CHAPTER II

REVIEW OF LITERATURE

The review has been discussed under the following sections:

Infant and Child Health and Nutrition

The Burden of Child Undernutrition

Global scenario

National scenario

Regional scenario

Local scenario

Policies and Programs for Improving Child Health and Nutritional Status

National Programs and Policies

State Policies

Integrated Child Development Service (ICDS) Scheme

History and its Functioning

Studies on Evaluation of ICDS

Strengths and Weaknesses of ICDS

Operational challenges and Obstacles Faced

Public-Private Partnership (PPP)

PPP in Health and Nutrition

Global, National, and Local success stories

Despite substantial progress made in Maternal and Child Health in past 50 decades, it continues to remain a major public health challenge. Undernutrition encompasses stunting, wasting, underweight and essential micronutrient deficiencies which is an important determinant of Child Health. In 2015, the word agreed to end all forms of malnutrition by 2030. WHO's member states endorsed Global Nutrition targets on the12th of May in the 65th World Health Assembly for improving Maternal, Infant and Young Child Nutrition which included six global targets (figure 2.1) by 2025 – later the deadline extended to 2030 with targets set at more ambitious level to harmonize them with the Sustainable Development Goals (SDGs).

The Global Nutrition Targets were then considered in the Development Agenda and has its mention in goal 2.2 of the SGDs but it cannot be disregarded that improving nutrition goes beyond SDGs as it is linked to achieving each SGD. Therefore, in order to achieve SDGs, its imperative to make progress in nutrition

In order to accelerate the progress towards The Global Nutrition Targets and SDGs, The UN announced it as first ever UN Decade of Action on Nutrition from 2016 to 2025. They are not only committed to monitoring its progress but also develop accountability framework.

Figure 2.1: Global Nutrition Targets 2025

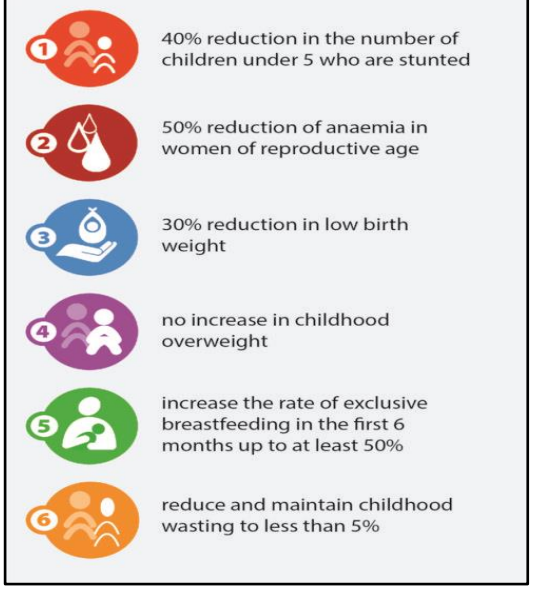
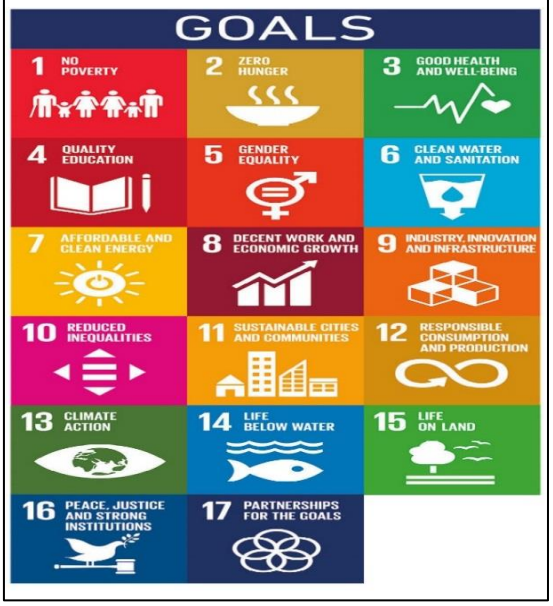


Figure 2.2: Sustainable Development Goals (SDG's) 2030



INFANT AND CHILD HEALTH AND NUTRITION

Maternal and Child Undernutrition remains quite prevalent and is responsible for blemish consequences especially in Low- and Middle-Income Countries (LMICs). The UNICEF's Conceptual Framework on Determinants of Maternal and Child Nutrition is extended on former framework by UNICEF. It highlights the underlying determinants of Malnutrition which are food, feeding and environment driven by poor diet, poor care and practices. The framework provides clarity on the enabling, underlying and immediate determinants of adequate nutrition showing positive outcome on improved survival, health, physical growth, cognitive development, school readiness and school performance resulting in improved prosperity and cohesion in societies.

