A syrup to children 6 months to 5 years old. The policy emphasized that priority be given for universal coverage of children 6–36 months old. It was agreed that VAS would continue to be administered in syrup form using a spoon marked with 1- and 2-milliliter (mL) levels.

The policy included an additional dose of 100,000 IU for infants 6–12 months old. It specified the treatment dose, since clinical cases of VAD were reported from various state-based surveys. The policy also recommended that infants who were suffering from diarrhea, measles, or acute respiratory infections be monitored closely, and be given the proposed treatment dose of VAS if signs of VAD were observed. It also encouraged all children to consume foods rich in vitamin A.

The policy viewed measures for improving dietary intake as a long-term solution. It emphasized breastfeeding promotion, including feeding of colostrum and regular intake of vitamin A-rich food, and included details of recommended food to be consumed.

Evidence/key events

- In the late 1980s, the association of VAD with child mortality was established. A well-documented study indicated that even mild VAD is associated with increased risk of morbidity and mortality (Sommer et al. 1983). This study was followed by large-scale, multinational community trials, including two in India, which confirmed that in endemic areas, VAS administration to children can substantially reduce their risk of mortality. A meta-analysis of eight of the large intervention trials indicated the impact of VAS on reducing mortality to 23 percent, although the effect was not uniform in all of the trials. In view of high mortality due to measles and diarrheal diseases and the endemic nature of VAD in several countries, the International Vitamin A Consultative Group recommended that VAS be made an integral part of child survival programs in all developing countries. In India, the administration of VAS became an important component of child survival programs.
- In 1988, the MoHFW, with the support of UNICEF, constituted a technical core group comprised of a leading research scientist from NIN, a scientist from an ophthalmic institute based in Madurai that was involved in the VAS study on child mortality and morbidity, a nutrition officer representing UNICEF, and two Government of India representatives. The committee reviewed the global research findings regarding the association of VAD with morbidity and mortality in children. Based on the global and Indian evidence, the Government of India emphasized the role of vitamin A in building immunity, and proposed changes to the 1971 policy on VAD.
- The role of vitamin A in reducing the serious consequences in children affected by measles has received significant attention in a number of studies. An important study undertaken by NIN scientists demonstrated that seroconversion rates to measles vaccine were 63 percent under routine field conditions, but improved significantly to 84 percent when VAS was co-administered with the measles vaccine. Thus, a dose of VAS was proposed for infants receiving the measles vaccine. Also, other global research findings established the benefits and safety of VAS in children between 6 and 12 months. The findings of the NIN study and global studies formed the basis for the introduction of a vitamin A dose along with the measles vaccine at 9 months. The 1991 revised policy included a massive VAS dose of 100,000 IU.

Operationalization of the policy and limitations

The 1991 policy was included as an integral component of the CSSM and RCH programs. The administration of a dose at age 6 to 12 months was linked to the administration of the measles vaccine. In operational terms, priority was accorded to children under 3, and the supply was estimated only for children 9 months to 3 years of age.

In actual practice, the first dose of VAS was not administered in children 6 months of age. Instead, it was administered at 9 months, along with the measles vaccine, to improve reach and coverage of the first dose. This was considered the best strategy, since the Universal Immunisation Programme (UIP) was a very high priority program in the early 1990s. However, no strategy was clearly defined for reaching children with the second to ninth dose, and this component remained weak. This was evident from the fact that VAS coverage for the first dose increased to almost 50 percent, and was only 6 percent less than the measles vaccine coverage. The coverage of children older than 12 months with six monthly doses was as low as 3 percent, and the dropout rate from the first to the third dose was reported to be 91 percent. Coverage with VAS continued to be a low priority, and supply of VAS continued to be irregular. The role of the ICDS sector in the delivery of VAS was not defined.

In 1998, the clinical form of deficiency in the form of prevalence of Bitot's spot and corneal xerosis continued to be reported from India. These findings highlighted VAD as a public health problem in preschool children and recommended the introduction of a new strategy for improving coverage.

In 1999–2000, a number of initiatives were taken to improve VAS delivery mechanisms. A campaign approach for the administration of VAS was explored in Orissa, with support from the National Institute of Design. The state team in Uttar Pradesh also experimented with this approach. A critical appraisal of this approach concluded that the strategy was not considered appropriate for scaling up.

Following the International Vitamin A Consultative Group meeting in Hanoi in early 2000, the biannual strategy was considered to be important for improving the coverage of the second to ninth doses of VAS to 1–3-year-olds who were not reached during routine immunization or through any other health services. With support from UNICEF and Micronutrient Initiative, a sustainable approach using a fixed-month biannual strategy linked to routine immunization and a micro-plan for routine immunization was tested in Uttar Pradesh. Some states also experimented with a biannual intensive campaign approach for VAS administration. These approaches were not found to be sustainable. The biannual strategy was considered appropriate for scaling up in the country as part of the Tenth Five Year Plan document (India–PC 2002). Between 2001 and 2008, the biannual strategy was launched in at least ten states, and was included in state plans of action for decreasing the prevalence of anemia.

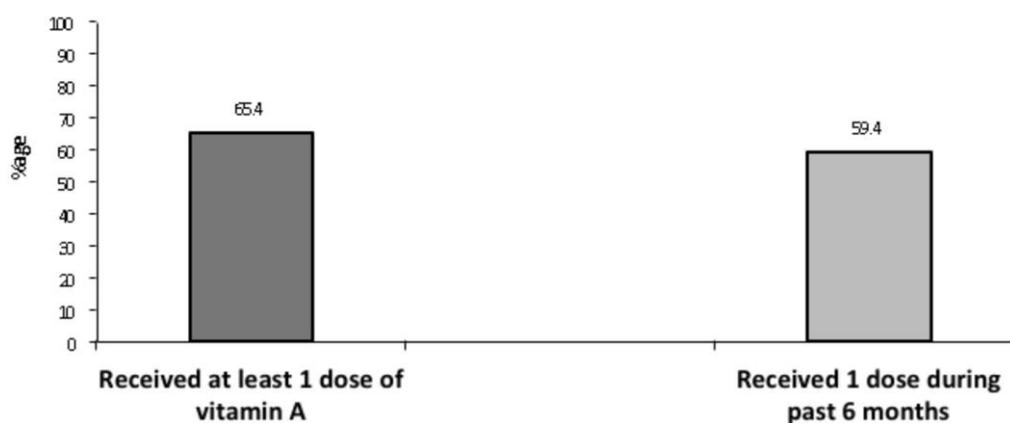
According to the guidelines issued on November 2, 2006, all children up to 5 years of age were to be covered under the VAS program throughout India.

Introduction of additional elements in the policy

The government issued guidelines for revising the policy's target VAS population, which added the following three important elements:

1. Introduction of the biannual strategy: a period of 2 months every 6 months were fixed for VAS administration. The first dose was encouraged to be administered along with the measles vaccine.
2. Vitamin A dose was recommended soon after an episode of measles or diarrhea.
3. In 2006, the program expanded the age group from 9–36 months to 9–60 months.

The program is being implemented under the National Rural Health Mission (NRHM) as a part of the RCH program. The coverage has increased significantly between NFHS-2 and NFHS-3 and CES 2009 (Figure 4).

FIGURE 4. PERCENTAGE OF CHILDREN AGE 12–23 MONTHS WHO RECEIVED VITAMIN A IN INDIA

Source: India–MoHFW and UNICEF 2010.

Revised Guidelines for Management of Diarrhea in Children, 2007

The problem

Zinc deficiency is common in India, since rich sources of zinc are primarily animal foods, which traditionally are not consumed. Zinc deficiency not only contributes to growth faltering and stunting, but also plays an important role in increasing morbidity and mortality due to diarrhea. In India, deficiency of zinc contributes to an increased rate of undernutrition and death due to diarrhea.

Essential elements

Historically, the earliest policy on diarrhea management was released in 1978. Its main objective was to prevent death due to dehydration caused by diarrheal diseases in children under 5 years of age. The policy focused on case management of diarrhea for children under 5 years and improving maternal knowledge related to use of home-available fluids, use of oral rehydration salts (ORS), and continued feeding.

Evidence/key events

The evidence base of the policy is as follows:

- Research confirms the adverse effects of zinc deficiency on immune system functions and its serious impact on increasing the susceptibility of children to infectious diarrhea, and persistent diarrhea, which further precipitates zinc deficiency and undernutrition. Additionally, studies indicate that zinc deficiency bears the potential of bad effects of toxins produced by diarrhea-causing bacteria. Diarrhea is recognized in India as a primary underlying cause of undernutrition in young children. The more common cause of death is dehydration, but a substantial proportion of such deaths occur as a result of undernutrition consequent to frequency of diarrhea episodes of varying length and severity. About 10 percent of infants and 14 percent of children 0–4 years of age in India die as a result diarrhea.
- Three large-scale effectiveness trials using zinc for treatment of diarrhea have been completed in India, Bangladesh, and Pakistan by both the public and the private health systems. Preliminary evidence suggested that zinc use substantially reduced morbidity. In these studies, 20 mg of elemental zinc was given in tablet or syrup form for 14 days along with ORS. In India, the study was conducted in Haryana. A strip of 14 zinc tablets (20 mg each) along with 2 ORS packets was given to all children between 1 month and 4 years of age who had diarrhea. Infants younger than 6 months received half a tablet in a teaspoon of breast milk or clean water. The results demonstrated the positive impact of use of zinc supplements on prevalence rates of diarrhea and pneumonia, as well as a reduction in hospitalization for any cause. The India study confirmed that promoting zinc and ORS together for treatment of diarrhea in a diarrhea control program led to increased ORS prescription and use rates,

decreased irrational antibiotic use rates and anti-diarrheal drug use rates, and reduced hospitalization.

- A large body of evidence from India and other developing countries confirmed the importance of therapeutic benefits of zinc administration during and after acute diarrhea. The preventive effect of zinc supplementation was also reported in some studies, with reduction in diarrhea morbidity in the subsequent 2 to 3 months without further supplementation. However, zinc supplementation was found to have no beneficial effects in infants younger than 6 months of age.
- The India-based study indicated that apart from reducing the duration and severity of the treated episode of acute diarrhea, zinc treatment in programmatic conditions has the potential to decrease hospital admissions by 15 to 20 percent, decrease child mortality by 3 to 5 percent, and decrease the subsequent episodes of diarrhea and possibly pneumonia over the ensuing 3 months. ORS remains the mainstay of therapy during acute diarrhea, while zinc has an additional benefit of reducing the duration and severity of diarrhea.
- Based on an updated meta-analysis, WHO-UNICEF (2003) recommended 20 mg zinc per day for 10–14 days for children with acute diarrhea and 10 mg per day for infants under 6 months of age in the form of sulphate, gluconate, or acetate. These recommendations are based on research findings showing the beneficial effects of ORS containing lower concentrations of glucose, salts, and zinc.
- In May 2006, the IAP National Task Force Framing Guidelines for the Management of Diarrhea recommended all cases of diarrhea should receive zinc in addition to ORS. A uniform dose of 20 mg of elemental zinc (using zinc salts sulphate, gluconate, or acetate) per day should be given to all children older than 6 months as soon as diarrhea starts for a period of 14 days. A lower dose of 10 mg of elemental zinc for 14 days was recommended for children 2–6 months old (IAP 2007).
- Based on WHO, UNICEF, and IAP recommendations and the data available on the evaluation of zinc to be used in current case management strategy in primary healthcare settings, the Government of India issued guidelines according to the IAP recommendations.
- In the last two decades, two effective interventions have been added to diarrhea management—low-osmolarity ORS and zinc.

Operationalization of the policy and limitations

According to the policy, 20 mg of elemental zinc should be given to all children with diarrhea older than 6 months, started as soon as diarrhea starts, and continued for 14 days. Children age 2–6 months should be administered 10 mg per day of elemental zinc for 14 days. For infants under 2 months, the zinc supplement should be dissolved in breast milk and administered for 14 days. Infants should continue to be breastfed during episodes of diarrhea, even during rehydration with ORS. Dietary management of acute diarrhea is an important part of the policy. Continuation of feeding is emphasized as an important element in the management of diarrhea.

In 1992–1993, the policy was made an integral part of the CSSM program, and in 1997–1998 it was merged with the RCH program. In 2005, the second phase of the RCH program also stressed diarrhea management. Under the NRHM, the Government of India initiated provision of zinc in addition to low-osmolarity ORS through the public health system.

A survey of ten Indian districts documented less than 1 percent of prescriptions for zinc supplements. One of the main reasons for this low coverage was lack of knowledge among care providers of how to implement existing cost-effective interventions. The challenge is to achieve greater coverage of these interventions in low-resource settings.

In November 2006, after examining the evidence regarding use of zinc in the management of diarrhea among children in the country, MoHFW issued a policy note in 2007 for inclusion of zinc in

the management of diarrhea, along with low-osmolality ORS and continued feeding of energy-dense food in addition to breastfeeding. A nationwide program, initiated by the IAP and UNICEF, was launched in September 2009.

National Guidelines on Infant and Young Child Feeding, 2004 and 2006

Essential elements of the guidelines

In 2004, the Government of India, Ministry of Human Resource Development (MHRD), and the Food and Nutrition Board released national guidelines on infant and young child feeding (IYCF). The guidelines are prefaced by a message from the then minister of MHRD, stating that the 55th World Health Assembly resolution of 2002 conform very closely to the Indian tradition of exclusive breastfeeding for the first 6 months, followed by a ceremony that introduces supplementary nutrition into the diet of an infant (India–MHRD/Food and Nutrition Board 2004).

The Government of India issued policy guidelines on IYCF in 2004. Before then, major efforts were made to establish legal frameworks for the protection and promotion of breastfeeding and the launch of hospital-based activities under the Baby-Friendly Hospital Initiative. In 2006 the IYCF guidelines were strengthened, incorporating developments in this area as reported by WHO and other UN agencies. On March 14, 2006, the MoWCD issued the amended IYCF guidelines.

Objectives

The objectives of the guidelines were to advocate the cause of infant and young child nutrition and its improvement nationwide through optimal feeding practices; to disseminate the correct norms of breastfeeding from the policy domain to the public in different parts of the country; to facilitate planning for awareness generation, raising commitment of concerned sectors of government and stakeholders; and to achieve the goals set by the Tenth Five Year Plan to reduce undernutrition levels in children (India–PC 2002).

To support these objectives, the WHO issued a statement on breastfeeding states that as a global public health recommendation, infants should be exclusively breastfed for the first 6 months of life and should continually be breastfed while receiving nutritionally adequate, safe, and complementary foods. The policy includes details on feeding practices, counseling, complementary foods, and the importance of utilizing nutrition and health services at the primary health center (under the NRHM), under the RCH program and ICDS.

