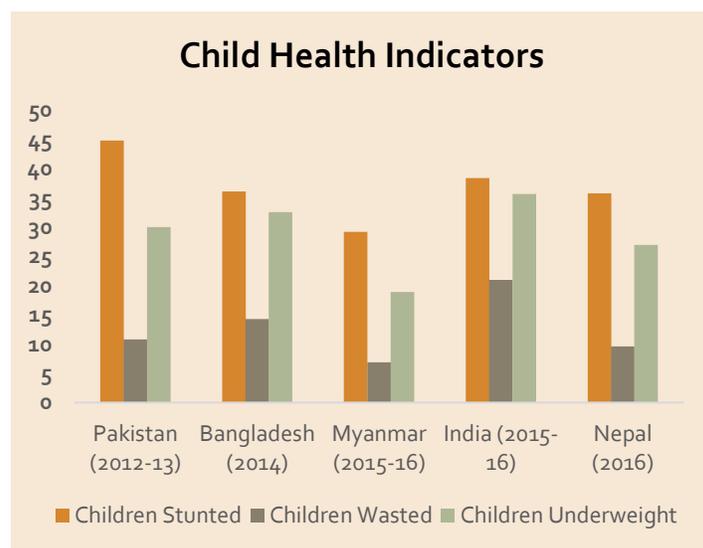
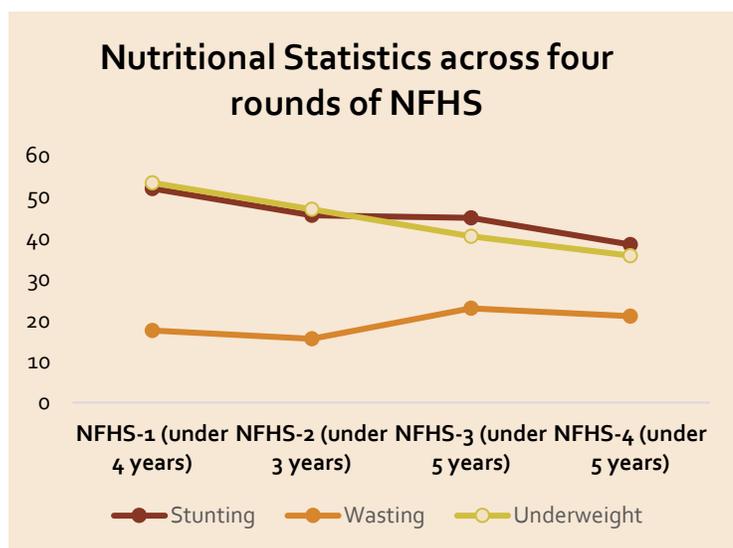


Nutrition in India: A Brief Profile

Often termed as a 'paradox', India's relationship between lagging child and adult nutrition figures has often provided a humbling counterview to the exponential economic trajectory. While agriculture production within the country has stood the test of self-sufficiency, even expanding to exports, the percentage of children wasted and stunted present a grim reality check. In fact, the status of child stunting and wasting within the country has fared badly even when compared to other South Asian countries. One in five children is wasted while almost 2 out of 5 children are stunted. Over half the children in the country are anaemic. The apparent undernutrition in children in rural areas is contrasted by the rise of obesity in the urban population. Male obesity has more than doubled itself in the referred time period i.e. 2005-06 to 2015-16 (9.3 % to 18.6%) and female obesity also witnessed an increase from 12.6 % to 20.7 %¹. Unfortunately, females are worse off both in the low and high BMI category, with one in five women in rural population being underweight. These figures are symptomatic of a problem which is pan-sectoral in nature as adequate nutrition lies at the confluence of sustainable agriculture, health, community, diet, economic practices. The brief attempts an overview of all these factors with some focus on the Way Forward.