Nutrition is vital for optimum child development throughout the first 1000 days of life and beyond (Black et al., 2008). Undernutrition has profound effects on health throughout life and is inevitably linked with cognitive and social development, especially in early childhood (Victora et al., 2008). Maternal and Child Nutrition series 2 by Victora et al., 2008 provides strong evidence that adequate nutrition in-utero and in the first 2 years of life is essential for formation of human capital.

Among scarce resources and insufficient material, children fail to achieve their full potential growth and development resulting into increased mortality from recurrent infectious diseases due to compromised immunity, decreased learning capacity to increased burden of non-communicable diseases in older age which has been well documented over decades. Nutritional status at the time of pregnancy is crucial for fetal growth (Victora et al., 2008). Undernourished adolescent girl when steps into motherhood is at high risk of fetal growth failure or birthing SGA baby. Stunted woman with short stature is at risk of complications in delivery.

Optimal Infant and Young Child Nutrition (IYCN) practices recommended by WHO include Early Initiation of Breast Feeding (EIBF) within one hour of birth, Exclusive Breast Feeding (EBF) till six months of life and continued breastfeeding until 2 years of age or older and Timely Initiation of Complementary Feeding (TICF) in an infant from sixth month after birth and continuation of age-appropriate complementary feeding (Dyson et al., 2005, PAHO 2003 and WHO, 2005).

A systemic review by Debes et al., 2013 indicates that if the breastfeeding is initiated within 24 hours of birth reduces all – cause and infection – related neonatal mortality by 44-45%. The

Lancet 2016 breastfeeding series has well documented the effects of optimal breastfeeding on maternal and child survival, health and development along with breastfeeding promotion and support interventions (Victora et al., 2016 and Rollins et al., 2016). Two practices together – ensuring optimal breastfeeding in the first year and complementary feeding practices – could prevent almost one-fifth of deaths of children under 5 years of age (Jones et al., 2003). Studies have indicated improved brain development resulting from optimal breastfeeding (Kramer et al., 2001). Counselling or educational interventions leads to an increase in EBF by 43% on the first day and increases to 90% in the first five months (Imdad et al., 2011). Guidelines from WHO released in 2018 on breast feeding promotion recommended that at least 6 counselling contacts should be made across first 2 years of life (WHO, 2018).

Optimal breast-feeding practices is expected to prevent 820000 child deaths and 20000 breast cancer death annually (Victora et al., 2016). Global analysis shows a gradual increase in the prevalence of EBF but the infants younger than 6 months are also fed with other foods or fluids along with breast milk (Victora et al., 2016 and UNICEF, 2019). In India, just over half the children under 5 years of age are exclusively breastfed and proportion of children breast fed up to 2 years of age are about 50% (NFHS 4, 2015).

Evidence on benefits of breast feeding has accumulated in the past 20 years which suggests that breast feeding does not only protect against childhood illness but longer duration of breast feeding and EBF are associated with higher intelligence, lower risk of obesity and diabetes along with lower risk of leukemia and type 1 diabetes. It helps nursing mothers in spacing the birth and reduced incidences of breast and ovarian cancer (Victora et al., 2016).

Improved complementary feeding practices including TIBF and age-appropriate feeding will help reduce stunting and related burden of diseases (Bhutta et al., 2008). Complementary feeding practices are demonstrated to increase through strategies like nutrition counselling, counselling in food insecure settings to improve nutrient rich food consumption and IYCN education. Promotion of age-appropriate complementary feeding practices is rooted in guidelines issued by WHO in 2003 and 2005. Though no guidelines from WHO exist for complementary feeding counselling but updated UNICEF programing has been released recently in 2020 (UNICEF, 2020). There are evidences from meta-analyses which suggest education as an effective intervention in improving TICF and feeding solid foods, feeding frequency and diversity of young children's diet leading to improved growth and development (Heidkamp et al., 2021). Though food secure setting benefit from education on complementary

feeding but recent findings suggest that it helps improve dietary diversity and growth by promoting specific-nutrient rich foods which are available like eggs (Kim SS et al., 2019, Ianotti LL et al., 2017, Stewart CP et al., 2019 and Warren AM et al., 2020).

In India, proportionately less than half of the children between 0-23 months were breastfed within the first hour of birth, only 65.1% infants from 0-5 months were exclusively breastfed and only among 47.1% infants of 6-8months of age were initiated with complementary feeding. Dietary diversity assessed with the consumption of 4 or more food groups was found among 18.6% children between the age of6-23months (RSOC, 2013-14)**.**

The 2013 lancet series on Maternal and Child Nutrition has prioritized ten interventions which if scaled to 90% coverage in high burden country like ours, will help reduce child mortality by 15% and stunting by about 20% (Bhutta et al., 2013). The available evidence from Lancet series 2021 reaffirms these key priorities for undernutrition including an emphasis on the first 1000 days of life (Victora et al., 2021 and Heidkamp et al., 2021).