The goals of the guidelines were to follow up on the optimal IYCF practices in India and move forward the national agenda of accelerating national development through improved child nutrition and health. The specific objectives were:

- Advocate the cause of infant and young child nutrition and its improvement through optimal feeding practices nationwide.
- Disseminate the correct norms of exclusive breastfeeding (EBF) and complementary feeding.
- Achieve the national goals set by the Tenth Five Year plan (India–PC 2002).

Key evidence

National survey data reveal that inappropriate young child feeding with respect to breastfeeding and complementary feeding adversely influences a child's survival, health, and nutrition. WHO estimates that the death rate in babies can go down four times if EBF is stressed.

The Tenth Five Year Plan highlighted the poor status of IYCF practices in the country: only 15.8 percent of mothers practiced early initiation of breastfeeding, only 55.2 percent used EBF for 0–3 months, and was only 33.5 percent introduced complementary feeding (India–PC 2002). The corresponding goals stated in the plan were ambitious: 50 percent for early initiation of breastfeeding, 80 percent for EBF up to 6 months, and complementary feeding at 75 percent by 2007.

The IYCF guidelines have the following historical context:

- In 1983, following the 1981 International Code for Protection and Promotion of Breastfeeding, the Government of India adopted the National Code for Protection and Promotion of Breastfeeding, and introduced measures for reducing marketing of milk powder and infant food substitutes.
- This action was followed by the Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply & Distribution) Act, 1992, which was monitored by the Department of Women and Child Development (DWCD). The National Commission for Women, in collaboration with UNICEF, organized a two-day national workshop on March 17 and 18, 1994, on Infant Feeding Practices and the Law. A national consultation was held at NIPCCD on August 3 and 4, 1994, on Legislation for Promotion of Breastfeeding in India. These events led to changes in laws providing maternity benefits to working women.
- The Baby-Friendly Hospital Initiative was launched by WHO and UNICEF in 1992.
- In 1993, the Government of India adopted the NNP under the aegis of the DWCD. The NNP emphasized the nutrition and health education of mothers on IYCF, and stressed efforts for effecting behavioral change in mothers (India–MHRD 1993).

The evidence used to develop this policy is as follows:

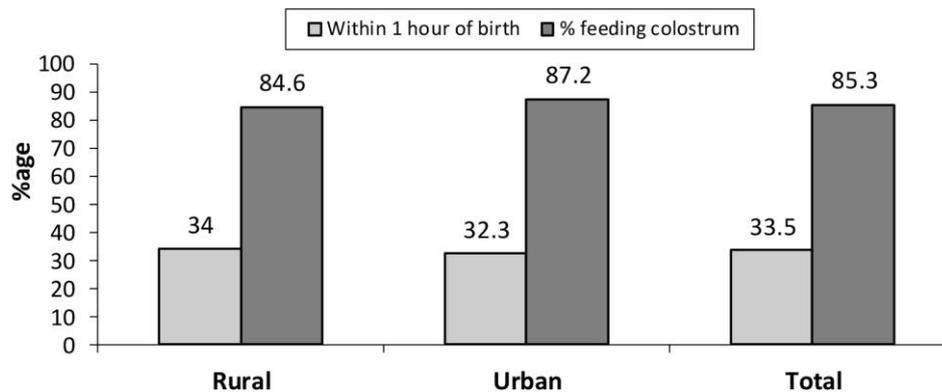
- By early 2000, it was well established that the practice of EBF for 6 months is the single most effective child survival intervention, which reduces deaths in children under 5 in India to about 16 percent (Jones et al. 2003).
- A study by Sachdev et al. (1991) in the urban slums of India established the significance of giving only breast milk to an infant up to 6 months for lowering morbidity and mortality. Various research studies confirmed a wide range of beneficial effects of breastfeeding up to 6 months—from reducing morbidity and mortality to improving cognitive development in children and protecting mothers from cancer. The appearance of the enzyme amylase in the infant’s seventh month was recognized to be critical for introduction of cereal-based food after 6 months of life.
- India played a significant role in the global recommendation by WHO (2001) on promoting EBF for the first 6 months, initiating complementary feeding thereafter, with continued breastfeeding up to the age of 2 years and beyond. A global IYCF strategy was adopted by the 55th World Health Assembly (WHA) in May 2002 and was issued jointly by WHO and UNICEF in 2003.
- A multisectoral National task Force deliberated on the WHA resolution and suggested amendments to the Infant Milk Substitutes Act. In June 2003, the adoption of the Infant Milk Substitutes, Feeding Bottles, and Infant Foods (Regulation of Production, Supply and Distribution) Amendment Act 2003 (popularly known as IMS Act) was approved by the Indian parliament. Effective as of January 1, 2004, the act protects breastfeeding practices by controlling the marketing and promotional activities of baby food manufacturers. According to the act, the age of EBF was extended from 4–6 months to the higher limit of 6 months. This was followed by the formulation of national guidelines on IYCF in 2004.
- The month-wise analysis of the prevalence rate of stunting and underweight by NFHS-3 has increased the significance of appropriate complementary feeding to address undernutrition in children under 2.
- The Tenth Five Year Plan of the Government of India set specific nutrition goals, including those related to early initiation of breastfeeding, EBF for the first 6 months, and introduction of complementary feeding from 6 months onward. The plan also highlighted the importance of colostrum feeding (India–PC 2002).

- The 2006 policy on IYCF was formulated following four regional consultative meetings on nutrition in 2005 and 2006. The various developments and positive evidence with respect to IYCF as reported by WHO and other UN agencies were discussed. Feeding guidelines regarding maternal human immunodeficiency virus (HIV) were discussed based on global WHO–UNICEF guidelines.
- Substantial program discussion followed *The Lancet's* 2008 publication of its Maternal and Child Undernutrition series. Today, the Government of India gives IYCF a very high priority.

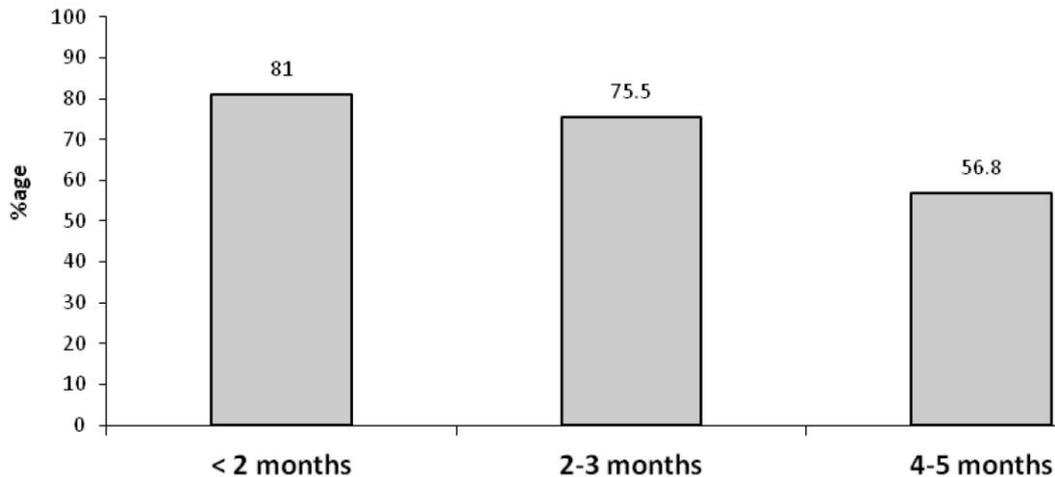
Operationalization

The policy highlights the nutritional superiority of breast milk, defines early initiation of breastfeeding, and recommends putting feeding the baby breast milk as soon as possible—preferably within 1 hour of birth (Figure 5). The policy prohibits feeding of prelacteal feeds and water. As a part of EBF, it highlights the significance of colostrum and the benefits of giving solely breast milk for the first 6 months (Figure 6). It also emphasizes the fact that all mothers, irrespective of their nutritional status, can successfully breastfeed, and provides guidance on nutrition care during pregnancy and lactation.

FIGURE 5. INITIATION OF BREASTFEEDING IN INDIA

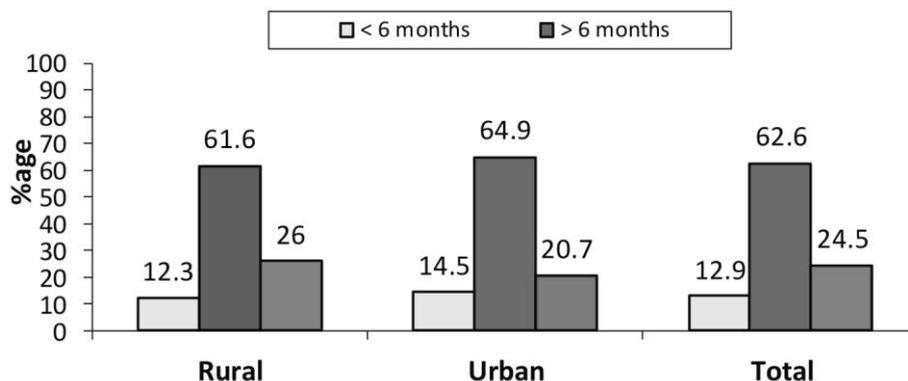


Source: India–MoHFW and UNICEF 2010.

FIGURE 6. EXCLUSIVE BREASTFEEDING UNTIL 6 MONTHS IN INDIA

Source: India–MoHFW and UNICEF 2010.

Regarding complementary feeding, the policy defines the age for introducing semi-solid food, along with continuing breastfeeding (Figure 7). First food for the baby covers such subjects as the significance of including protective foods and increasing the energy density of food. The policy describes the use of traditional food, modified family food, and instant foods; discusses the frequency of feeding; refers to the advantages of active feeding, the safety of complementary feeding, feeding during and after illness, and feeding in exceptionally difficult circumstances; and provides information on feeding LBW babies, feeding during emergency, and feeding in the circumstances of maternal HIV.

FIGURE 7. AGE OF INTRODUCTION OF COMPLEMENTARY FEEDING (SEMI-SOLIDS) IN CHILDREN IN INDIA

Source: India–MoHFW and UNICEF 2010.

The policy also presents the operational guidelines for the promotion of appropriate IYCF, along with details on the roles of various government sectors, professional bodies, and academic institutions. The health sector's push for the implementation of the IYCF policy received special focus with the launch of the RCH program and implementation of the Integrated Management of Neonatal Care and Childhood Illness (IMNCI) package in early 2000.

There is evidence to support the fact that breastfeeding can be demonstrated and learned. Following the NFHS-3 survey, the MoWCD intensified efforts in training of ICDS workers in IYCF and ensuring home visits for interpersonal counseling. The experiences of community-based approaches, such as *Dular*, positive deviance (PD), community-based maternal child health nutrition (MCHN) projects, and Lalitpur District projects were used as lessons learned and innovative strategies within the ICDS program for promoting appropriate IYCF guidelines.

The NFHS-3 data (Arnold et al. 2009) and CES 2009 (India–MoHFW and UNICEF 2010) indicate improvement in the selected indicators of IYCF, but the situation remains far from satisfactory. The results indicate that early initiation of breastfeeding and feeding of colostrum is easier to achieve compared with EBF and appropriate complementary feeding. The increasing use of the institutional delivery scheme with the conditional cash transfer linked to it offers the opportunity to monitor and ensure almost universal adoption of early initiation of breastfeeding. However, much more work is required in the future to ensure that the EBF practices do not decline from 3 months onward.

The significance of interpersonal counseling at the home level, with priority accorded to families with pregnant women and children under 2 years, regular discussion with the mothers' support groups, and social mobilization needs to be accorded a high priority by both the health and ICDS sectors. Childhood stimulation and responsive feeding are critical while feeding a child, and WHO and UNICEF have launched effectiveness trials in some countries regarding this subject. In India, an innovative strategy is being experimented within two project sites—one in Maharashtra and one in Haryana. The emerging evidence is encouraging. Based on these ongoing experiments, the nodal ICDS training institution (NIPCCD) is revising the IYCF training module and adding the component of active responsive feeding in ICDS training.

National Goitre Control Programme, 1962, and National Iodine Deficiency Disorders Control Programme, 1992

The problem

Deficiency of iodine, an essential micronutrient, can result in a wide spectrum of disorders. This public health problem can be corrected by regular consumption of salt fortified with a recommended amount of iodine.

Objectives

The earlier policy of the 1962 National Goitre Control Programme (NGCP) had the following objectives:

- Identify goitre-endemic regions in the country through surveys.
- Supply iodized salt in place of ordinary salt in the identified endemic regions.
- Assess the impact of goitre control measures through resurveys over a period of time.

The objective of the later version of the National Iodine Deficiency Disorders Control Programme (NIDDCP), introduced in 1996, has been to reduce the prevalence of iodine deficiency disorders below 10 percent in the entire country by 2012.

Key evidence/events

Several sources of evidence were used to formulate the NGCP program:

- The NGCP program was launched in the country following a prospective study undertaken among schoolchildren in the Kangra Valley of Himachal Pradesh. The study conclusively demonstrated that iodized salt was effective in reducing goiter. Iodization of edible salt was proposed as the solution for preventing and controlling goitre. Potassium iodate was recommended as the more suitable fortifying agent for the iodization of salt than potassium iodide.
- Initially, the program was restricted to only the sub-Himalayan region, which was then considered to be the only goiter-endemic region. Following surveys conducted by the Central Goitre Survey team, the evaluation of the NGCP by the Nutrition Foundation of India (NFI) in 1981, and the recommendations of the Central Council of Health and Family Welfare, the decision to implement the program for compulsory iodization throughout the country was made, and the program was launched throughout India on April 1, 1986, with high priority accorded to regions identified as goiter endemic.

- NFHS rounds (1998–1999) reported the status regarding use of iodized salt by households (IIPS 1999). Taking into consideration the need to accelerate the strategy of universal salt iodization (USI), a shift in program actions took place by in 2002 involving the Salt Commissioner's Office (SCO) and mapping the wholesalers of iodized salt in the large northern state of Uttar Pradesh. About 350 wholesalers were identified, and efforts were directed for the first time to work with and monitor them closely to ensure a sufficient supply of iodized salt.
- Regular data on iodized salt consumption were collated through national surveys, such as NFHS-2 (IIPS 1999), NFHS-3 (Arnold et al. 2009), and the CES of 2009 (India–MoHFW and UNICEF 2010). This information on iodized salt is used for formulating strategies and revisiting policies.
- Public-sector industries were initially involved in the fortification and supply of iodized salt. Following the NFI evaluation and the Central Council of Health and Family Welfare meeting, participation of the private sector in the production and distribution of fortified salt was recommended from 1986 onward. An iodine deficiency disorders (IDDs) unit was also established in the SCO in Jaipur, with the responsibility of supplying iodized salt in place of plain salt for edible purposes. A rail zonal scheme was also planned and implemented for ensuring uninterrupted supply of iodized salt at subsidized rates to places over 500 kilometers from the production site.
- State-level bans on the sale of noniodized salt were issued under the Prevention of Food Adulteration (PFA) Act in a few states, including the three major salt-producing states.