Adequate nutrition is determined by a host of factors which, when taken in combination address the diet requirements of the population. As commonly acknowledged, child care practices including breastfeeding are immediate factors determining the physical and mental development of children. Household incomes plays an

¹ NFHS 4: 2015-16

important role, the extent of which needs to be further examined. However apart from the immediate factors, there are other structural factors which impact the nutrition intake of population, particularly children.

For example, the supply of certain food crops like rice and wheat is assured by economic and administrative institutions like Public Distribution System (PDS). However, the supply of key components of a nutritious diet like Fruits & Vegetables (F&V) is severely impacted by the lack of storage facilities in the country. In fact, the wastage of F&V has been pegged at almost INR 133 billion/year². As far as the intake is concerned, cereals form the basis and perhaps the largest component of Indian diets, however rice and wheat consumption has reduced in the recent years. Analyzing the nutritional value of the food, the calorie, protein and fat intake of Indians falls significantly behind when compared to the population of countries like China and U.S.A. Hence, while production of food commodities has been secured, supply and intake of the same foods remains a problem, with the supply chains of certain food chains (F&V) severely hampered. This leads to increase in the price of certain commodities (F&V), thereby impacting consumption adversely. The problem is made further complex by the changing food patterns in urban regions, contributing to unhealthy food habits leading to inadequate and in some cases over nutrition. The next section provides an overview of all these factors.

Immediate Factors contributing to Nutrition

Malnutrition arises due to a sustained lack of various vital micro and macro nutrients essential for the development of the brain and body. Malnourishment exists simultaneously in obese and underweight bodies, and together with undernourishment, becomes the cause of stunting (low height for age), wastage (low weight for height) and underweight (low weight for age)³. The section provides an overview of the factors which directly impact both overnutrition and undernutrition.

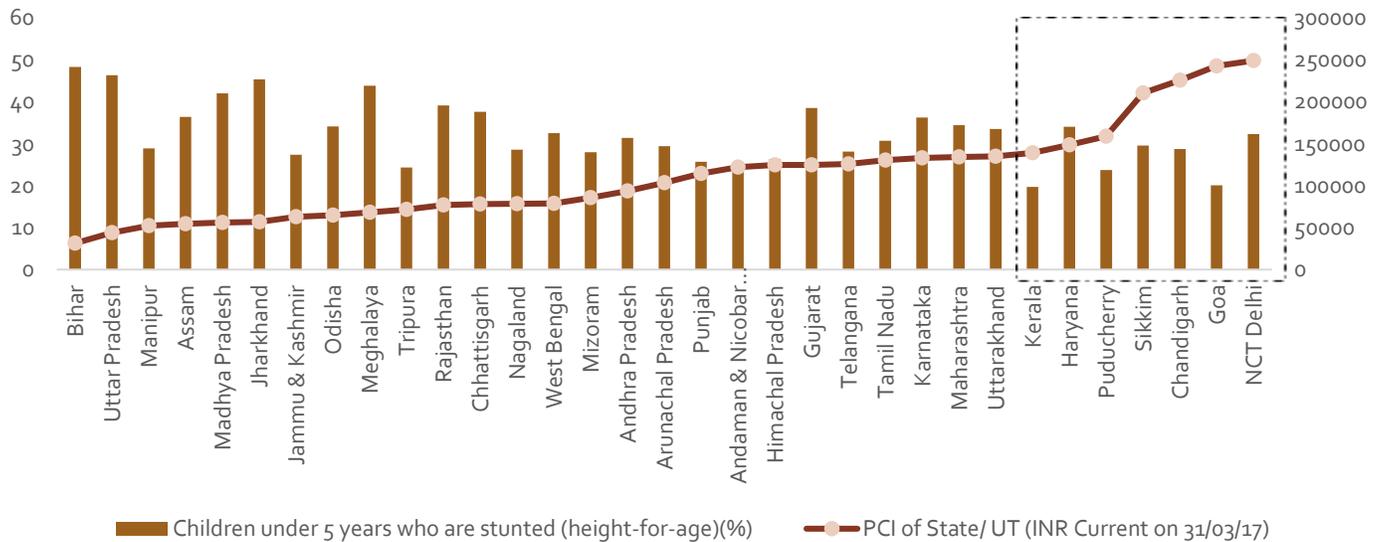
Feeding Practices of Mothers: Infant and Young Child Feeding Practices (IYCF) set out by WHO specify meal frequencies and desirable modes of feeding children. Early and exclusive breastfeeding up until 6 months of age, and gradual introduction of other foods till the age of 2 are both practices in IYCF and are tracking points that give insights into the health status of both the mother and the infant. This nutritional metric also boosts immunity in infants and healthy growth and development of the body.