THE BURDEN OF CHILD UNDERNUTRITION

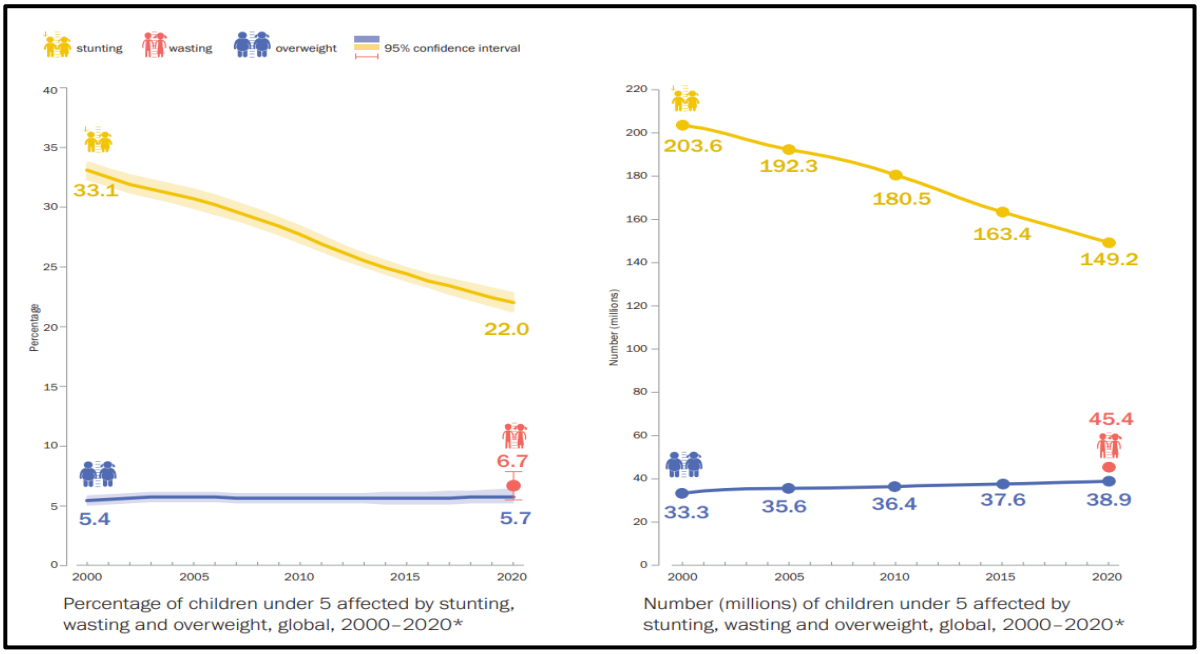
During the past decades, the world has made modest progress in reducing undernutrition. The present decade has created increased visibility on nutrition and the world is committed to reducing malnutrition in all its forms. United Nations having called this decade: 2016-2025 as UN Decade of Action on Nutrition. Despite substantial progress in reducing global poverty and food insecurity, the prevalence of maternal and child undernutrition in low-income and middle-income countries (LMICs) has remained unacceptably high (Black et al., 2008, Black et al., 2013 and UNICEF 2019).

Global Scenario

The joint Malnutrition Estimates which was released in April, 2021 reveals inadequate progress achieved in order to reach WHA 2025 targets and SDGs set for 2030. Though there is a global decline observed in stunting since 2000, but to reach the Global Nutrition Targets the pace of reduction needs to be faster. Globally, stunting affects 22.0% children under five years of age which means almost one child in every five children is stunted. In terms of absolute numbers, 149.2 million children under five globally were stunted (JME, 2021). This data does not take impact of covid into account, and the effect of covid will unfold eventually to give an understanding of how far and grave the impact on stunting has been. Global agencies estimate

that stunting has declined from 32.5% in 2000 to 21.9% in 2017 (WHO, 2019) among children under 5 years. Asia has experienced higher decline from 38.2% to 22.7% over the same period (Lancet, 2021).