Several important events were associated with the NGCP:

- In August 1992, the NGCP was renamed NIDDCP, with a view to address not only goiter but a wide spectrum of IDDs, such as mental and physical retardation, lowering of IQ in children, deaf-mutism, cretinism, stillbirth, and abortion.
- The second South Asian Association for Regional Cooperation Ministerial Conference on Children, held in Colombo, reiterated the earlier resolution made in the 1990 World Summit for Children when “universal access to iodized salt by 1995” was adopted as one of the goals. During 1994–1995, the Government of India's efforts to universalize iodization of salt assumed new dimensions with the international focus on elimination of IDDs. The SCO concentrated efforts on accelerating production of iodized salt.

In 1994, at the global level, the UNICEF-WHO Joint Committee on Health Policy endorsed USI as a safe, cost-effective, and sustainable strategy (UNICEF/WHO 1994).

Operationalization

According to guidelines issued by the Government of India in 2006, the policy's focus is on production, demand, and supply of iodized salt for universal consumption by the entire country. Marketing must be only of iodine-fortified salt for edible purposes permitted under the PFA Act, and potassium iodate must be used as the fortifying agent. In 1988, the PFA Act was amended to define minimum levels of iodine— i.e., iodine at the production and retail levels being 30 parts per million (ppm) (earlier than 1988, the cutoff was 25 ppm) and 15 ppm at the consumption level. The NIDDCP's components as follows:

- Undertake periodic surveys to assess the magnitude of the problem.
- Ensure supply of iodized salt in place of common salt to the entire population for edible purposes.
- Organize health education and publicity to promote consumption of iodized salt.
- Establish laboratory monitoring of iodized salt and urinary iodine.

- Resurvey after 5 years to assess the extent of IDD and the impact of consumption of iodized salt.

Production of iodized salt commenced in 1955. In its early phases, the salt iodization program was confined to only government-managed, public-sector undertakings. In 1984, the program was opened for private-sector collaboration, since it was apparent that such a partnership was essential to meet the target of universal iodization of salt. The target was initially fixed at 5.2 million metric tons (MMT) of iodized salt for the entire country. A number of measures were taken for accelerating the use of iodized salt, such as shifting focus from goiter surveys to production of iodized salt, involving the private sector from 1984 onward, introducing a subsidy from April 1, 1986, until 1992, monitoring iodized salt at the production level by the Salt Department, establishing an iodine titration laboratory at the production level, and reducing the customs duty in by 4–25 percent from 1986 onward. A monitoring system was defined, and use of titration methods was accepted for legal purposes. Rapid, low-cost, salt-testing kits produced in India were supplied on a large scale to all states, with UNICEF support and also directly by the government.

By 1996, all states (including the salt-producing states) had issued a state-level ban under the PFA Act on sale of noniodized salt for edible purposes.

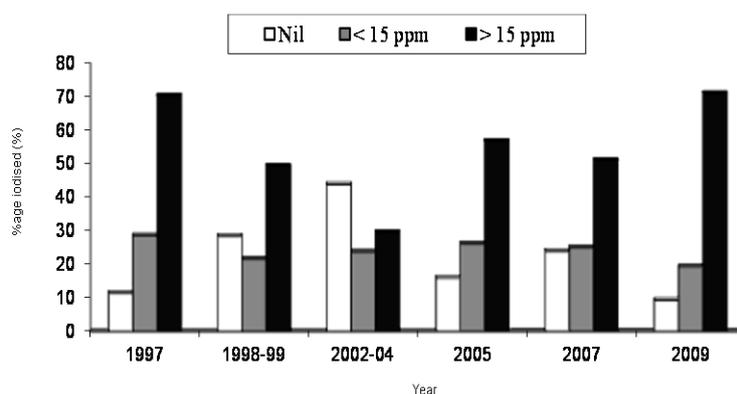
In 1998, for the first time, a national-level legal ban notification under the PFA Act was issued. Subsequently, on September 13, 2000, this national ban was lifted. However, on May 17, 2006, under the PFA Act 1954, the central government reissued the national ban on the sale of noniodized salt for human consumption. The term *edible salt* under the PFA Act itself was redefined, with a specific phrase related to the recommended iodine levels at production and consumption levels.

In the Eleventh Five Year Plan (2007–2012), the goal was restated to ensure 100 percent consumption of iodized salt (India-PC 2007).

Current status and challenges

Currently, India demonstrates a remarkable increase in national capacity to produce iodized salt. The estimated annual capacity for iodized salt production is 13.83 MMT. The revised estimated annual requirement for iodized salt is 6.0 MMT. In 2008–2009, the country produced 5.37 MMT to meet the supply demanded by various states. The discontinuation of a subsidy on iodine imported by the Government of India did not adversely influence the production, since there was stress on creating demand and monitoring levels of iodine at the community level.

However, according to the NFHS 3, 76 percent of the Indian population consumes iodized salt, while only 51.5 percent consumes salt with the recommended level of iodine of 15 ppm (Arnold et al. 2009). This implies that 24 percent of the estimated 26 million children born every year in the country are at high risk of IDD and at the risk of brain damage. The CES of 2009 indicates an improvement, with more than 70 percent of households in the country reporting consuming iodized salt with the adequate level of iodine. Figure 8 presents the iodized salt consumption trend from 1997 to 2009.

FIGURE 8. IODIZED SALT CONSUMPTION TREND, 1997–2009

Source: India–MoHFW and UNICEF 2010.

One of the major constraints in the NIDDCP supply of adequately iodized salt is the production of *bargara* salt, or big-crystal salt, which comprises 22 percent of the iodized salt produced in the country. Another major problem is the continuous increase in the cost of iodine imported by the country, which results in the production of salt with no or low iodine.

IDD surveys undertaken by the Government of India and the International Council for the Control of Iodine Deficiency Disorders during 1999–2006 indicate a significant improvement in urinary iodine levels, but a wide variation among the seven states surveyed.

There is an urgent need to include the roles of the ICDS, health, and the Mid-Day Meal Program systems in the IDD program policy, and in demand generation efforts and monitoring of iodine levels in the salt consumed. Moreover, measures need to be considered for inclusion in the policy that would promote introduction of sachets of “self-iodine testing kits” to be provided with each iodized salt packet to empower communities to test and reject that salt supply that is not iodized.

Policy on Management of Severe Acute Malnutrition, 2011

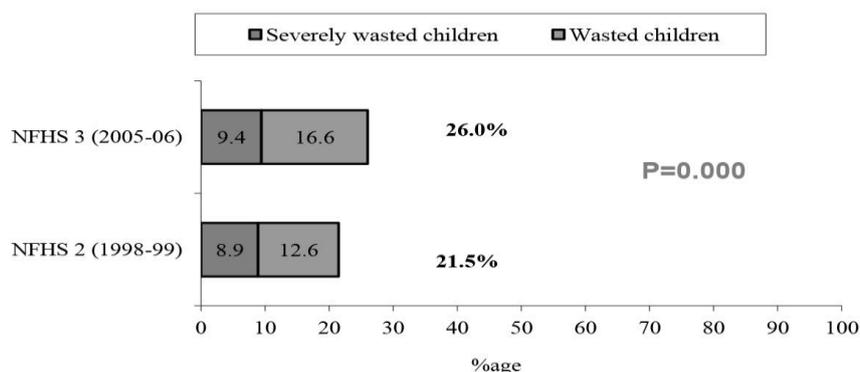
Operational Guidelines on Facility-Based Management of Children with Severe Acute Malnutrition, 2011

The problem

Children with severe acute malnutrition (SAM) have a nine times higher risk of dying than well-nourished children. According to the NFHS-3 survey, 6.4 percent of all children under 5 are severely wasted and suffering from SAM (Figure 9) (Arnold et al. 2009). Taking into consideration the high percentage of severely wasted children in the country, the Government of India considered it essential to provide (1) guidelines to state, district, and block health officials and nutrition program managers and implementers on clinical management and reduction of mortality among children with SAM, particularly those with medical complications; and (2) relevant scientific information for building capacities of mothers and other caregivers in appropriate feeding and caring practices for infants and young children.

Essential elements of the guidelines

The operational guidelines were released on December 1, 2011. The policy focus is on a health facility-based approach for the management of children with SAM. The Government of India recognized the need to integrate these guidelines with a policy guideline on community-based approaches for SAM, which was developed subsequently.

FIGURE 9. TRENDS (1998–2005) IN WASTING IN CHILDREN UNDER 2 YEARS

Source: Arnold et al. 2009.

The policy guidelines are divided in two sections—operational guidelines and technical guidelines. The first section on operational guidelines focuses on the planning and management of a health facility, particularly nutrition rehabilitation centers (NRCs); the rationale and objectives of facility-based management of children with SAM; and the required infrastructure, equipment, supplies, human resources, and monitoring tools.

The operational guidelines include information on services provided at NRCs; details for planning NRCs at state and district levels, building human capacity, and organizing training; lists of equipment and supplies; cost of establishing NRCs; institutional arrangements at state and district levels; follow-up of children discharged from NRCs; monitoring indicators; implementation plans; and monitoring and supervision.

The section on technical guidelines provides criteria for admission and discharge to NRCs, emergency management and basic treatment protocols when dealing with a child with SAM, and details of clinical protocols. It also provides information on management of SAM children under 6 months of age, children exposed to or infected with HIV, and children infected with tuberculosis. The section also specifies ten steps for the management of SAM.

Key evidence/events

National and international evidence was used to formulate the SAM operational guidelines:

- A desk review of global experience, primarily from Africa, helped in policy formulation. The Africa study indicates that nutrition therapy based on ready-to-use therapeutic food (RUTF) is effective for facility- and home-based management of SAM children who do not have medical complications, and can be scaled up for community- or home-based management for children over 6 months of age (Sachdev et al 2010).
- Evidence from pilot experiences in India, in Bihar, Madhya Pradesh, Maharashtra, and West Bengal were studied. In Madhya Pradesh, use of RUTF nutritional therapy for SAM children has been documented as being effective and has been scaled up in the entire state. The Madhya Pradesh study also provides evidence that RUTF therapy may be superior to standard treatment with Formula-100 (F-100) and IAP formulations (Sachdev et al 2010).
- Experience from Maharashtra reported other locally formulated products (ICDS 2012). Models from West Bengal and Gujarat, on a smaller scale, have also shown similar weight gains of SAM children using locally formulated products. The evidence from Indian programs is related to weight gain only, not to height or physiological gain or to functional recovery. Evidence also indicates the need for food and nutrition security and preventive aspects of SAM that need to be ensured during treatment, and during and after recovery from SAM in order to prevent relapses.

- India's production capacity for RUTF therapy has been assessed. The country-level production of RUTF is considered feasible, since India already has in place a couple of units for industrial production for export. Commercial production of RUTF is still an issue in the country. However, a strategy may be devised, keeping in view that RUTF is a nonproprietary product. Partly decentralized manufacture with public-sector involvement may be possible: the public health system, being the sole procurement agency, has guidelines in place that ensure purchase from multiple producers; also, RUTF, being a prescribed product, will not be made freely available.

A National Consensus Workshop on Management of SAM Children through Medical Nutrition Therapy (MNT) workshop was convened on November 26 and 27, 2009, to discuss the SAM operational guidelines. The workshop took place at the Department of Human Nutrition, All India Institute of Medical Sciences, New Delhi, in collaboration with the Department of Paediatrics and Clinical Epidemiology, Sitaram Bhartia Institute of Science and Research, and the IAP Subspecialty Chapter on Nutrition. The objectives of the workshop were to

- critically appraise the current global evidence on the utility of MNT for the management of SAM in children under 5 in India,
- formulate a consensus among stakeholders regarding the need to introduce product-based MNT for the management of SAM in Indian children under 5,
- identify research priorities for MNT for the management of SAM in Indian children under 5, and
- ascertain potential challenges for introducing a product-based MNT in India, if consensus opinion identifies such a need.

The workshop recommendations emphasized the need to update both facility- and home-based care recommendations for the management of SAM among children in India, on the basis of the latest evidence (Sachdev et al. 2010). Workshop participants also recognized that up to 15 percent of children under 5 with SAM require inpatient management because of medical complications, while the remaining 85 percent (without medical complications) can be managed through community- and/or home-based care. Based on the workshop deliberations of the above, a consensus was reached on the following aspects of MNT:

- MNT should be viewed as only a component of the entire process of managing SAM children.
- MNT, being a time-limited therapeutic intervention, should not be considered as being in conflict with the objective and accepted process of attaining food and nutrition security or promoting appropriate IYCF practices for children with or without SAM.
- Adequate caution should be exercised to ensure that MNT for SAM does not interfere with measures for the holistic prevention of childhood undernutrition.
- According to WHO and UNICEF specifications, RUTF therapy is a medical nutrition therapy based on sound scientific principles with a balanced composition of type I and type II nutrients. Apart from anthropometric recovery, RUTF therapy results in physiological and functional (including immunological) recovery. It has a specific composition that has been tested and proved effective in the functional recovery of SAM children.
- RUTF therapy should not be confused with ready-to-use food or any other products or preparations.
- RUTF therapy can be introduced on a pilot basis at scale (district or state level), utilizing existing systems for sustainability. The pilot project should be introduced when a delivery design and plan of action are developed and in place as a part of the larger system to deal with childhood undernutrition.

- RUTF should be used only as therapeutic and not supplementary feeding for children over 6 months of age and for a limited period (4–8 weeks) until the child recovers from SAM; these feedings should be defined in explicit treatment protocols.

The workshop also recommended that MNT be operationalized by the Health Ministry through the IMNCI module, which also has a component for the management of SAM. The ICDS system could provide converge for the identification and referral of children with SAM and the follow-up of these children after their discharge from therapeutic feeding.

The workshop Consensus Statement was published in the *Journal of Indian Paediatrics* in 2010 and facilitated the formulation of policy guidelines (Sachdev et al. 2010).

Operationalization and limitations

India has implemented policy guidelines for facility-based management of children with SAM, and a number of states have established NRCs under NRHM. The MoHFW is giving a high priority to the need to complement these operational guidelines with a policy on community-based management of SAM cases.

However, several implementation hurdles remain on the use of MNT. For instance, regulatory issues need to be resolved between the two nodal authorities (Drug Controller General of India and Food Safety and Standards Authority of India), and information needs to be disseminated widely. The feasibility of manufacturing, regulating, and registering MNT as a food and using and distributing it as a drug could be explored.