Low per Capita Income: Low per capita income is one of the major factors which contribute to inadequate nutritional intake. Low income leads to inability to access both preferred quantity and quality of food. The graph appended here shows the status of States' Per Capita Income (PCI) and the prevalence of stunting among children under 5 years of age. Stunting (low height for age) is but one indicator of malnutrition among children and has disastrous impacts on their overall health and life expectancies.

² Emerson Report

³ World Health Organization

Comparison of States' PCI vis-a-vis Stunting prevalence



As evident in the graph above, 1/3rd of the children in 18 out of the 33 states and Union Territories considered above are stunted. In Bihar, a state with the lowest PCI, witnesses the highest rate of stunting. However states like Punjab, Gujarat or Haryana, with higher PCI indexes, are not much better either. Kerala, Goa and NCT Delhi show high PCI and low prevalence of stunting. Hence, high income can contribute towards better child health indicators but the correlation is not uniform across states, hence this factor could not be taken holistically.

Institutional Causes for Gendered Malnutrition: The Economic Survey 2018-19 sheds light on the fact that a meta-preference for sons in Indian households has led to the birth of an estimated 2.1 crore unwanted girls, while 6.3 crore women are missing due to sex-selective foeticide and other factors. This phenomena has adverse impact on the health of the girls who are born, as birth order has a definitive impact on the nutritional availability to an individual⁴. In the context of a skewed sex ratio (943:1000 according to Census 2011), it becomes pertinent to address the glaring gender gap in nutritional and health access, particularly given the fact that underweight children are born to malnourished mothers who in turn, are unable to breastfeed their children, thus perpetuating the cycle of malnutrition. This is further exacerbated by the economic status of the family, as poverty has a definitive, albeit marginal role to play in the access to vital nutrient.

Unhealthy Food Practices: As stated above, low income rates are not the sole determinants of inadequate nutrition. The status of malnutrition among the urban population might be interesting, especially given the fact that it is found even among the urban well-to-do households. For instance, empirical studies undertaken in Dharavi, perhaps the richest slum in Asia, show that children prefer to consume packaged, processed foods as

⁴ Why are Indian Children so short? Jaychandran, Seema Pande, Rohini; American Economic Review, Number 9, Volume 107, September 2017

they are often tasty, and mothers do not object to it because they are cheap and quick to serve. However, these foods are just empty calories, doing more harm than good, making children of Dharavi simultaneously undernourished and obese. Over-reliance on processed, pre-packaged foods is common in middleclass households as well, where education and income has had little positive impact on the health of children and adult women.

National Nutritional Mission (NNM) and National Nutritional Strategy (NNS)

NNM: The first NNM was announced in 2003 under the Chairpersonship of the Prime Minister. Several states constituted State Nutrition Missions with varying degrees of success. The NNM, however, was replaced with the Prime Minister's National Council on India's Nutrition Challenges in 2008 and acted as Nodal Agency between implementing ministries and achieved some nutritional targets outlined in the Twelfth Plan. The State Nutrition Missions, set up in Madhya Pradesh, Gujarat, Uttar Pradesh, Karnataka, Jharkhand, Bihar and Andhra Pradesh handle some functions with their own funding and assistance of external agencies. The new NNM, proposed in 2017, is now evaluating multi-sectoral programme to address maternal and child undernutrition in selected 200 high-burden districts. This initiative is to be taken by the Ministry of Women and Child Development, as per the NITI Aayog report which recommends a coordinated effort between policies of national discourse and institutions. The mission aims to decrease the stunting rate from the 38.4% as outlined in NFHS-4 to 25% by 2022.