Figure 2.3: Global Malnutrition trends

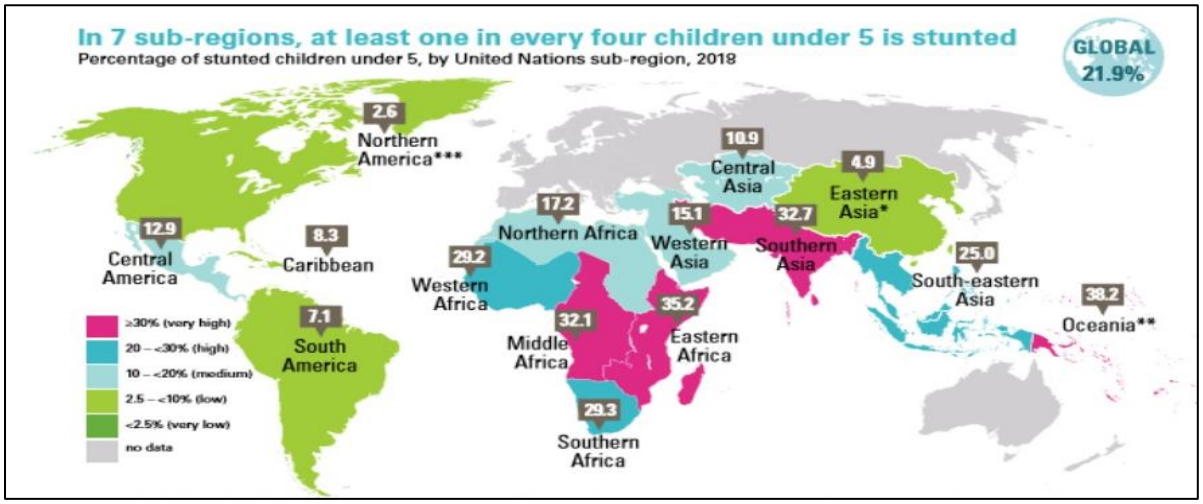


Source: *UNICEF, WHO, World Bank Group Joint Malnutrition Estimates, 2021 edition.*

Stunting is a marker of undernutrition which can result when children live in an environment that is poor, not only in terms of their dietary intake but also lack of caregiving, frequency and severity of illness and use of health services among other factors (Leroy and Frongillo, 2019). Stunted children impact development, capacity for school, work and income generation. Globally, approximately 149 million children under 5 suffer from stunting. These children begin their lives at a marked disadvantage: they face learning difficulties in school, earn less as adults, and face barriers to participation in their communities (JME, 2019). South Asia is still the biggest contributor to malnutrition in the world. Figure 2.5 is indicating the same. More than one-third of children (about 60 million) under five years of age are stunted in South Asia, accounting for about 35 percent of the world's stunted children, and stunting rates are higher in rural areas than in cities. Globally, the number of stunted children declined from 32.5% in 2000 to 21.9% in 2017 (WHO, 2019). It is a consequence of several factors that limit physical growth and general development, but it is not specific to undernutrition (USAID, 2020). For rural areas specifically, the picture is less clear, due to the lack of systematic data. Also, the

impact of the pandemic on stunting will likely unfold gradually, and may persist for years after COVID-19 is eradicated and economies recover (JME, 2021).

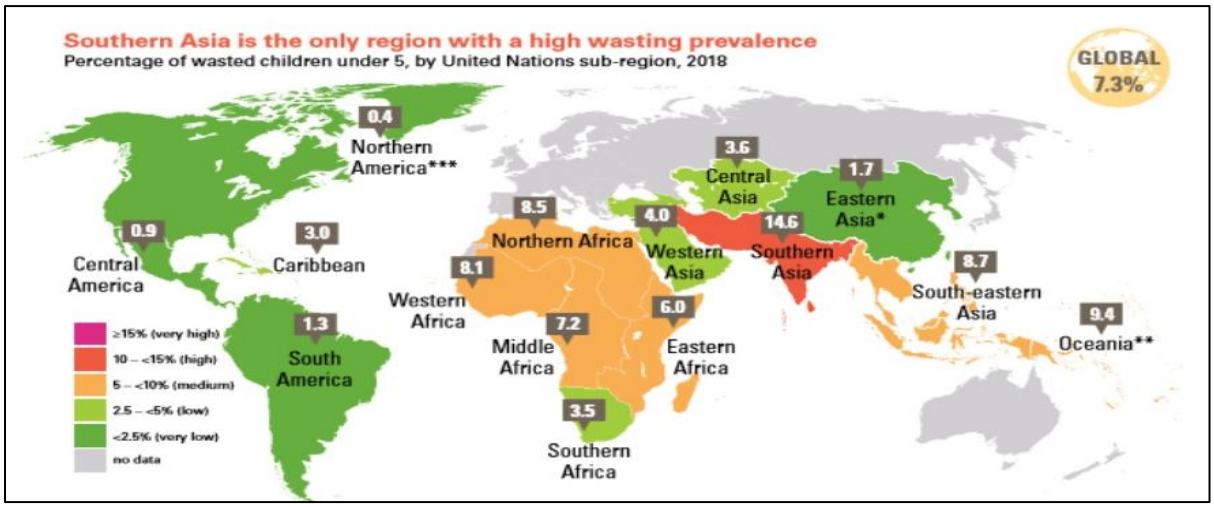
Figure 2.4: Global prevalence of stunting