The workshop proposed research on comparisons of RUTF with home-based and locally formulated products, physiological recovery and longer benefits of these treatments, the effects of introduction of RUTF on breastfeeding, and operationalization and economic analysis in different settings.

PHFI recently evaluated the NRC programs of Jharkhand. Its findings are expected to provide insights into the situation of discharged cases and provide solutions for follow-up. The state government of Madhya Pradesh also agreed to begin evaluating its NRC program by early June 2012.

Universal Supplementary Feeding of Children 6 Months to 6 Years, Pregnant Women, Lactating Women, and Adolescent Girls under the ICDS Program

Essential elements of the policy

The policy describes the nutrient content, target group, and cost of supplementary feeding (SF). The essential element of the policy is free of cost provision of SF to the defined beneficiary groups—i.e., universal coverage of pregnant and lactating women, adolescent girls, and children 6 months to 6 years of age. The policy recommends that taking local food practices into consideration for SF.

As far back as 1992, it was reported that some states supplied ready-to-eat (RTE) meals, while others provided hot-cooked meals containing a variety of cereal, pulses, vegetables, oil, sugar, etc. In the early 1990s, the concept of take-home rations (THRs) for children under-3 was introduced. Later, there was a shift in focus from providing cooked food to children age 6 months to 3 years at *anganwadi* centers (AWCs) to the system of supplying THRs. The Tenth Five Year Plan proposed strengthening the nutrition education and growth-monitoring components, along with providing SF (India-PC 2002).

The policy specified the following nutrition norms:

- children up to 6 years—300 kilocalories (kcal) and 8–10 g of protein (for the severely malnourished child, double the daily supplement provided to other children), and
- pregnant and nursing mothers and adolescent girls—500 kcal and 20–25 g of protein.

Prior to the Supreme Court order, all families in the community were expected to be surveyed to identify low-income families, deprived children under 6 years, and pregnant and lactating women. SF

norms for calorie and protein were defined, and the identified beneficiaries were expected to receive the recommended energy and protein to fill the gap. Although the policy emphasized targeting malnourished children, in actual practice most SF beneficiaries were not selected through a nutritional screening process. Selection criteria generally depended upon a combination of workers' perceptions of the poorest households in the community and the overall availability of resources that the central and individual state governments provided for SF.

Objectives

SF aims to meet the nutrient gaps between the nationally recommended and average intake of nutrients in the daily diet of pregnant and lactating women, adolescent girls, and children from 6 months to 6 years for at least 300 days in a year, and thus contribute to the reduction of the undernutrition prevalence rate in India. The aim is to supplement—not substitute for—family or home diet. SF is also viewed as points of contacts with mothers for influencing behavioral change.

Key evidence/events

In 2004, a Supreme Court of India order emphasized that there should be universal coverage of the defined target group with SF. In 2004 and 2006, in the context of SF, the Supreme Court (SC) issued the following orders:

1. Supplementary nutrition must be provided to every child under 6, adolescent girl, and pregnant and lactating woman for 300 days in a year (SC Order April 29, 2004).
2. The package of services under ICDS, including immunization, health education, preschool education, and supplementary nutrition, must be provided to all children 6 years old and younger, adolescent girls, and pregnant and nursing women (SC Order December 13, 2006).
3. Efforts must be made to ensure that all scheduled caste and tribe habitations in India have operational *anganwadi* centers (AWCs) as early as possible. Similar efforts must also be made to ensure that all urban slums have AWCs (SC Order October 7, 2004).
4. All states and union territories must make earnest effort to ensure that slums are covered by the ICDS program of services (SC Order October 7, 2004).

In 2009, the nutrition content of SF to be provided was revised as follows—500 kcal and 12–15 g of protein for children under 6 years, 800 kcal and 20–25 g of protein for severely malnourished children, and 600 kcal and 18–20 g of protein for pregnant and lactating women. Flexibility in selection of food items, according to the local needs, has been encouraged. No standard food is being supplied nationally, and the SF (often referred to as supplementary nutrition) items supplied vary from state to state. Most states provide hot cooked meals to children 4–6 years old who attend the ICDS center, while dry RTE mixture is supplied as THR weekly or fortnightly to children 6 months to 3 years and to pregnant and lactating women (up to 6 months breastfeeding period).

In 2009, allocation per child on supplementary nutrition was raised from Rs 2 to Rs 4 for children in the normal weight category, Rs 2.70 to Rs 6 for those in the severely underweight category, and Rs 2.30 to Rs 5 for pregnant and lactating women. Although ICDS is a centrally sponsored scheme, initially the state governments were fully responsible for bearing the cost of the SF component of the program. The expenditure toward the SF component was initially met primarily by the state government under the plan budget available for the Minimum Needs Program. Currently, the entire cost of the ICDS program, except for the cost of supplementary nutrition, is supported by the central government. With the revised guidelines, 50 percent of the costs of SF is currently supported by state governments, while in the North East, the central government covers 90 percent of SF costs.

Since 2009, the policy also includes details regarding incorporation of micronutrient mix. The following micronutrient mix has been recommended to be added to meet 50 percent of the recommended dietary allowances (RDA): iron, vitamin A, calcium, thiamine, riboflavin, niacin, vitamin C, and folic acid.

Operationalization of the policy and limitations

The evidence for the policy can be tracked to dietary surveys emphasizing the gaps in energy and protein intake of children under 6 years of age. According to the NNMB dietary survey report of 1975–1980 (NNMB 1980), presented in the Nutrition Policy Document, comparisons of consumption patterns with recommended dietary allowances (RDAs) reveal a gap in energy intake:

- Children 1–3 years:
 - *Energy intake* in kcal by females = 773 (RDA = 1,050); males = 780 (RDA = 1,200).
 - *Protein Intake* by females = 21.9 (RDA = 22.5); males = 22.0 (RDA = 23.5).
- Children 4–6 years—
 - *Energy Intake* in kcal by females = 1,097 (RDA = 1,500); males = 1,112 (RDA = 1,700).
 - *Protein intake* by females = 30.9 (RDA = 28.5); males = 31.5 (RDA = 30.0).

Both the ICMR and WHO expert groups recommended additional calories and proteins during pregnancy and lactation—an additional 300 kcal throughout pregnancy, while for the lactation period, WHO recommended an additional 500 kcal during the first year of lactation, and the ICMR recommended 550 kcal during the first 6 months of lactation and 400 kcal during the 7–12 months of lactation.

The national evaluation of ICDS by NIPCCD was undertaken in 1990 at the instruction of the then nodal department of ICDS—i.e., DWCD, DHRD. Data collected in 1991 revealed that 39 percent of urban, 29 percent of rural, and 19 percent of tribal *anganwadi* workers (AWWs) reported that food items served under SF were often not acceptable to the community. The reasons were difficulty in digesting, tasteless food (which often caused diarrhea), and was deemed “unfit for human consumption.” The SF was reported to be disrupted for more than 90 days of the recommended 300 days in about one-third of the ICDS centers. Other problems reported by functionaries included children taking food home that was meant to be eaten at the AWC and sharing that food with their families, the poor quality of food provided, lack of fuel and utensils to cook the food at the AWC, and community interference.

NFI and the National Council of Applied Economic Research (NCAER) evaluated the SF component of the ICDS program (NFI 2006, NCAER 2004–2005). The findings indicated that the ICDS program may be improving food security at the household level, but does not effectively address the issues of prevention, detection, and management of undernourished children or mothers. Numerous limitations in delivery mechanism, quality, and actual consumption by the target group were highlighted. These studies provide no evidence on the positive impact of SF on child feeding practices or on nutritional status.

The evidence regarding the impact of providing supplements to pregnant and nursing women on the nutritional status of their children is not very convincing. The findings indicate that when food supplements are provided without screening, targeting supplementation, and monitoring the program, the improvement in maternal nutrition and birth weight, if any, is very limited. On the other hand, research studies in India and elsewhere have shown the beneficial effects on pregnancy outcomes when pregnant women who habitually consume low calories increase calorie intake. Women whose body weight is less than 40 kilograms (kg) during pregnancy need to be given adequate and continuous food supplementation along with ANC. Therefore, The Tenth Five Year Plan recommended that pregnant women less than 40 kg be identified, targeted, and provided with SF (India-PC 2002).

The dietary surveys carried out by NNMB in 2006, using the dietary recall methods, indicate that a much higher percentage of adults (59–93 percent) in families consume adequate calories and proteins (adequate defined as 70 percent RDA) than the percentage of 1–3-year-old children in these families, which is much lower (19.4–52.3 percent). These findings provide evidence that lack of food within a family, per se, is not the cause of the calorie and protein gap in the diets of children, but

much less effort is given to feeding a child appropriately. Promoting family practices regarding feeding and caring for children needs to be addressed through nutrition education.

Evidence of the impact of SF on nutritional status is not reported through any systematic studies in India. Moreover, global surveys undertaken with UNICEF support in the late 1970s reveal that SF in most cases is not a supplement but is rather a substitute for a home diet. Additionally, the feeding program is one activity that is highly vulnerable to malpractices and corruption. SF requires a high financial investment component and consumes a large portion of time and energy of the ICDS workers at every level. Therefore, the large investment in SF is often questioned. As far back as 1981, Dr. K. Bagchi, a well-known nutritionist, questioned the rationale of investing in SF by stating, “This is one example of a mistake being continued for reasons other than nutrition” (Bagchi 1981).

In 1999 the World Bank computed the expenditures relating to nutritional supplements and nutritional status in 12 major states of India. Expenditures on SF did not demonstrate any co-relation with the level of undernutrition or the state domestic product. Kerala, which was spending much less on SF, had the lowest undernutrition rate, which was attributed to proper feeding, equitable distribution of food, and effective healthcare.

According to WHO eLENA,⁷ “Current systematic reviews have failed to demonstrate a sizable impact on child growth; however, the small number of studies that exist on this topic make it difficult to reach any firm conclusion, and the results from the current systematic review should be interpreted with caution because of the diversity of the studies included and their limited geographical scope. Additional research is required. In the meantime, families and children in need should continue to be provided with supplementary foods.”

The SF component of ICDS continues to attract significant public attention. However, its impact on improving nutrition of children is not backed by any evidence. The evaluations by NFI, NIPCCD, and NCAER and other reports indicate a number of implementation problems:

- Children 6–36 months and pregnant and lactating women do not come to ICDS centers to collect food supplements.
- There are difficulties in procuring locally available THRs. The RTE food provided by the central procuring scheme does not constitute a cereal-pulse-oilseed mix and is not locally acceptable.
- With the increase in ICDS coverage, there is a substantial increase in requirement of funds for SF. Despite the increase in central allocation, the increase in the SF component from the state’s own plan remains much lower than required. For example, in the Ninth Five Year Plan, the total plan allocation was Rs 1,203.56 crores against the requirement of Rs 1,402.59 crores to provide food to all pregnant women and children under 6 years in families below the poverty line. The cost of SF was calculated at the rate of Rs 1 per beneficiary for a single ration and exceeded the cost of providing double rations in the case of malnourished children (India–PC 1998).
- The impact of SF on undernutrition is not evident. For example, some states, such as Tamil Nadu, Gujarat, and Delhi, spent more than the minimum amount on SF than estimated, but did not show a corresponding decrease in undernutrition rates.
- The THR is normally consumed by the family and not the child. Improving targeting and reaching the undernourished child with appropriate feeding remains a challenge.
- Older children (3–6 years) participate in the feeding program much more than younger children, and children from wealthier households participate much more than poorer ones. The program fails to preferentially target girls, lower castes, or the poorest villages (all of whom or which are at higher risk of undernutrition).

⁷ WHO, e-Library on Nutrition Actions.

- The dominant focus on food supplementation was detrimental to execution of other tasks envisaged in the program that are crucial for improving child nutritional outcomes, such as improving childcare behaviors and educating parents on how to improve nutrition using the family food budget.
- It is interesting to note that the national guidelines on IYCF, issued by the same ministry as ICDS, make no reference to appropriate use of SF in improving the practice of feeding of children or lactating mothers. The training of ICDS functionaries on IYCF needs to be linked to SF.
- Hygienic conditions for cooking and serving hot cooked meals is of concern, since SF may be cooked in an unhygienic environment.
- The system of monitoring the SF component lacks transparency, and there needs to be greater accountability in reporting SF data.

As reported in the NFHS-2 and NFHS-3, the underweight prevalence rate in the country remained almost stagnant between 1997 and 2005 (IIPS 1999, Arnold et al. 2009). Moreover, despite high investment, the coverage of children under the ICDS program remains low. The NFHS-3 reported that only one in three children in areas served by the ICDS Scheme received one or more ICDS services from the AWCs. NFHS-3 data also show that few children under 6 years received any SF. Only 12 percent received SF daily, while 6 percent received food at least once a week, and another 6 percent received food at least once a month. This is demonstrated in the data that show that the situation of AWCs established for the under-6-years age groups was similar to those catering to the above-6-years age groups (Arnold et al. 2009).

A number of mechanisms have been put in place by the government to involve the community in monitoring SF distribution, with the aim of reducing pilferage and increasing accountability. Since the policy of providing SF is expected to remain in place because of the political support it has received, despite lacking concrete scientific evidence on nutrition outcomes, it is important that the SF component be used as an entry for other actions to reduce undernutrition.

Efforts also need to be made to ensure coverage of all pregnant mothers who are 40 kg or less, with suitable SF along with the provision of an ANC package, including regular monitoring of weight gain. Additionally, efforts need to be made to strengthen the nutrition education component, with emphasis on child feeding and hygiene, for caregivers of children under 3 years. Regular demonstration sessions on using SF and the THR should be conducted and efforts should be made to sustain momentum.

Policy for Provision of Supplementary Nutrition to Women and Children, 1970–1971

Essential elements of the policy

Since the 1970s, a very high rate of undernutrition in the country has been attributed mainly to poverty and lack of food in the family. This was supported by the fact that a gap was observed in the intake and requirements of the nutrients in children under 6 years.

Key evidence

Dietary surveys conducted in the country in the 1970s indicated an average energy consumption of 834 kcal and 22.8 g of protein for children 1–3 years old, and energy intake of 1,118 kcal and 30.2 g protein for children 4–6 years old. Compared with the recommended dietary allowance, gaps in energy and protein consumption were observed to be about 300 kcal and 10 g, respectively. Provision of SF to young children was considered essential to overcome the gap in nutrients consumed versus the RDAs. The concept of SF was based on the fact that providing SF over and above the family diet to potentially vulnerable children will solve the problem of high levels of child undernutrition in India.