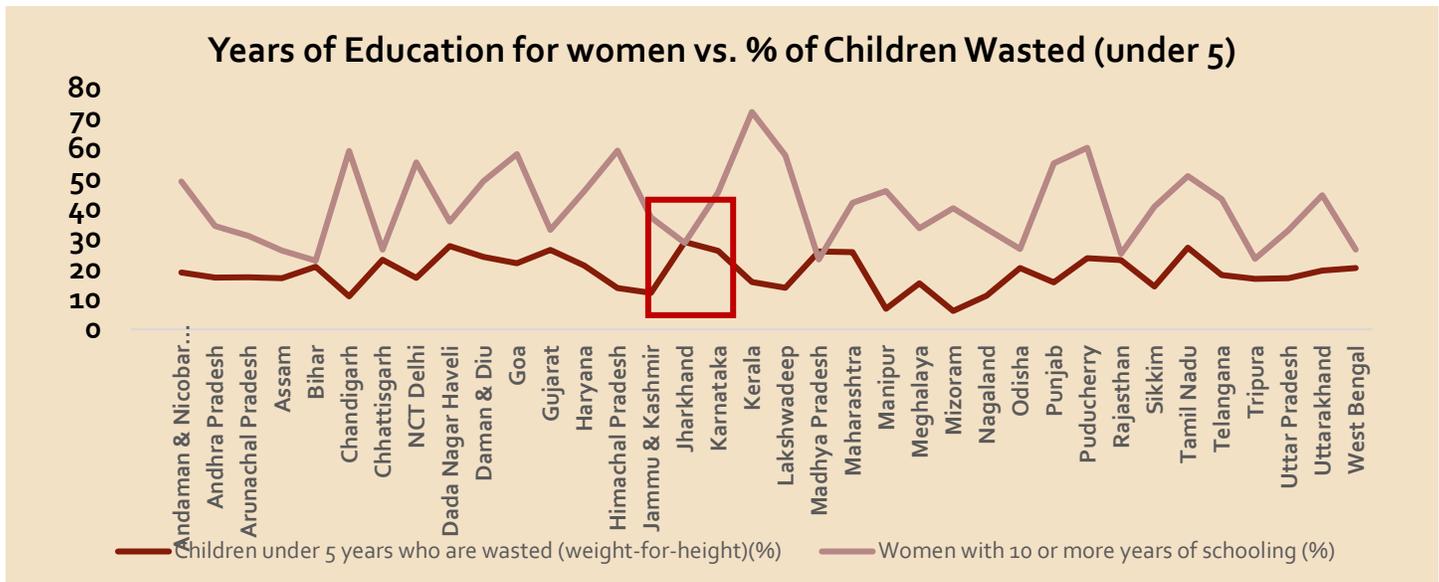
NNS: The National Nutritional Strategy formulated by the NITI Aayog in December 2017, combines knowledge of past mission statements, policy history and the latest NFHS data (2015-16) to provide a comprehensive programme action plan to tackle malnutrition in India and has made inspired efforts to nail the problem on its head. The report also contains recommendations for a National Nutrition Surveillance System, which aims to monitor and track early signs of vulnerabilities with respect to geography, socio-economic conditions, occupational hazards, seasonal changes and periodic outbreaks of epidemics etc. This system is set to be developed by the NNM, with support from the National Institute of Nutrition.