Source: *UNICEF, WHO, World Bank Group joint malnutrition estimates (JME), 2019 edition*

Wasting and severe wasting, characterized by a loss of muscle and fat mass, can develop rapidly in the face of poor nutrient intake and/or disease. These conditions are expected to be most impacted by COVID-19 in the short-term. Children suffering from wasting have weakened immunity, are susceptible to long-term developmental delays, and face an increased risk of death, particularly when wasting is severe. In 2018, over 49 million children under 5 were wasted and nearly 17 million were severely wasted (JME, 2019). More than 15% of children under age 5 in South Asian countries were wasted in 2016 (27.6 million) as well (Global nutrition report, 2017). Figure 2.6 in indicating the same.

Figure2.5: Global prevalence of wasting



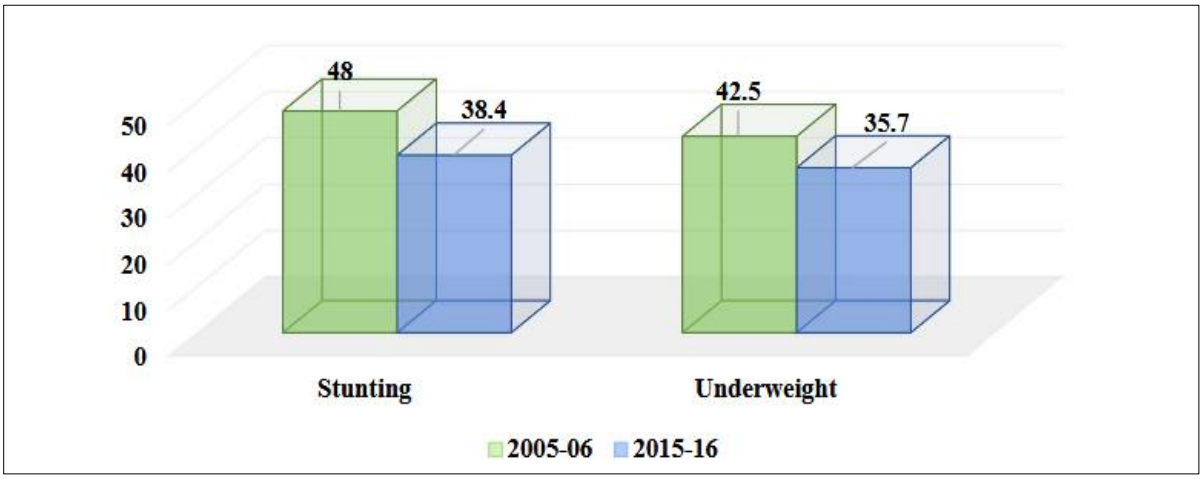
Source: *UNICEF, WHO, World Bank Group joint malnutrition estimates (JME), 2019 edition*

National Scenario

According to the Global Nutrition Report 2018, India is facing a major malnutrition crisis as it holds almost a third of the world's burden for stunting with the highest prevalence, is home to 38.7 % of stunted children (RSOC, 2014). The burden of wasting is also highest in India, which has more than 15.1 % wasted children (RSOC, 2014). Though India has made progress towards the international hunger targets but it still has the second-highest estimated number (194.6millions) of undernourished people in the world (FAO 2015). Significant progress has been made in improving food and nutrition security. Nevertheless, challenges remain. For instance, a substantial reduction in stunted and underweight children has been achieved between 2005-06 and 2015-16. But the absolute levels of stunted and underweight children remain high. India's food security Programmes are among the largest in the world and cover more than 800 million people in the country by providing affordable access to grains. ICDS program has emerged from small beginnings in 1975 to become India's flagship nutrition program (ICDS-WCD, 2015) and caters to the nutritional requirements of over 83 million young children and 19 million pregnant and lactating mothers in the country. The Mid-Day Meal Programme delivers nutritious cooked meals to 100 million children in primary schools (UN, 2017). The memorable phrase Sabka Saath Sabka Vikas, translated as "Collective Effort, Inclusive Development" and enunciated by the Prime Minister, forms the cornerstone of India's national development agenda. To fast-track this agenda, NITI Aayog, the premier think tank of the Government of India, has recently released a draft Three-Year Action Agenda covering the years 2017-18 to 2019-20.