Operationalization

The Supplementary Nutrition Programme (SNP), or free provision of food, was launched in India in 1970–1971 with a high level of political commitment, to protect the weakest economic segment in the country against undernutrition. Part of the Minimum Needs Program, SNP aimed to provide extra food to children or families beyond the normal ration of their home diets. The social welfare sector was responsible for the program, and undernutrition was viewed merely as a social ill.

Current status and the way forward

From 1975 onward, using the above rationale, a SF component was added to the package of services to be provided by ICDS. Initially, the SF component of ICDS was funded by the states and union territories from the allocated SNP budget. The ICDS program initially aimed to direct its efforts only to economically backward areas—rural poor, urban slums, and tribal groups—and the beneficiaries were children under 6 months and pregnant and lactating women. Later, from April 2004 onward, universal coverage of SF to children, mothers, and adolescent girls became a part of the ICDS program. Today, SF is the most visible component of the ICDS program.

The Policy Environment for Nutrition

The policy environment for nutrition is robust, with the following key characteristics:

- Most policies and guidelines are strong on the use of evidence. Several sources of evidence are used, the most common being survey data, and the less common being program evaluation data.
- Global and Indian perspectives are frequently used to identify core issues that affect nutrition.
- Indirect actions, in addition to direct actions, are seen as key in having an impact on the nutrition landscape, as well as emphasis on multisectoral initiatives (e.g., economic empowerment of women, food security, improving access to primary healthcare).
- At the national level, there have been many deliberations on the subject: the Prime Minister’s National Nutrition Council meeting (2010), a multistakeholder consultation hosted by the Planning Commission (2011), deliberations by the National Advisory Council and other deliberations on ICDS restructuring, and routine expert group meetings to track multisectoral actions and progress.
- Stakeholder engagement has been active: consultations, including a civil society engagement window at the Planning Commission; direct interactions with the Planning Commission and the MoWCD; and memberships on task forces and working groups.

However, despite these positives, inadequate documentation of sources of evidence/information and past processes limits effective assessment of knowledge flows and use. The systematic recording of data and evidence use for policymaking is inadequate and requires strengthening. Also, policy revisions are taking place, but there is a greater need to use program implementation evidence for this purpose.

FIVE YEAR PLANS OF THE PLANNING COMMISSION

India’s Five Year Plans have focused on diverse aspects of undernutrition over the past several decades—an indicator of the considerable emphasis on reducing undernutrition through policy action. What has remained a challenge, however, is a clear assessment of what is achieved at the end of a particular Five Year Plan period and the accountability of government systems to work toward the plan’s targets. This lack of evaluation has led to repetitive ideas being presented in various plan cycles.

Table 2 summarizes the key elements of the last ten Five Year Plans as relevant to tackling undernutrition and hunger. In this section of the findings, the details of these plans are analyzed with the objective of understanding evidence use in the design and formulation of these plans.

TABLE 2. SALIENT FEATURES OF INDIA'S LAST TEN FIVE YEAR PLANS: ELEMENTS RELATED TO TACKLING UNDERNUTRITION AND HUNGER

Five Year Plan	Salient Features
Third (1961–1966)	Applied Nutrition Programme launched; focus on food production at the community level (integrated model discontinued in the late 1970s).
Fourth (1969–1974)	Protein energy malnutrition, vitamin A deficiency, anemia key concerns; micronutrient and supplementary feeding (SF) programs (Special Nutrition Programme; <i>Balwadi</i> Nutrition Programme)
Fifth (1974–1979)	Evidence on breastfeeding (BF) reducing child mortality; increased attention to promoting BF; shift in focus from welfare to development; dietary deficits data from NNMB through periodic diet and nutrition surveys in 8–10 states—special focus on improving the nutritional status of infants, children, and pregnant and lactating women; National Policy on Children. Response to World Food Conference 1974, global evidence combined with NNMB data leads to launch of ICDS.
Sixth (1980–1985) and Seventh (1985–1990)	ICDS expansion; Planning Commission (PC) set up task force to focus on nutrition policies and programs and to initiate efforts to formulate a National Nutrition Policy (NNP).
Eighth (1992–1997)	Nutrition high on agenda; NNP launched in 1993 (India one of the first developing nations to do so) based on data on dietary intake, food production, poverty (India–MHRD 1993); reference to direct and indirect interventions; National Plan of Action for Children 1995 with role of 14 sectors identified, responsibilities of central and state governments.
Ninth (1998–2002)	Health, nutrition, and education three main thrust areas; ICDS placed at the center of addressing malnutrition; universalization of nutrition SF program.
Tenth (2002–2007)	Major focus on convergence between health and nutrition; evidence for action from conceptual framework of undernutrition by UNICEF; National Health Policy launched in 2002 with inadequate attention to undernutrition; NFHS-3 evidence that decreases in stunting and the prevalence of underweight are negligible is used to convene a PC consultation on Integrating Nutrition with Health, 2006.
Eleventh (2007–2012)	ICDS and nutrition subgroup formed; NFHS-3 data revealed stagnation in improvement of nutritional status of children between 1998 and 2005 (contrary to international evidence that a 3-4 percent increase in per capita income reflects a 1 percent decline in undernutrition, as measured by rates of underweight children; World Bank's under-2 window of opportunity acknowledged. Household food insecurity, sanitation, hygiene, inadequate care of women and children; need to focus on children under 3.
Twelfth (2012–2017)	Working Group constituted and report submitted (India–MoWCD 2011b); focus on moving to nutrition security with a life-cycle approach ; using other developing country experiences; children under 2 targeted, also the poorest and socially excluded; High Level Expert Group on Universal Health Coverage (notes obligation of state to provide adequate food and nutrition, proposes a continuum of care across the four pillars of health, nutrition, education, and environment).

Note: For India's Five Year Plans, see <http://planningcommission.nic.in/plans/planrel/fiveyr/welcome.html>.

Third Five Year Plan

In the early 1960s, India's Applied Nutrition Programme (ANP) was launched jointly in the Third Five Year Plan period (1961–1966) by the Department of Rural Development and the then Ministry of Agriculture and Irrigation (India–PC 1961). The ANP aimed to improve the nutritional status of populations, particularly women and children in rural areas, with a focus on vulnerable communities. In actual practice, the ANP emphasized food production through the establishment of kitchen gardens, school gardens, and backyard poultrys.

In 1978, the ANP, which was covering clusters of villages in 35 percent of all blocks in the country, was proposed to be integrated with the Department of Rural Development. The proposed plan of 1978 focused on integrating the ANP with the early 1970s SF programs, along with nutrition and

health education, safe drinking water and environmental sanitation, income-generating activities, delivery of health and family welfare inputs and care, and the processing and storage of nutritious food. However, this proposed integrated model of the ANP never was implemented; in fact, it was discontinued. This was partly because most sectors did not do what they were expected to do in the field of nutrition, and partly because coordination between departments was also lacking. However, the importance of community participation and multisectoral contributions to nutrition programs was an important lesson learned from the ANP.⁸

Fourth Five Year Plan

Estimations of the growth in real income and reduction in poverty in the past two decades in India have not been commensurate with corresponding changes in reported nutritional intake. The NSSO data⁹ show that the nutritional intake in India, as measured by the average calorie intake, has decreased since the mid-1970s across all the states as well as in rural and urban areas. Therefore, to reverse this trend, in the early 1970s as a part of the Fourth Five Year Plan, the country's main emphasis was on overall economic growth and development.

There was also major concern about clinical PEM, eye damage related to VAD, and anemia in women during pregnancy. Therefore, the maternal and child health policies introduced measures to prevent vitamin A and IFA deficiencies. Policies for periodic administration of massive doses of VAS and provision of IFA tablets to defined vulnerable sections of the population were introduced. These micronutrient supplement programs were included in the health and family planning interventions in the Fourth Five Year Plan (1969–1974), and the health system was responsible for service delivery (India–PC 1969). Supplementary feeding programs, such as the SNP and the *Balwadi* Nutrition Programme, were launched in 1970–1971, with the aim of providing 300 kcal and 10 g of protein to preschool children. Under the SNP, supplements to pregnant and nursing women were also provided. The Fourth Plan focused on accelerating basic minimum services for children, leading to the adoption of the National Policy for Children in 1974.

Fifth Five Year Plan

The Fifth Five Year Plan (1974–1979) saw a shift in focus from child welfare to child development (India–PC 1974). There was increased stress on poverty, unemployment, and malnutrition. Attention was directed to the care and development of young children through a comprehensive approach comprising of interventions to improve the health, nutrition, and psychosocial development of children.

In the mid-1970s, based on evidence of the impact of breastfeeding on reducing child mortality, there was increased attention to promotion of breastfeeding. India became one of the leading developing countries to introduce legal measures, such as the IMS Act, and later to address the serious problem of infant formulas and food products flooding the market. The serious implications of unhygienic bottle feeding on increasing morbidity, ill health, and undernutrition were highlighted. Promotion of breastfeeding and a legal ban on commercial infant food products meant that the government was serious about addressing the overall development of young children. Measures were introduced for effective implementation of the International Code of Marketing of Breast-Milk Substitutes.

Sixth Five Year Plan

In the Sixth Five Year Plan (1980–1985), improving the nutritional status of infants, children, and pregnant and lactating women received special focus (India–PC 1980). This interest was spearheaded by the emerging data from 1972 on dietary deficits reported by the NNMB, which had

⁸ WHO, e-Library on Nutrition Actions, page 230.

⁹ The NSSO at the household level collects information on food intakes for a large number of disaggregated food items. These are converted into equivalent calories, which gives an indication of the nutritional status of the household (Viswanathan 2003).

undertaken periodic diet and nutrition surveys in more than eight states in the country. There was increased attention to improving dietary intake, which was reflected in the National Plan of Action for Children many years later in 2005.

In the Sixth Five Year Plan, national programs were initiated for promotion of maternal care and childcare, such as immunization of pregnant women and children against vaccine-preventable diseases (e.g., tetanus, whooping cough, diphtheria, tuberculosis, and polio). Prophylaxis against vitamin A and iron deficiencies, and programs for improving the nutrition of mothers and children, were introduced in this plan period.¹⁰

Seventh Five Year Plan

The ICDS Scheme was one of the major programs taken up in 1975–1976 in the central sector on an experimental basis. It was started in 33 rural and tribal blocks and some urban slums to provide children from poor families the basic services of health, supplementary nutrition, and informal preschool education for a better start in life. On the basis of the positive results of these experimental projects, the pace of expansion of this program was accelerated in the Seventh Five Year Plan (1985–1990) (India–PC 1985).

The coverage of children under 3 years of age, which was found to be low, started improving. There was an increase in the level of preventive healthcare and the utilization of health services, and child welfare was given the highest priority. The basic minimum childcare services were extended to the most vulnerable group—i.e., 0–6 years of age, especially the age group 0–3 years—in order to reduce the high incidence of child mortality, morbidity, and malnutrition in the country. More emphasis was placed on enhancing the capabilities of mothers to look after the health and nutritional needs of children. Effective coordination in the provision of health inputs, nutrition education, water supply, and other relevant services was accorded priority in this plan period.¹¹

Eighth Five Year Plan

Investment in child development services was viewed as an investment in the country's future. Two National Plans of Actions were adopted in 1992, one pertaining to all children and the other specifically focused on female children. The Eighth Five Year Plan (1992–1997) positioned nutrition issues high on the national agenda (India–PC 1992). This Plan launched two major nutrition policy efforts: the NNP (1993) and the National Plan of Action on Nutrition (1995).

Ninth Five Year Plans

The Ninth Five Year Plan (1998–2002) continued to focus on the three major areas of child development—health, nutrition, and education (India–PC 1998). Moreover, the Ninth Plan's strategy had a special focus on female children, and reaffirmed its priority toward the development of early childhood years. While the plan acknowledged the first 6 years as being critical for the development of children, it placed greater stress on reaching younger children under 2 years.

The two National Plans of Action—one for all children and the other exclusively for female children—adopted in 1992 were consonant with the guiding principles underlining the importance of “survival, protection, and development.” Therefore, the plan made efforts to expedite effective implementation and achievement of the goals set in the two plans of action, and also instituted a National Charter for Children to ensure that no child remained illiterate or hungry or lacked medical care.

The plan also included

¹⁰ Sixth Five Year Plan (Volume 2): <http://planningcommission.nic.in/plans/planrel/fiveyr/index9.html>.

¹¹ Seventh Five Year Plan: <http://planningcommission.nic.in/plans/planrel/fiveyr/7th/vol2/7v2ch13.html>.

- universalization of the nutrition SF programs to fill the existing gaps with respect to both preschool and school-age children and expectant and nursing mothers, with a special focus on the female children and adolescent girls; and
- provision of a package of six services—supplementary feeding, immunization, health checkups, referral services, preschool education and health, and nutrition education—for the plan’s beneficiaries.¹²

Ninth and Tenth Five Year Plans

ICDS was still considered a nodal program for addressing problems associated with malnutrition in children. In the Ninth and Tenth Five Year Plans, universalization of the nutrition SF program received special attention (India–PC 1998 and 2002). A number of changes were introduced in the policy guidelines pertaining to the SF to be provided under ICDS. The modifications were with reference to composition of nutrients and type of product, such as RTE or hot cooked food. These were supported by a legal notification of the Supreme Court of India on November 28, 2001. Additionally, ICDS stressed involvement of the community in the monitoring, cooking, and distributing SF. Provision of SF was given much more attention in the ICDS program at the cost of other components, such as growth monitoring, health promotion, and nutrition education. The significance of ensuring links with the health system for universal access to health services or conducting nutrition education sessions on child feeding and maternal care remained a very low priority.

ICDS was designed to address the multidimensional causes of undernutrition. As the program expands to reach more and more villages, it has the potential to positively affect the nutrition, health status, and well-being of millions of women and children who are eligible for participation. The key constraint on the program’s effectiveness is that its actual implementation deviates from its original design. There has been an increasing emphasis on the provision of SF and preschool education to children 4–6 years old at the expense of other components that are crucial for combating persistent undernutrition. As a result, most children under 3 years of age—the group that suffers most from malnutrition—are not reached, and most of their parents do not receive counseling on better feeding and childcare practices (Gragnotati et al. 2006).

The undue focus on SF resulted in ICDS being referred to as the *dalia* (meaning porridge) program. While there is evidence pointing to the need for SF activities to be better targeted toward those who need it most, such programs need to be complemented by growth-monitoring activities and programs that help parents understand how to improve their children’s health and nutrition (Gragnotati et al. 2006).