Structural Factors contributing to Nutrition

The overall picture of nutrition intake hinges on certain structural factors which are relevant to the entire ecosystem of access of nutrition, agriculture supply and food intake. Structural factors not only influence the for underweight, wasted and stunted children, they also impact the immediate factors like feeding practices and unhealthy food habits.

Education Status of Women: Intake of adequate diet by children is majorly determined by information and knowledge provided to mothers about nutritious food. Education levels of women play a major role in increasing the access to the to that information. As per UNICEF, the percentage of severely underweight children is approximately five times higher when mothers have not completed 12 years of education as opposed to those children whose mothers have completed the required years of education⁵. In the graph below, an inter-state comparison has been drawn about the education status of women and the percentage of wasted children.

⁵ <http://unicef.in/Story/1124/Nutrition>



For most states, number of years of education of women is indirectly proportional to the percentage of children wasted. The percentage of women with more than 10 years of education is particularly high in states of Kerala and Chandigarh, which enjoy some of the lowest figures of child wasting. Jharkhand is a prime example of this negative correlation where the high figures for child wasting (29 %) is almost equal to the low percentage of women female education for more than ten years (28,7%).

Diversified Food Supply & Intake: As mentioned above, over half the children (0-5) in India are anemic. Consumption of diversified foods facilitates the intake of varied nutrients especially micro nutrients. Within the country, expenditure on food items is dominated by cereals, followed by dairy products and vegetables and then pulses. Cereals provide the main source for both protein and calorie. Per capita calorie intake has grown in the from 2250 K calories from 1987-93 to 2005-10. Protein intake, one of the most essential nutrients for physical development, has undergone even a more marginal increase from 52 gms/ day to 56gms⁶. In the urban regions, unhealthy food habits have lead to over consumption of fats and calories which have lead to over nutrition. Intake of a diversified diets is of course governed by healthy food habits, but overwhelmingly determined by the availability and supply of diverse food products like fruits and vegetable in all parts of the country. The supply of diversified food requires coordination between transport of foods, availability of agriculture markets as well as development of healthy food habits through positive reinforcements.

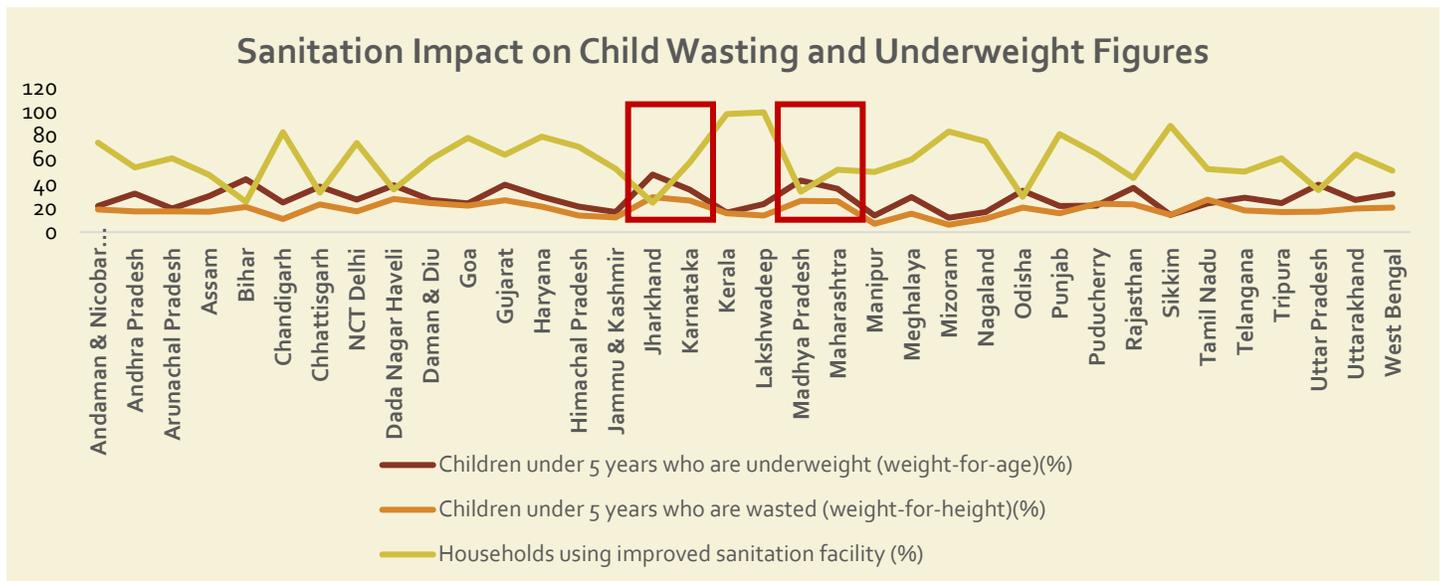
Adequate Water Supply & Sanitation (WASH): As per WHO reports⁷, undernutrition and lack of adequate water supply & sanitation facilities are connected. Lack of WASH facilities increases chances of diarrhoea, infections as well as other diseases. Diarrhoea is a major cause of death for younger children, contributing to 22 % and 8