Despite positive economic growth trends, India continues to struggle with malnutrition manifested in terms of high rates of child stunting and wasting that are substantially higher than other countries with similar economic growth experiences and at similar stages of structural transformation (Pingali et al., 2019). It still stands far behind in terms of underweight children in the world compared to other developing countries with 38.4% stunted, 21% wasted and 35.7% underweight children (NFHS 4, 2015-16). Whereas according to RSOC report 38.7 % under 5 children were stunted, 17.3% were severely stunted, 15.1% wasted, 4.6% severely wasted, 29.4% underweight and 9.4% severely underweight in India.

Figure 2.6: Changes in Nutritional Indicators of Children Under 5 Years (%)



Source: *Voluntary National Review Report, United Nations, 2017*

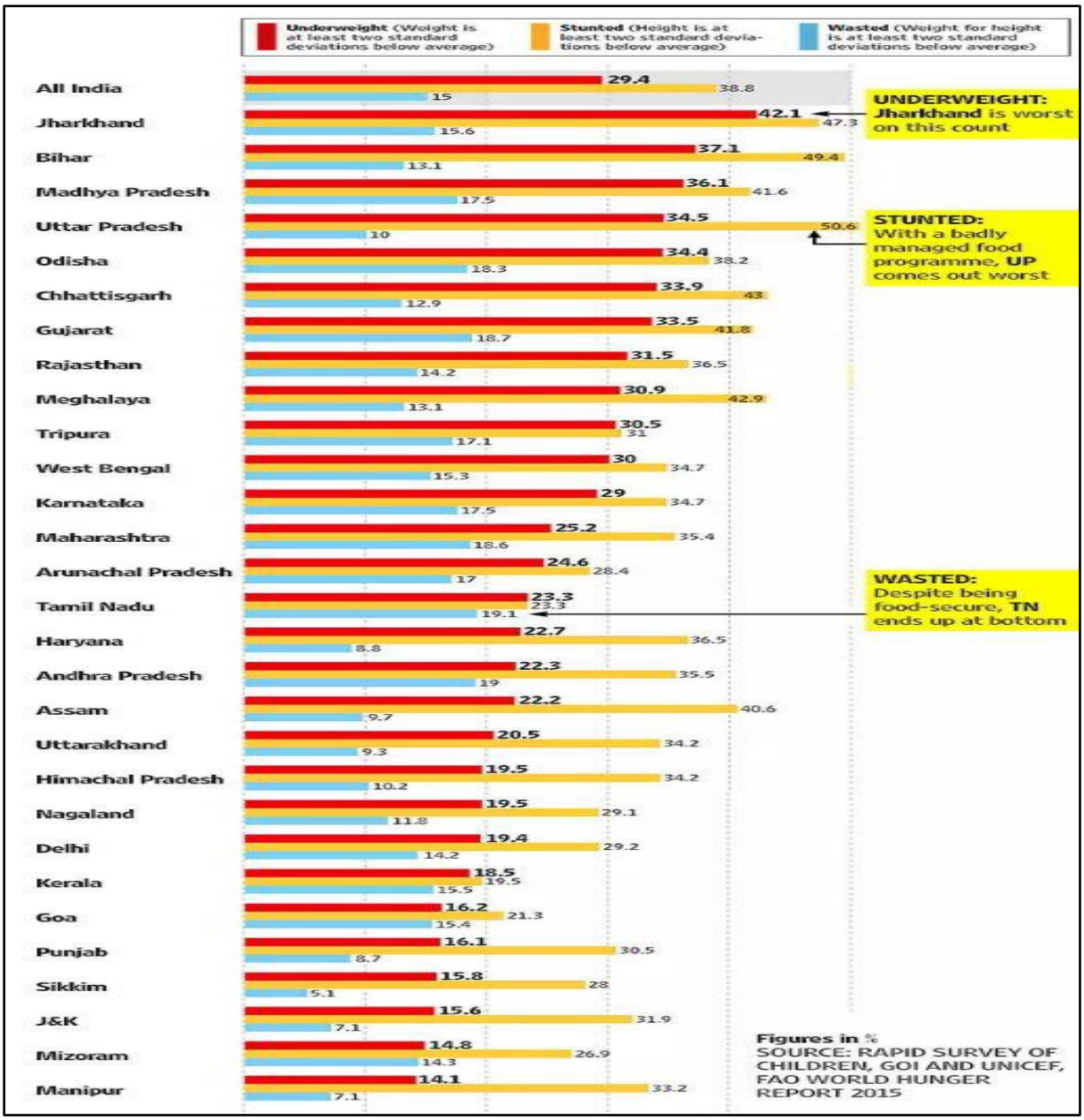
State and Local Scenario

In Gujarat, according to RSOC Rapid Survey of Children (2013-14 report, 33.5% under 5 children were underweight, 41.8% were stunted and 18.1% were wasted (Figure 2.7). According to NFHS 4 report, 38.5% of under 5 children were stunted, 26.4% were wasted and 39.3% were underweight (NFHS-4, 2015-16 report).