Tenth Five Year Plan

The Tenth Five Year Plan (2002–2007) showed increased interest in linking ICDS, health, water and sanitation, and other sectors to address the immediate and underlying causes of undernutrition (Box 4) (India–PC 2002). The plan highlighted the relationship of nutrition interventions with health interventions. During this plan period, the nutrition program and planning responsibility was delegated to the health and nutrition advisor in the Planning Commission. The Tenth Five Year Plan articulated a focus on nutrition education and research toward defining nutritional requirements of Indians. Nutrition surveillance was given priority to monitor the impact of demographic, developmental, economic, ecological, and life-style changes on the nutritional and health status of the population.

Box 4. THRUST AREAS IN POLICY FORMULATION INTRODUCED IN THE TENTH FIVE YEAR PLAN

- Infant and young child feeding
- Vitamin A deficiency

¹² Ninth Five Year Plan (Volume 2): <http://planningcommission.nic.in/plans/planrel/fiveyr/index9.html>.

- Iodine deficiency disorder
- Iron deficiency anemia
- Policy on zinc and diarrhea management
- Provision of supplementary food under the ICDS program
- Growth monitoring and promotion (mother and child protection card)

The plan also focused on

- training and reorienting service providers in the health, family welfare, and nutrition sectors so that they are able to screen individuals to determine their specific needs;
- setting up a national nutrition mission with the objective of reducing undernutrition and micronutrient deficiencies; and
- providing food grains to undernourished adolescents (as part of a package to deal with adolescent health and development)¹³

During the period of the Tenth Five Year Plan, a number of community-based innovative experiments for addressing undernutrition—such as *Dular*, Reproductive and Child Health, Nutrition, and HIV/AIDS (RACHNA) program, community-based maternal and child health nutrition, and positive deviance—were launched at the state level, with support from agencies like CARE and UNICEF (Box 5). These innovations were subsequently evaluated, project findings were synthesized, and lessons learned were disseminated for further streamlining of nutrition actions.

BOX 5. IMPACT OF THE BEST PRACTICES ON NUTRITIONAL STATUS OF CHILDREN

Aanchai Se Angan Tak (ASAT)

- Significantly reduced stunting (stunting prevalence of 35 percent in ASAT groups versus 45 percent stunting in non-ASAT groups).

Dular

- Significantly reduced underweight and stunting (56 percent underweight and 62 percent stunting in *Dular* areas versus 65 percent underweight and 72 percent stunting in non-*Dular* areas).

Positive Deviance (PD)

- Significantly reduced stunting in children under 3 (26.5 percent stunting in PD areas versus 32 percent stunting in control areas).
- Significantly reduced underweight and stunting among children 12–17 months old (underweight: 46 percent in PD areas versus 63 percent in control areas; stunting: 25 percent in PD areas versus 37 percent in control areas).

RACHNA

- Had a significant protective effect on wasting in operations research conducted in Uttar Pradesh (wasting increased from 5 percent to 9 percent in intervention areas versus from 7 percent to 14 percent in control areas).
- Significantly reduced anemia (decreased from 89 percent to 87 percent in intervention areas versus an increase from 83 percent to 87 percent in control areas).
- Reduced underweight by 8 percent program-wide reduction (from 61 percent to 53 percent reported in pre- and post-program without control evaluation).

Source: Coalition for Sustainable Nutrition Security in India. 2010. *Sustainable Nutrition Security in India*. Overview of the Leadership Agenda for Action, p. vi.

¹³ Tenth Five Year Plan (2002–2007), <http://planningcommission.nic.in/plans/planrel/fiveyr/default.html>.

Eleventh Five Year Plan

The Eleventh Five Year Plan (2007–2012) recognized the significance of underlying causes of undernutrition, such as imbalance of demand and supply at household or community levels (India–PC 2007). Recommendations related to addressing such imbalances include strengthening household food security, ensuring adequate care for women and children, and dealing with unhealthy environments by providing hygiene, sanitation, and health services. Policies related to healthcare (e.g., ANC and immunization) ensure the well-being of the mother and child, and an efficient public distribution system (PDS) addresses supply-side issues that help combat food insecurity and undernutrition.

However, the impact of the policy actions (especially on the related sectors described above) on such programs as provision of safe water, total sanitation, and health services on reducing the overall burden of undernutrition is neither well understood nor articulated in the policies. Nor do these policies or programs that indirectly influence and reduce undernutrition receive special attention in the Eleventh Five Year Plan (programs, such as the Mahatma Gandhi National Rural Employment Guarantee Act, which increase the income access and purchasing power of communities; and various food security, horticulture, and agriculture programs). These programs do not include nutrition objectives in their purview nor do they refer to the expected impact on reducing undernutrition.

Eradication of severe malnutrition and strengthening of nutrition and health education actions are also stressed in the Eleventh Five Year Plan. Universal registration of births and follow-up of each child through the use of mother and child protection card; monthly weighing of children under 3 years; and provision of nutrition, and health education kits, and SF were also mentioned in the plan. Regarding provision of SF, the plan recommends encouraging community-based organizations (e.g., self-help groups, *Mahila Mandals*, mothers' committees) to ensure greater participation of community members in the procurement, processing, and distribution of SF and enhancing universal coverage. The plan also recommended that provision of RTE food that is locally prepared be encouraged and scaled up for children under 3 through the THR process.

The Eleventh Five Year Plan emphasized the need to increase focus on children under 3, strengthen preschool education, improve maternity benefits, and provide IYCF counseling as part of the ICDS service delivery. Implementation of IYCF guidelines and development of monitoring indicators of early initiation of breastfeeding and appropriate complementary feeding are recommended to be included in the monthly appraisal of the AWWs. In addition, the plan recommends BCC, a food supplement for adolescent girls; fortification of SF; and use of a fixed day in a month for nutrition and health education. Systematic linkage with existing community food and nutrition extension units of the Food and Nutrition Board is also recommended, along with emphasis on developing capacity and undertaking training on nutrition issues and interventions of the relevant workers. Finally, the plan emphasizes developing a nutrition information system in ICDS to measure progress with respect to all nutrition-related outcomes and process indicators.

The recommendations of the draft Mid-term Appraisal of the Eleventh Five Year Plan (presented to the National Development Council on July 24, 2010) (India–PC 2011c) as well as the NCAER Evaluation of ICDS and the Joint Strategy Note prepared by the MoHFW and MoWCD, provided valuable evidence and the agenda for the 2010 multisectoral retreat “Addressing India’s Nutrition Challenges” (India–PC 2010). The objectives of the retreat were to

- prioritize key multisectoral interventions for accelerating actions to urgently meet India’s nutrition challenges,
- identify different strategic options and institutional mechanisms for effective implementation,
- evolve a National Plan of Action framework for combating undernutrition, and
- reaffirm commitment to action for addressing India’s nutrition challenges.

The retreat was attended by 200 participants, including members of various commissions, such as the National Commission for the Protection of Child Rights and the National Commission for Women; national institutions like NIHF, NIN, National Health Systems Resource Centre, and PHFI; experts; development partners; civil society groups; *panchayati raj* Institutions (PRIs); and women's self-help groups. Government representation comprised of union ministers, the deputy chairman and members of the Planning Commission, senior officials from the prime minister's office and the Planning Commission, secretaries of concerned ministries at national and state levels (Women and Child Development, Health and Welfare, Rural Development, Agriculture, Food and Civil Supplies, Elementary Education, PRI, Information and Broadcasting); and field functionaries. Discussion took place on the major implementation gaps in the delivery of nutrition-related interventions in the national programs and the institutional reform required at various levels, going down to the village level. The retreat recommended the following:

- Initiate a national mother and child malnutrition prevention and reduction program in a “mission mode” with a focus on high burden and the most vulnerable districts.
- Develop and implement multisectoral state and district plans of action.
- Strategically focus on the most critical and vulnerable age group (i.e., children under 2 years), pregnant and lactating women, and adolescent girls.
- Create and strengthen a national body in a mission mode. In this context, reference is made to the fact that establishing such a national mechanism may require revamping the National Nutrition Mission.
- Establish state and district nutrition resource centers utilizing existing institutions, including medical and home science colleges.
- Universalize access to and enhance the quality of primary healthcare services at the village level, and strengthen the nutrition component of NRHM.
- Construct child-friendly toilets, and provide safe drinking water in all AWCs, primary health centers, and schools.

The recommendations also referred to a number of processes, such as *panchayat*-led (local self-governance) models with a focus on involving village *panchayat* members and empowered women's community members (designated as change agents for malnutrition-free *panchayats*) and awards to successful members on their achievements. Reference was made to strengthening community processes, having community volunteers and peer counselors for a cluster of 15 to 20 households, organizing their training, and ensuring promotion of mother-child protection cards. The other strategies recommended included extending NRHM-managed village health sanitation committees to include nutrition; restructuring ICDS; introducing nutrition counseling as a service, with emphasis on linking ICDS and NRHM; refining the roles and responsibilities of frontline workers; introducing a new mother and child card; tracking a mother-child dyad through home visits; and undertaking specific nutrition actions besides health services, such as immunization and ANC at monthly Village Health and Nutrition Days.

The retreat also recommended initiating national nutrition education and communication campaigns; establishing a national system for nutrition surveillance that would include implementation of regular mapping (using data generated through annual district-level health surveys on nutrition and health parameters in all districts); and creating a policy support unit within the Planning Commission.

Following the retreat, the draft Five Year Strategic Plan (2011–2016) was released. This plan focused on women's development and prevention action for nutrition in the first year of life. Unique to this plan was its special focus on preventive action.

Importance of Nutrition in the Twelfth Five Year Plan

Currently, India is finalizing the Twelfth Five Year Plan (2012–2017), which provides an opportunity for bringing together the world’s largest health and childcare systems through flexible frameworks that ensure a continuum of care with normative standards, while responding to local needs at village and household levels. The prime minister of India, while chairing the full Planning Commission meeting on April 21, 2011, stated: “[T]he XIIth Plan objective must be faster, more inclusive, and also aimed at sustainable growth.” He noted that India needs to identify the critical areas where existing policies and programs are not delivering results and should “therefore be strengthened or even restructured.” Thus, the Twelfth Five Year Plan is expected to streamline processes for implementing and monitoring nutrition interventions in a politically strengthened environment. Additionally, measures taken for good governance, accountability, supportive supervision, monitoring, and adequate budget allocation will further streamline management of existing policies.

The approach paper to the Twelfth Five Year Plan commits to breaking the vicious cycle of multiple deprivations faced by girls and women due to gender discrimination and undernutrition. This cycle includes continued deterioration in the sex ratio in the 0–6-year age group, as indicated by the 2011 census; high maternal and child mortality and morbidity; and the fact that every third woman in India is undernourished (35.6 percent have a low body mass index) and every second woman (55.3 percent) is anemic (India–PC 2011a). Based on this type of evidence, it is increasingly recognized that malnutrition is a consequence of multiple deprivations, and a comprehensive policy encompassing the wide range of measures must be implemented. In this context, a mission approach is planned in some states (e.g., Gujarat, Jharkhand, and Delhi) and is already being implemented in others (e.g., Madhya Pradesh, Maharashtra, and Karnataka).

In terms of evidence use, the approach paper recognizes that India has no national system of nutrition monitoring, mapping, and surveillance. District-level disaggregated data are not available from existing surveys, and the District Level Household Survey (DLHS) remains inadequate in its coverage (IIPS 2010). There is a need to generate reliable district-level disaggregated data to enable monitoring of the progress made on reducing undernutrition. An innovative health and nutrition monitoring and surveillance system should be put in place. It can be used as a major enabler for performance management, including financial management through real-time data flow to the health system and for the restructured ICDS. The scheme should have a vibrant community-based monitoring component, which will function in partnership with civil society organizations, women’s and community groups, and PRIs. To streamline the health and ICDS sectors, development of an electronic health database with health identification cards capturing complete digital histories is planned (India–PC 2011a).

In the past 2 years, the urgency and commitment to improve India’s nutritional status have been gaining increased attention. The call for action by the prime minister’s Nutrition Council has generated tremendous interest on the issue of malnutrition in various states. Concerns have been expressed regarding the need for restructuring ICDS with the focus on children under 2; shifting from exclusively food-focused interventions; matching services to beneficiaries’ needs; involving the community in providing support in ICDS activities, including home visits; strengthening one-to-one counseling for behavioral changes at the household level; taking actions for ensuring community monitoring; improving skills of ICDS workers; and introducing incentives for the sustained motivation of workers. However, these ideas remain primarily “ICDS centric” and not “nutrition centric.”

The approach paper to the Twelfth Five Year Plan acknowledges that ICDS can play a major role in promoting nutrition and therefore better health outcomes, although, as currently conceived, ICDS has flaws. It focuses mainly on children in the age group of 3–6 years who actually attend AWCs, whereas the greatest need for nutritional support is in the age group of 0–3 years. The program needs to be radically restructured to focus on reaching pregnant and lactating women, and also the more vulnerable children in the 0–3-year age group. Restructuring should promote decentralization of administration, and emphasizing not only expansion, but also quality. Other proposals include ensuring greater flexibility in implementation, developing capacity, promoting greater community

ownership with participation of women's and mothers' groups, instituting management reform, and strengthening convergence with related flagship and other programs (India-PC 2011a).

STRATEGIC PLANS AND DOCUMENTS

Five Year Strategic Plan (2011–2016)

This plan focused on women’s development and action for preventing undernutrition in the first year of life (India–MoWCD 2011a). What was unique to this plan was that it gave preventive action special focus and recognized that the cost of treatment of undernutrition is about 27 times more than the cost of prevention. The strategic plan emphasized “a continuum of care from the prenatal to eight years of age, with special emphasis on prenatal to age three due to rapid brain and general child development that is well coordinated and integrated.” The plan focused on children under 3, with a special reference to “provision of a second AWW for visiting and counselling families on better nutrition and ensuring that the children below 2 who do not come to the centre get food supplements. Such a person would be additional to ASHA [accredited social health activist].”

The process indicators for reducing malnutrition among children (underweight prevalence) in the age group 0–3 years to half of the present level by the end of the Eleventh Five Year Plan, and reducing anemia among women and girls also by 50 percent by the end of the plan period, were derived from the following evidence base presented in Table 3.