⁶ An Analysis of Changing Food Consumption Patterns in India: National Council of Applied Economic Research

⁷ http://www.who.int/water_sanitation_health/publications/washandnutrition-5-key-facts.pdf?ua=1

% of neonatal and Under 5 mortality⁸ in the country. Apart from diseases, access to safe and clean latrines as well ODF regions (districts/blocks/villages) benefits women and adolescent girls.

While looking at interstate comparisons, increased access to sanitation has a strong correlation to percentage of underweight children, however the percentage of child wastage is not impacted by access to sanitation facilities to the same degree. In the figure below, states like Kerala and Sikkim which enjoy a greater percentage of households with improved sanitation facilities suffer from low percentage of underweight children. The correlation repeats itself in the case of Madhya Pradesh with only 33.7 % of household having access to improved sanitation facilities, resulting in almost half the children (42.8 %) under age of 5 being underweight. In the case of Bihar, only 25.2 % of HH have access to improves sanitation facilities while 43.9 % of children under the age of 5 are underweight.



Government Schemes: Institutional Measures to improve Nutrition

To improve child and women welfare, the Government has undertaken a wide gamut of national programmes and schemes which address both immediate and underlying determinants of undernutrition. Some important programme that have created a direct impact in improving nutrition statistics are:

1. **Integrated Child Development Scheme (ICDS):** Launched in 1975, ICDS has been one of the crucial initiatives (centrally sponsored scheme) initiated by the Central Government to address and improve the nutritional status of women and children. The scheme has the following objectives:
 - To improve the nutritional and health status of children in the age-group 0-6 years;
 - To reduce mortality, morbidity, malnutrition and school dropout;

⁸ <https://data.unicef.org/topic/child-health/diarrhoeal-disease/>

- To promote policy coordination and implementation for promoting child development
- To lay an adequate foundation for the psychological, physical and social-well-being of the children etc.

Supplementary Nutrition, now mandated under the NFSA, 2013, has been one of the six services provided under the Anganwadi Services (ICDS) Scheme since 1975. To cater to the nutritional requirements of the country, sections 4, 5 and 6 of the National Food Security Act, 2013 have converted the provision of Supplementary Nutrition (SN) into a legal entitlement. However, as per the ICDS (Supplementary Nutrition) Rules, 2017, supplementary nutrition is provided to those beneficiaries who visit the AWC as the scheme is self-selecting.

2. **Janani Suraksha Yojana (JSY):** A safe motherhood intervention under the National Rural Health Mission (NHRM), Janani Suraksha Yojana was launched in 2005 with an objective to reduce maternal and neo-natal mortality by promoting institutional delivery among pregnant women. Under the scheme cash assistance is integrated with post-delivery care. The scheme focuses on poor pregnant woman with a special dispensation for states that have low institutional delivery rates, namely, the states of Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Assam, Rajasthan, Odisha, and Jammu and Kashmir.