The city of Surat, is also facing a grave problem of malnutrition with 24.8% stunted, 25% wasted and 32.5% underweight children (NFHS 4, 2016) (Figure 1.4).

Optimal child development requires adequate nutrient intake, provision of supplements as needed and prevention of disease. Interventions to improve maternal nutrient intake include supplementation with iron, folic acid or multiple micronutrients and provision of food and other supplements where necessary. Compared to iron-folic acid supplementation alone, supplementation with multiple micronutrients during pregnancy has been found to reduce low birth weight by about 10 percent in low-income countries (Fall et al, 2009).

Figure 2.7: Undernutrition status in different states of India



Source: *Rapid Survey of India (RSOC), 2015*

POLICIES AND PROGRAMS FOR IMPROVING CHILD HEALTH AND NUTRITIONAL STATUS

India has made noteworthy journey of evolution in the segment of child health care programmes and policies since independence. The vision and focus of these programmes have been changing over the years as understanding and scientific evidence around child health grew globally.

India initiated this journey with the inception of National Family Planning Programme implemented in the year 1952 and became the first country in the world to roll out a national level programme. Though health of infants and newborns formed a relatively minor component of this programme. National policy for children followed in the year 1947 which prioritized child health, nutrition, orphan and destitute children and children with disabilities (Jagannadham, 2017).

Maternal and child health care became an integral part of family planning programme which transitioned into Family Welfare Programme in the year 1977. The Expanded Programme on Immunization (EPI) was launched in 1978 focusing on child health which transitioned into Universal Immunization Programme (UIP). UIP was launched by GoI in a phased manner which became operational in all districts by the year 1989-90 (MoHFW, 2018).

In the year 1992 a Child Survival and Safe Motherhood (CSSM) Programme was launched with the objective of reducing Infant and Maternal Mortality. Now, the situation demanded focus on reducing death due to diarrhoea and pneumonia. Thus, the priority aimed at reinforcing Oral Rehydration Therapy (ORT) and Acute Respiratory Infection (ARI) programmes. Government also introduced the Reproductive and Child Health (RCH) programme Phase I during 1997-98 to fulfil the unmet need for family welfare services in the country, especially among the poor and under-served. This programme was integrated with CSSM in 2005 (Paruthi et al, 2002). After RCH Phase I and learnings from its implementation, RCH Phase II was launched with a focus on sub-national requirements. This adopted Integrated Management of Neonatal and Childhood Illnesses (IMNCI) in 2005. IMNCI was implemented with a thrust on preventive and curative components focusing on improving the skills of healthcare staff, overall health system and family and community health practices.

To prioritize health care in rural areas, National Rural Health Mission (NRHM) was launched in 2005 with a focus on Reproductive, Maternal, child Health and Adolescent (RMNCH+A).

This was later incorporated in National Health Mission in the year 2013, along with National Urban Health Mission to promote increase in coverage of health care services.

India's Nutrition Status and Policy Scenario:

The Prime Minister while addressing the World Economic Forum in 2018 shared his aspirations to make India a huge economy by 2025. Considering the huge proportion (38.4% stunted and 35.8% Underweight) of India's children under 5 years of age malnourished, this seems inconceivably ambitious (IGC, 2021).

India, also as one of the stakeholders is committed to Ending hunger by 2030 in accordance to Goal 2 of the SGDs. But in Global Hunger Index 2020, it ranks 94 out of 107 countries and sadly India is also off track in achieving Global Nutrition Targets by 2025 (GNR, 2020) thus very likely to miss it. This aligns with the recently released NFHS-5 1st Phase data which shows no improvement in child nutrition indicators since 2015-16. To address this issue POSHAN Abhiyaan was launched by GoI which claimed *fight against malnutrition* as one of India's priorities. However, rejection of Finance Commission's recommendations on Supplementary Nutrition Programme (SNP) shows that malnutrition is not the priority of India's development agenda.

Currently there are several Nutrition Interventions implemented with the aim to decrease malnutrition which are;

Integrated Child Development Services (ICDS)

The Integrated Child Development Services (ICDS) Scheme, launched on 2nd October 1975, aims to address malnutrition, impaired development, morbidity and mortality in children under 6 years of age. The beneficiaries of this scheme are, pregnant and lactating mothers, children under 6 years of age and adolescent girls. It encompasses a package of integrated services comprising Supplementary Nutrition, Immunization, Health Check-up, Referral Services, Nutrition and Health Education and Non-formal Education is provided in a comprehensive and cost-effective manner to meet the multi-dimensional and interrelated needs of children.