TABLE 3. PROCESS INDICATORS FOR REDUCING MALNUTRITION AMONG CHILDREN

S. No	Process indicators	Current status as per the last surveys
1.	Initiation of breastfeeding within 1 hour of birth	40.2% (DLHS-3, 2007–2008) 24.5% (NFHS-3, 2005–2006)
2.	Exclusive breastfeeding of children under 6 months	46.4% (DLHS-3, 2007–2008 & NFHS-3, 2005–2006)
3.	Introduction of complementary feeding upon completion of 6 months, along with continued breastfeeding for 2 years	In the age group of 6–9 months 23.9% (DLHS-3, 2007–2008) 56.7% (NFHS-3, 2005–2006)
4.	Appropriate infant and young child feeding	20.7% (NFHS-3, 2005–2006)
5.	Supplementary nutrition through <i>anganwadi</i> centers	Not at all to: 81.4% of children <12months 74.9% of children 12–23 months (NFHS-3, 2005–2006)
6.	Access to care for the severely malnourished	Minimal for nutrition therapy
7.	Iron supplements for children	4.7% in the age group 6–59 months given during the last 7 days (NFHS 3, 2005–2006)
8.	Vitamin A supplementation every 6 months for children 9–59 months	55% received during the last 6 months (DLHS-3, 2007–2008)

The strategic plan also referred to strengthening the NRCs under NRHM, linking them to child health units, and integrating them with the IMNCI initiative (community- and facility-based) in the RCH/NRHM for the management of severe undernutrition. It was considered important to revisit and update the 1993 NNP and the National Nutrition Plan of Action 1995 in the context of current challenges. The Five Year Strategic Plan provided for various schemes that have been expanded and universalized in the Tenth Five Year Plan period with support from such initiatives as the NRHM (2005), National Horticulture Mission (2005–2006), Mahatma Gandhi National Rural Employment Guarantee Scheme (2005–2006), *Janani Suraksha Yojna* (2006), Total Sanitation Campaign (2005–2006), Mid-Day Meal Scheme (2008–2009), and Rural Livelihood Mission (2010–2011). All these schemes addressed the underlying determinants of undernutrition. Of most importance, the Five Year Strategic Plan emphasized development of state plans of action on nutrition and stressed the

development of district plans of action for high-burden districts. Additionally, special reference was made to setting up an administrative mechanism at state and district levels, as well as working groups in the departments.

The strategic plan focuses on aspects of ICDS that holistically address the health, nutrition, early development, and learning needs of young children. Restructuring and restrengthening ICDS received special attention in the document. The latter included focusing on children under 2, the introducing a nutrition counselor with an additional AWW at the *anganwadi* level, and providing supportive and promotive supervision in addition to technical support. The plan also proposed increasing the cost of SNP for children 6 –72 months from Rs 2 to Rs 4 (per beneficiary per day); for severely underweight children, from Rs 2.70 to Rs 6 (per child per day); and for pregnant and lactating women, from Rs 2.30 to Rs 5 (per beneficiary per day).

The strategic plan referred to reforming institutional support, such as restructuring the Food and Nutrition Board by redefining its tasks and geographical presence, reallocating 43 units, setting up a Nutrition Resource Platform, creating an IYCF voluntary action group with institutional partnership with NGOs and professional bodies, implementing the Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (SABLA) in 200 districts, and scaling up in the entire country. During the Twelfth Five Year Plan, the Indira Gandhi *Matritva Sahyog Yojana* (approved by the Government of India in October 2010), is to be implemented in 52 selected districts.

The strategic plan also emphasized strengthening the nutrition and RCH components of the NRHM. Additionally, it recommended that the NRHM village health and sanitation committees oversee the ensured delivery of nutrition services, utilizing various platforms, such as fixed Village Health and Nutrition Days at the ICDS/village level and at subcenter MCHN clinic sessions, as well as facility- and community-based actions for severely undernourished children. It recommended that these interventions be implemented through ICDS and NRHM. The following schemes have been introduced to improve the nutritional needs of children, adolescent girls, and pregnant women under different ministries:

- Ministry of Women and Child Development
 - *Kishori Shakti Yojna*
 - Nutrition program for adolescent girls
 - Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (SABLA)
- Ministry of Human Resource Development
 - Mid-Day Meal program
- Ministry of Agriculture
 - National Food Security Mission
 - National Horticulture Mission
- Ministry of Rural Development
 - Rajiv Gandhi Drinking Water Mission
 - Total Sanitation Campaign
 - *Swaranjayanti Gram Swarojagar Yojna*
 - Mahatma Gandhi National Rural Employment Guarantee Act
- Ministry of Food
 - Targeted Public Distribution System
 - *Antyodaya Anna Yojna*
 - Annapoorna

Although some of these schemes address food security and hunger, which are critical issues for India, in the event of the country being included among 29 countries that face an “alarming” situation of hunger,¹⁴ these schemes do not clearly spell out their expected impact on improving the nutritional status of beneficiaries. Also, the benefits or impacts of these schemes have not been studied systematically or documented.

Based on the mid-term appraisal (MTA) of the Eleventh Plan (India–PC 2011c) and the NCAER Evaluation 2010, the strategic plan stressed that greater attention should be paid to integrate the AWW with the health-sector grassroots functionary (accredited social health activist [ASHA]) and health subcenter functionary (auxiliary nurse midwife [ANM]), and emphasized the need to clearly define their roles. The plan reflects a consensus to restructure the ICDS program, both programmatically and structurally, based on lessons learnt from the ICDS pilots (launched with 33 projects and 4,891 AWCs).

Strengthening and Restructuring Integrated Child Development Services

To understand the approach to the restructuring of ICDS, the historical background to the evolution of the program is important.

Global evidence combined with NNMB survey findings directed attention to the fact that nutrition was critical for the holistic development of a child. A new program, the Integrated Child Development Scheme (ICDS), was launched in India in 1975 with a great deal of political support.¹⁵ *Balahaar*, a processed food especially designed for children, was produced and distributed.

The social welfare sector (Ministry/Department of Women and Child Development) was assigned the responsibility to address nutrition issues. The ICDS program was initially directed to rural, tribal, and urban slum populations in economically backward areas. The beneficiaries were children under 6 years and mothers. Interventions under the ICDS included provision of SF, growth monitoring and promotion, and nutrition health education. Additionally, health support, such as immunization and health referral services, was also included as an integral part of the program. The SF component of the ICDS included provision of food supplements with defined calories and protein levels to children 6 months to 3 years and 3–6 years, and to pregnant and lactating women. The ICDS program was commonly known as the “nutrition program,” and policymakers, bureaucrats, and non-nutritionists viewed the provision of SF as a solution to India’s persistent problem of undernutrition. Therefore, the attention of policymakers and program implementers was solely directed toward improving the quality and reach of the SF component supplied through ICDS. Also, ICDS centers were accepted as the centers for preschool education and distribution of free food to mothers and children.

The ICDS program did not give due attention to the efficacy and effectiveness trials on SF. The report *Supplementary Feeding for Women and Young Children* states that one reason India’s ICDS program has not been successful in significantly improving the nutritional status of young children is because food is considered by many stakeholders as a means to address unmet household caloric needs, not as a means of combating child malnutrition (Gillespie 1999). At another level, because of political pressure, the primary focus of ICDS remained on the provision of free food. Also, NFHS-3 data indicated that the decrease in stunting and underweight prevalence was negligible (Arnold et al. 2009).

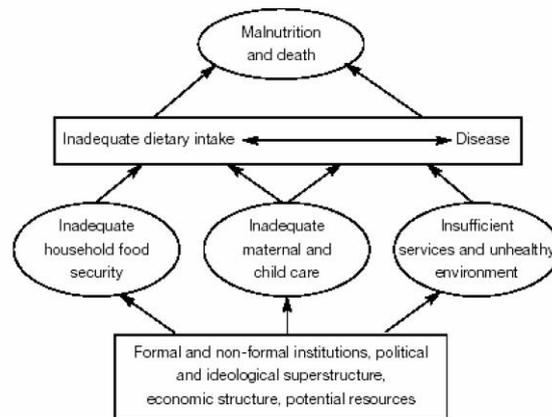
The media coverage of these facts generated significant interest in the persistent problem of undernutrition. Attention was drawn to the UNICEF conceptual framework of undernutrition (Figure 10), which explains the interrelationships between child undernutrition (including societal and other

¹⁴ Global Hunger Index 2010 (von Grebmer et al. 2012).

¹⁵ In 1975–1976, the Government of India sponsored an important scheme for the welfare of children, known as Integrated Child Development Services. Most of the nutrition centers set up in 1970–1971 and onward were merged under the Integrated Child Development Programme, as the scheme of ICDS also includes supplementary feeding for children in the age group of 0–6 years and for expectant women and nursing mothers (<http://wcdde.in/snp.html>).

factors). Subsequently, advocacy efforts were directed to the immediate and underlying causes of malnutrition.

FIGURE 10. CONCEPTUAL FRAMEWORK SHOWING THE CAUSES OF MALNUTRITION



Conceptual framework showing the causes of malnutrition

Source: UNICEF 1990.

Additionally, NFHS-3 data confirmed that undernutrition, both stunting and underweight, continues to increase from birth onward and then stabilizes at about 2 years of age (Arnold et al. 2009). The survey findings of NFHS-3 also indicated that 28 percent of newborns are LBW and have a higher risk of remaining undernourished. By 6 months of age, almost one-third of children are underweight. The NFHS-3 data confirmed that the highest priority must be accorded to nutritional care during pregnancy and the first 2 years of life. In this context, the role of the health sector was also evident. In 2005–2006, when the NRHM was launched, improper nutrition and deficient water and sanitation were deemed to be the primary determinants of poor health.

Strengthening and restructuring the ICDS program to accelerate improvement in nutrition and child development outcomes was a long-felt and well-recognized need, which was reflected in the MTA of the Eleventh Plan. The Prime Minister’s National Council on India’s Nutrition Challenges (which met on November 24, 2010) decided to strengthen and restructure ICDS, with special focus on pregnant and lactating women and children under 3 years of age, and with strong institutional convergence, flexibility for local action, and empowerment of mothers, in particular, and the community, in general, to have a stake in the program. The National Advisory Council also made recommendations for a reformed and strengthened ICDS, adopting a genuinely integrated life-cycle approach to early childhood care and development, and transforming AWCs into vibrant, child-friendly early child development centers, to be ultimately owned by women in the community (India-PC 2011b).

The Inter-Ministerial Group on ICDS Restructuring specified three outcomes that were possible to monitor by the end of the Twelfth Five Year Plan period (2017):

- Prevent and reduce young child undernutrition (underweight children 0–3 years) by 10 percent.
- Enhance early development and learning outcomes in all children 0–6 years of age.
- Improve care and nutrition of girls and women, and reduce anemia prevalence in young children, girls, and women by one-fifth (India-PC 2011b).

These targets were set in agreement with the implementation of the Twelfth Five Year Plan’s targets and other decisions of the prime minister’s National Council (multisectoral maternal and child

nutrition program in 200 high-burden districts; nutrition focus in sectoral programs; and nationwide information, education, and communication campaign). It was also envisaged that these outcomes would contribute to reduction in IMR, MMR, and the incidence of LBW, in combination with the health sector, the improved care and nutrition of adolescent girls, the Rajiv Gandhi Scheme for Empowerment of Adolescent Girls, and the NRHM. The second outcome would also contribute to increased enrollment, retention, and learning outcomes in elementary education, in combination with *Sarva Siksha Abhiyan*.

Based on evidence and expert and stakeholder consultations (two meetings of the Inter-Ministerial Group on ICDS Restructuring, held on July 12 and 28, 2011), the Ministry of Women and Child Development published a comprehensive proposal on ICDS strengthening and restructuring (India–PC 2011b). The restructuring recommendations built on developments in the ICDS since 2005, which emphasized universalizing the program to cover all habitations and focus on scheduled castes and tribes and minorities. By 2011–2012, ICDS services were being provided to more than 89 million beneficiaries, including more than 73 million children (of whom about 45.5 percent were under 6 years of age) and more than 16 million pregnant and lactating women. Strengthening ICDS infrastructure ensured the provision of a continuum of care to adolescent girls, pregnant and lactating women, and young children. Moreover, since ICDS is recognized as the primary system for delivery of nutrition services, implementation of ICDS in a mission mode is proposed in the strategy document. Also recommended is an increase in the budget allocation specified in the Eleventh Five Year Plan.

Report of the Working Group on Integrating Nutrition with Health (2007–2012)

The government recognized the interrelationship of inadequate food, inappropriate feeding, and poor health as immediate causes of malnutrition. Attention was soon directed to nutrition and its linkage with the health sector. According to the Planning Commission order of May 25, 2006, a consultation was held on the subject, and the MoWCD issued *The Report of The Working Group on Integrating Nutrition with Health* in November 2006 in preparation for the Eleventh Five Year Plan (India–MoWCD 2006).

The poor coverage of ICDS beneficiaries with ICDS services including SF and health and nutrition education was evident from NFHS-3 data on stunting, underweight, and undernutrition (Arnold et al. 2009). The recommendations of the working group for the first time highlighted the discrete roles and responsibilities of the health and ICDS sectors for such interventions as implementing the IYCF guidelines and the national nutrition education program; providing fortified wheat flour, RTE foods, and double-fortified salt; and improving institutional support for addressing severe malnutrition. The document emphasised the need to improve the nutrition training of ICDS workers and ASHAs, strengthen the nutrition component in the curriculum of medical and home science colleges, and build institutional capacity for nutrition actions.

The report drew attention to the fact that “most of the growth in the nervous system and brain is complete in the first two years of life.” However, there was no consistent reference to prioritizing program actions under the existing system of health and ICDS for children under 2. The section on Malnutrition Free India includes a reference to the need for higher budget allocations for social sectors, such as nutrition, health, education, and women and child development.

Preparations for the Eleventh Five Year Plan: Subgroup on ICDS and Nutrition

In addition to the Working Group on Integrating Nutrition with Health, a subgroup on ICDS and nutrition was formed to prepare for the Eleventh Five Year Plan (India–PC 2007). This subgroup accorded high priority to nutrition improvement, having observed that despite accelerated improvement in the economy, the nutritional status of the country’s children had remained almost stagnant between 1998 and 2005 (Arnold et al. 2009). Such a trend was of extreme concern and was contrary to international evidence that for every 3–4 percent increase in per capita income,

undernutrition rates as measured by underweight rates should have declined by 1 percent. Additionally, the World Bank report of 2006 highlighted the urgency of prioritizing the under-2 age group (World Bank 2006), calling it a “the window of opportunity.”

The subgroup recognized several emerging nutritional issues that could be addressed through ICDS. One was micronutrient deficiencies in children, termed “hidden hunger.” As mentioned in the introduction to this review, in India the micronutrient deficiencies of public health significance are VAD, iron deficiency anemia, and IDD. The subgroup recommended the need to focus on eradicating severe malnutrition and reducing mild and moderate malnutrition in children through ICDS, and emphasized the importance of nutrition and health education for bringing about such improvements in the health of children and their mothers. In addition to stressing the need for adopting optimal IYCF practices, promoting consumption of micronutrient-rich foods, increasing compliance under vitamin A and IFA supplementation programs, and using iodized salt, the subgroup recommended organizing *Mahila Mandals* and Mother and Child Days and Nutrition and Health Days at AWCs, to ensure streamlining of the nutrition and health education component of ICDS.