Scale of Cash assistance for Institutional Delivery

Category	Rural Area		Total	Urban Area		Total
	Mother's Package	ASHA's package*	INR	Mother's Package	ASHA's package**	INR
Low Performing States	1400	600	2000	1000	400	1400
High Performing State	700	600	700	600	400	600

*ASHA package of INR 600 in rural areas include INR 300 for ANC component and INR. 300 for facilitating institutional delivery.

**ASHA package of INR 400 in urban areas include INR 200 for ANC component and INR 200 for facilitating institutional delivery

Additionally, BPL pregnant women, who prefer delivering at home, are entitled to a cash assistance of INR 500 per delivery.

3. **Mid-Day Meal Scheme (MDMS):** MDMS is a centrally sponsored scheme, designed with a view to enhance enrollment, retention and attendance, and simultaneously improve nutritional levels among

children. Under the scheme, food grain at the rate of **100 grams** per child for primary school and **150 grams** per child for upper primary schools, pulses at the rate of **20 gms** per child for primary school and **30 gms** per child for upper primary school are provided by the Central Government to States/UTs. In addition, cooking cost is provided for eligible schools / implementing agencies for meeting the cost of pulses, vegetables, oil / fats, salt & condiments and fuel. In order to cover the impact of price rise in the items of consumption in the MDM basket, the cooking cost has been revised upward annually since 2010 at 7.5 per cent. The present cooking cost is INR 3.86 per child per day for primary level and INR 5.78 per child per day for upper primary level.

An additional list of schemes is also provided, which impact nutrition directly as well as indirectly.

Sl. No.	Schemes	Ministry	Objectives
1.	National Health Mission (RMNCH +A):	Ministry of Health and Family Welfare	National Health Mission (RMNCH +A) looks to address the major causes of mortality among women and children as well as the delays in accessing and utilizing health care and services. The RMNCH+A strategic approach has been developed to provide an understanding of 'continuum of care' to ensure equal focus on various life stages. Priority interventions for each thematic area have been included in this to ensure that the linkages between them are contextualized to the same and consecutive life stage
2.	SABLA	Ministry of Women and Child Development	<ol style="list-style-type: none"> 1. Enable Self Development and empowerment of AGs. 2. Promote awareness among AGS about health, hygiene, nutrition, reproductive & sexual health, family and child care. 3. Inform and guide AGS about existing public services such as post office, banks, police station etc. 4. Improve nutrition level and health status. 5. Awareness about benefits of education and focus on out school girls to impart education. 6. Improve their home based skills, life skills and teach them vocational skills.
3.	Indira Gandhi Matritva Sahyog Yojana (IGMSY):	Ministry of Women and Child Development	(IGMSY) is a Conditional Maternity Benefit (CMB) Scheme of the Government of India launched in 2010. It is a conditional cash transfer scheme for pregnant and lactating mothers of 19 years of age or above for the first two live births. It provides partial wage compensation to women for wage-loss during the childbirth and childcare, and aims to promote conditions for safe delivery, good nutrition, and feeding practices.

4.	Pradhan Mantri Matru Vandana Yojana	Ministry of Women and Child Development	The objectives of the scheme are: (i) providing partial compensation for the wage loss in terms of cash incentives so that the woman can take adequate rest before and after delivery of the first living child; and (ii) the cash incentives provided would lead to improved health seeking behaviour amongst the Pregnant Women and Lactating Mothers (PW&LM).
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Recommendations: Way Ahead

While improving breast feeding practices, increasing diversified agriculture production, improving the infrastructure for water supply and sanitation would ultimately lead to improve nutrition indicators it is important to devise a solution which would address the problem in a targeted manner.