Following the constitution of this subgroup, the national goals for the Eleventh Five Year Plan were formulated, as presented below. For ease of comparison, the national nutrition goals of the Tenth Five Year Plan (India–PC 2002) are presented in italics after those of the Eleventh Five Year Plan (India–MoWCD 2006, §5.10, p. 23).

- Reduce the prevalence of underweight in children under 5 years by 20 percent. (*Tenth Plan: Reduce the prevalence of underweight in children under 3 from 47 percent to 40 percent.*)
- Eradicate the prevalence of severe undernutrition in children under 5. (*Tenth Plan: Reduce severe undernutrition in children under 6 by 50 percent.*)
- Increase first-hour breastfeeding rates to 80 percent. (*Tenth Plan: Increase colostrum feeding from 15.8 percent to 50 percent.*)
- Increase EBF rates to 90 percent. (*Tenth Plan: Increase rates from 55.2 percent to 80 percent.*)
- Increase complementary feeding rates to 90 percent. (*Tenth Plan: Increase rates from 33.5 to 75 percent.*)
- Reduce the prevalence of anemia in high-risk groups (infants, preschool children, adolescent girls, pregnant and lactating women) to 25 percent. (*Tenth Plan: Reduce prevalence of anemia by 25 percent and of moderate and severe anemia by 50 percent.*)
- Eliminate VAD in children under 5 years as a public health problem and reduce subclinical VAD by 50 percent. (*Tenth Plan: Eliminate VAD.*)
- Reduce the prevalence of IDDs to less than 5 percent. (*Tenth Plan: Reduce the prevalence of IDDs to less than 10 percent by 2010.*)

Report of the Working Group on Nutrition for the Twelfth Five Year Plan (2012–2017)

In consonance with the policy direction provided by the prime minister’s Nutrition Council, the Government of India envisaged that the focus of the Twelfth Five Year Plan would be a move toward nutrition security, especially for vulnerable infants and young children, adolescent girls, and women, across the life cycle (India–MoWCD 2011b).

The Twelfth Five Year Plan also recognizes that a major shift is needed toward family- and community-based interventions, with a strong emphasis on breastfeeding, in particular. ICDS should be seen as the critical link between children and women and the healthcare and elementary education systems, and should ensure that children in the critical window of 0–3 years of age are targeted. Convergence and effective linking of AWCs with health subcenters, as well as with drinking water and sanitation services, was also mentioned as a priority.

Experiences from other developing countries are also being reviewed in the context of the Twelfth Five Year Plan. Other countries have achieved success in accelerated reduction of undernutrition by adequately investing in direct interventions, as well as by effectively operationalizing schemes that indirectly influence nutritional status by addressing critical deprivations other than food. Other lessons learned indicate the need for strengthening community-based primary healthcare to facilitate frequent reach, and the role of community-based voluntary workers in engaging in effective dialogue and coverage of services. The plan also emphasizes targeting the most vulnerable under-2 age group, especially the poorest and socially excluded children, and strong program components pertaining to supervision, monitoring, and evaluation.

The situational analysis in the report states that the lack of a nationwide survey of undernutrition following the NFHS-3 survey in 2005–2006 is a matter of concern. The analysis is based on NFHS-3 figures on underweight and stunting, and mentions disparities in nutrition status among communities, such as under-5 underweight prevalence of 54.5 percent in scheduled tribes, compared with the national average of 42.5 percent, and 33.7 percent in other communities.¹⁶

To support the importance of EBF, *The Lancet* (2008) position has been cited—that EBF for the first 6 months and continued breastfeeding for the next 6 months, if universalized, will reduce deaths at 36 months by 9.1 percent. DLHS-3 data showing improved breastfeeding rates have also been cited (IIPS 2010).¹⁷ Micronutrient deficiencies mentioned include VAD and IDD.

During this period, based on global policy and evidence, the IYCF interventions were well defined and India released its National Guidelines on Infant and Child Feeding (India–MHRD/FNB 2004). A number of states also launched the biannual VAS strategy. These interventions were found to be effective in improving coverage, and were proposed to be scaled up. A number of policies were implemented toward achieving the goals of the Tenth Five Year Plan, which focused on IYCF, VAD, IDD, IDA, zinc, diarrhea management, and the provision of SF under the ICDS program, among other issues (India–PC 2002). Growth monitoring and promotion, including use of a mother and child protection card to address the immediate causes of child undernutrition, received special attention.

¹⁶ NFHS-3 data (Arnold et al. 2009) are cited on page 18 of the report (India–MoWCD 2011b).

¹⁷ DLHS-3 data (IIPS 2010) show improvement in children when breastfeeding is initiated within an hour of birth from 27.8 percent in DLHS-2 to 40.5 percent in DLHS-3.

5. Conclusions

This national policy review has shown that over all, India has a robust policy environment for addressing nutrition as a key public health challenge and finding solutions to reduce the deleterious impact of undernutrition. India's efforts to acknowledge and tackle undernutrition date back to the pre-independence era.

A large number of policies have been addressing major areas of public health nutrition need, with substantial focus on essential actions. However, the policy formats, which often include details of appropriate direct actions or a catalog of options for individual and community behaviors, are variable. Although indirect actions are seen to be key in having an impact on the nutrition landscape and there is some stress on convergence (e.g., economic empowerment of women, food security, strengthening of India's PDS, improving access to primary healthcare), operational details are not provided.

This review provided some insights into the policy formulation processes. The methods of developing policies were systematic, often including inputs from working and technical expert groups. Research (both technical and operational/action research) was often commissioned, although national data were used most often. The Indian policy landscape has largely been responsive to international and national issues. Global and Indian perspectives have been used to identify core issues that engage nutrition and policy guidelines designed accordingly.

Knowledge generated through multiple means was utilized in the formulation of policies. Methods range from the most popular evidence from surveys and data collections, to expert consultations, national and international conferences, and particular focus on using global research evidence. The trend has been to flag key global findings and commission Indian research to corroborate and contextualize evidence before incorporating it into policy.

Some policies (e.g., IYCF and anemia control) have been actively revised and integrated with existing programs at scale, such as ICDS and NRHM/RCH; with other national programs, such as blindness control; and with nationwide initiatives, such as vitamin A and iron supplementation.

This review identified some gaps, such as continuous policy formulation without adequate documentation of past processes, while several policies have overlapping goals and targets. Evidence that policies have been operationalized is inadequate, even though the policy may include recommendations for action. For instance, the Nutrition Council was recommended in 1993, but was established only in 2011. Of all the goals of ICDS, supplementary nutrition (feeding children) remains the only one that is in effect across the country. Policy instruments and recommendations abound, but institutional mechanisms and systemic documentation remain a major challenge.

Although most policies and guidelines are strong on use of evidence and several sources of evidence are used (the most common being survey data, while program evaluation data are less common), a major difficulty in the content analysis was that evidence was not often clearly mentioned in the policy document. This led to efforts to locate, search for, and analyze background documentation for each policy and then review all of the documentation in tandem. In most of the policies, documentation of the evidence used was inadequate, and direct references to specific evidence were lacking. This review indicated that there is a pressing need to update national data on undernutrition.

What emerged from the review is that there are differing levels of political commitment, governance, and supply-side issues, as well as operational gaps in the understanding of how these programs can best reach out to those who need them most. The focus of policies and guidelines has always been on "provision" and "supplementation," as opposed to advocacy, capacity building, and empowerment, whether for service providers or local self-government. Moreover, there is no

provision for information on the entitlements under each scheme or program. Issues like BCC are not operationalized or contextualized, so they remain in the domain of policy and planning.

Another missing link is “policy coherence”—the contribution of other (non-nutrition) sectors and a convergent method of addressing the complex problem of undernutrition. From the ANP onward, the coordinated working of departments with one another has been an issue and still remains so. Therefore, what sounds good in a policy or program guideline may lack the necessary operational edge. Monitoring mechanisms are also inadequate. For these reasons, although policies and working group reports refer to a convergent action and outcomes that can be monitored, India’s current nutrition scenario is testimony to the fact that such initiatives are few and far between.

KEY CONCLUSIONS

Strengths of the Policy Environment

1. **The commitment to tackle undernutrition is reflected in the policy realm with growing prioritization and an intensification of focus.** The historical background of nutrition-related policymaking in India reveals progressive prioritization accorded to tackling undernutrition as a public health challenge since the 1940s, with several specific policies, programs, and the Five Year Plans of the country committing to taking action. A significant number of policies and strategic reports address major areas of public health nutrition needs, policy focus, and program action-related principles and guidelines.
2. **The rationale for policy decisions has been frequently backed by specific or generic evidence.** Most policies and guidelines are strong on the use of evidence. Across the realm of policymaking, data, evidence, and knowledge have informed the process, albeit in diverse ways and to varying degrees. This practice has been followed for the development of both nutrition-specific policies and strategic documents, and in the development of the Five Year Plans. Global and Indian perspectives have been used to identify core issues that impact nutrition.
3. **Diverse sources of evidence exist and are being used, and knowledge is getting mobilized from multiple sources.** Over the last seven decades, diverse sources of evidence have been put to use in the process of nutrition-related policy formulation. These have included global knowledge-sharing platforms, such as international conferences, as a means of utilizing international developments and research; deliberated recommendations of working and expert groups and task forces; epidemiological surveys and data; and commissioned research. Many sources of evidence are being used, but the most common are survey data. The most popular survey data sources are those from the NFHS (rounds I to III between 1992 and 2006), survey data from the NNMB, and NSS data. Institutions, such as the NIN, and networks like the Coalition for Nutrition Security are also hubs of knowledge. There has been a trend to flag key global findings and commission Indian research on technical and operational issues to corroborate and contextualize these findings for action.
4. **There is substantial focus on the direct, essential actions within policy documents.** In the last few years, there has been significant global emphasis on the 14 essential actions compiled on the basis of recommendations from *The Lancet* 2008 Maternal and Child Undernutrition series, the Coalition for Nutrition Security in India (2010), and the World Bank (2011b). There are policies in place that support most of these essential actions.
5. **Multisectoral action is a central theme in the modern macro-policy environment.** The need for multisectoral action (also referred to as indirect actions or convergence) to tackle undernutrition is consistently prioritized. Best practices—especially innovative, experimental schemes across different states—form key evidence for action. For instance, the Tenth and Eleventh Five Year Plans have documented several innovative experimental schemes from many Indian states as potential evidence for convergent action (India–PC 2002 and 2007). Key areas for convergence include the economic empowerment of women, food security,

food and civil supplies, including the PDS, and improving access to primary healthcare. The Eleventh Five Year Plan mentions the Mahatma Gandhi National Rural Employment Guarantee Act for income generation and community involvement as essential to effectively deal with undernutrition. The Twelfth Five Year Plan also has comprehensive working group references to convergence with the NRHM and the *Sarva Siksha Abhiyan*.

6. **Policy formulation processes are systematic and policy revisions are active.** As with many other developmental governance agendas, the nutrition policy landscape is characterized by continued attention to policy design, active orchestration of technical and expert inputs, and policy revisions as and when required. A number of policies reviewed have revised versions and amendments as addenda so as to address current issues and evidence that arise.

Challenges and Opportunities for Reform in the Policy Environment

1. **Evidence of evidence use is often missing.** This review has identified a primary challenge in the policy landscape: searching for and locating the evidence used during policy formulation are not always possible. This is because the formulation process does not ensure sufficient attention to systematically documenting the evidence used so that it is apparent. Clear mention of evidence is often not in the policy document, nor is direct citation of specific evidence. As a result, any policy review that searches for evidence used must include a simultaneous search for, and analysis of, the background documentation related to each policy. Going forward, it would be useful for policymakers and their technical support groups to accord much greater attention to the detail of recording exact evidence used, utilize systematic methods of referencing the evidence, and provide complete and robust background documents related to each policy.
2. **The lack of regular and recent survey data is felt.** With the third and last NFHS providing data for 2005–2006, it is more than half a decade since fresh information was collected on the same indicators. Going forward, considering so much hinges on the NFHS, as is evident from this policy review, regular, systematized, and pan-public health surveys providing periodic epidemiological and other updates are a high priority for India. In similar vein, the NNMB and NSSO surveys need greater coverage (both geographically and in terms of indicators) and regularity. The Annual Health Survey has limited coverage and goals. Apart from national- and state-level survey data, there is a need for district-level information on nutrition to facilitate program implementation and focused community outreach.
3. **Many policies, many formats.** Varied policy formats are followed and consistency in policy structure is lacking. Some are complex, thinking pieces that go into complete detail about the issue at hand (such as the 1993 NNP), while others are closer to a set of guidelines regarding appropriate action or a catalog of options for individual and community behavior. This variability is a barrier to systematic policy-driven action, because it dilutes the real definition of a *policy*.
4. **The practice of using program implementation and evaluation data and information from the field as evidence is infrequent and lacking.** Among the different kinds of information and knowledge used as evidence, a major gap is noted in the use of program implementation-related data and knowledge. The use of evidence gathered through monitoring and evaluation exercises, operational research that focuses on program implementation gaps and barriers, and other field-level knowledge is insufficient. This is a serious flaw, as most of the limitations of India's response to tackling undernutrition are in the field and at operational levels of programs, cutting across financial, technical, infrastructural, human resources-related, and programmatic efficiency and management. While operational research is commonly being conducted and evaluations are many, the hard evidence from these efforts needs to move center stage into the policymaking arena if a difference is actually to be made in the outcomes of India's massive nutrition programs.

5. **There is a gap in evidence of policy implementation.** Considering multiple policies have been formulated and rolled out over the last several decades, scant attention has been paid to gathering evidence of effective policy implementation. This is particularly important because many major policy guidelines are repeated in multiple policies, and whether they were implemented or not implemented as per the policy commitment is highly relevant to program efficiency. What the evidence says about prior policy implementation is also critical, because it provides an insight into the realization of policy commitments as concrete action on the ground, which, in turn, affect outcomes. Therefore, the evidence of policy action is a key gap and needs to be addressed, because it has not been pursued enough. A major example of this gap is that a National Nutrition Council was a major policy recommendation of the NNP back in 1993, but it was finally realized only in 2011.
6. **Strengthening institutional mechanisms within the policy formulation environment is a major need.** While formulation processes are continuous, active, and systematic, what they lack is adequate documentation of past policy processes and a rich archive of all past activities related to core issues. As a result, multiple policies and strategic documents seem to have overlapping goals and targets, offer similar recommendations, and are unable to refer to past policy experiences on similar issues as a key learning experience going forward.

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INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

NASC Complex, CG Block,
Dev Prakash Shastri Road,
Pusa, New Delhi 110012, India
T+91.11.2584.6565 to 6567
F+91.11.2584.8008