The National Nutrition scheme has called for innovative models of service delivery, which could be taken as a beacon for improving scheme implementation. As mothers are the focal point of nutritional provision for the children, they need to be empowered with **information regarding the nutritional value of certain foods as well as adequate sanitation practices which would encourage healthier & safer lifestyle for children**. This information could be accessed by mothers through key personnel for community nutrition like ASHA & Anganwadi Workers (AWWs). Platforms like Village Health Nutrition and Sanitation committees can be utilized to disseminate this information. Another important spoke for developing better nutritional practices **is the inclusion of local foods (which are rich in micronutrients) in the dietary disbursements of certain schemes**. As mentioned above, a critical source of diet especially for children and Pregnant & Lactating (P&L) women are two institutional schemes i.e. Integrated Child Development Services (ICDS) and Midday Meal Scheme (MDMS). Under ICDS, children (0-6) years as well as P&L women receive ration from the local Anganwadi Centre (AWC), while school going children receive the one full meal (lunch) through the MDMS. Diversified food components need to be included under these schemes. **These food components, principally locally produced legumes (proteins), F&V, eggs could be included in the diet of children and mothers through the disbursements under the abovementioned schemes**. Diversified food products could be sourced from the local SHG, thereby creating a whole supply chain. Both the Gram Panchayats (GP) and School Management Committees (SMCs) could be encouraged to support this plan, thereby providing an encouraging policy framework. **Under the ICDS programme, the government of Andhra Pradesh has set up the proposed value chain under the Indiramma Amrutha Hastham scheme, which has provided considerable results**.

The solution to address the specific problem of low supply and inadequate nutrient intake requires focus on both the overall infrastructure of diversified food supply as well as formulating and implementing certain administrative and schematic guidelines which will address the problem of food habits in a context specific manner. This is important, because the problem of inadequate nutrition is characterized by a rural urban **divide whereby, under nutrition is predominant in the rural regions & certain sections of the urban population, on the**

other hand certain sections of the urban population suffer from over nutrition. Hence, a combination of strategies will be required to provide a successful solution under the overall ambit of Augmenting food supply with focus on Consumer food habits. Keeping in line with the holistic approach, coordination and commitment is required from both private entities as well as local community bodies to fulfill the goal of adequate nutrition.

The first and foremost step in augmenting the Supply of diversified food is increasing the Storage capacity for various food products. The wastage of fruits and vegetables has become an endemic problem tot the Storage of F&V. While the storage of certain pulses as well as rice and wheat is assured by the Public Distribution System, the construction of cold storage units in India is woefully inadequate. About 18 % of the F&V produced within the country perish due to lack of cold storage facilities. Attractive incentives need to be provided to private players as they can be instrumental in increasing the present capacity. Subsidies also need to be provided to transport companies so that the numbers of refrigerated trucks (reefers) increase on the roads. The transportation of F&V over long distances will increase the supply of these products, thereby having a multiplier impact on price of these commodities. An underutilized source in encouraging storage capacities are Farmer Producer Organizations (FPOs) and Farmer Producer Companies (FPCs). These local economic bodies can be utilized to encourage a combination of private and community ownership development of storage facilities.

While the supply of diversified food solves a certain part of the problem, intake of the right nutrients needs to be encouraged at the Central and state level. As with the strategy above, education institutes can play a key component in encouraging healthy nutrition choices especially in urban regions. Healthy nutrition practices need to be inculcated at the school level, preferable through the curriculum to ensure lifelong healthy nutrition choices. Urban populations consume more processed foods when compared to rural populations, hence State Governments can make initiate agreements Food and Beverage Manufacturers (F&B) to reduce the sugar content in the foods in return of certain tax incentives. These F&B Manufacturers could also be encouraged to simplify the nutrition information provided with their products and provide warning labels on food with high sugar. These strategies have been adopted in countries like France, which has reduced the obesity rates in the recent years.

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