PM POSHAN (Pradhan Mantri Poshan Shakti Nirman) Scheme earlier Mid-Day Meal Scheme

The PM POSHAN (POshan SHAkti Nirman) Scheme will provide one hot cooked meal in Government and Government-aided schools from 2021-22 to 2025-26, earlier known as

'National Programme for Mid-Day Meal in Schools' popularly known as Mid-Day Meal Scheme. This is a Centrally-Sponsored Scheme which covers all school children studying in Classes I-VIII in Government, Government-Aided Schools. Mid-day meal scheme was launched centrally in 1995 to enhance enrollment, retention and simultaneously improving nutritional levels among children. (http://mdm.nic.in/mdm_website/)

National Nutrition Mission

Launched in 2018, POSHAN Abhiyaan is India's flagship program under the Ministry of Women and Child Development (MWCD), Government of India. It aims to improve the nutritional status of mother and child. It is a multi-ministerial convergence mission committed to attain malnutrition-free India. The objective of Poshan Abhiyaan is to reduce stunting by improving the utilization of key Anganwadi Services and improving the quality of Anganwadi Services delivery. It aims to ensure holistic development and adequate nutrition for pregnant women, mothers, and children

(https://www.niti.gov.in/documents/poshan-abhiyaan-reports)

Pradhan Mantri Matru Vandana Yojana (PMMVY)

Pradhan Mantri Matru Vandana Yojna is implemented using the platform of Anganwadi services since 2017 across the state to ensure early identification & prompt treatment of high-risk pregnant women of under the guidance of specialist

(https://wcd.nic.in/sites/default/files/FINAL%20PMMVY%20%28FAQ%29%20BOOKELT)

Mothers Absolute Affection (MAA)

Mother's Absolute Affection – MAA is a national programme on Infant and Young Child Feeding under the Ministry of Health and Family Welfare. It focuses on promotion of breastfeeding and provision of counselling services for supporting breastfeeding through health systems. The name signifies the support a lactating mother requires from family members and at health facilities to breastfeed successfully (https://www.nhp.gov.in/maa-(mothers%E2%80%99-absolute-affection)-programme-for-infant-and-young-child-feeding_pg).

National Iron Plus Initiative (NIPI)

NIPI is an initiative started in an attempt to reduce anemia among all stages of life including children, adolescents, and women of reproductive age group. The national iron plus initiative focuses on each age group and provides iron supplements to them. Iron and folic acid tablets are being distributed through sub-centers, primary health centers (PHCs), community health centers (CHCs), and district hospitals (DHs) to all pregnant women and lactating mothers (https://nhm.gujarat.gov.in/images /pdf/Nutrition/ nipi-guidelines-eng.pdf).

Swasth Vatsalya Yojana

The focus of the project will be to eliminate malnutrition among mothers and children. This will be the first focused mission to ensure that pregnant women and infants get the required care where the infants will be monitored up to the age of 6 months (https://timesofindia.indiatimes.com/city/vadodara/Swasth-Vatsalya-yojna -launched-to-fight-malnutrition-and-ensure-safe-deliveries/articleshow/48008989.cms).

Bal Sakha Scheme

This scheme was launched in January 2009. Under this scheme, all babies born to BPL mothers in the State will be covered for neonatal care by partnering with pediatricians, including care in their Neonatal Intensive Care Unit at no cost to the beneficiary. The pediatrician attends all eligible newborns at the place of birth and has to ensure their survival by providing early neonatal care including immunizations at birth, nutrition advice, etc. The gynecologist has to ensure 2 days stay of the mother and baby after delivery to cover the dangers of the immediate post-partum period (https://gujhealth.gujarat.gov.in/bal-sakha-yojana.htm).

At state level, other than the national level schemes Gujarat government have also implemented schemes (https://nhm.gujarat.gov.in/rch-ii.htm):

- Chiranjeevi Yojana
- Nutritious food with vitamins Yojana (Vitamin Yukta Poshan Ahar)
- Mission Balam Sukham and Bal Sakha Scheme
- Mamta Doli, Abhiyan

INTEGRATED CHILD DEVELOPMENT SERVICE (ICDS) PROGRAM

Integrated Child Development Service scheme was launched on 2nd October, 1975 and is one of the India's flagship programmes, world's largest and unique programme for early child development and care. This programme is a sign of country's commitment to its children, pregnant and lactating mothers which also provides pre-school non-formal education and driven towards breaking the vicious cycle of malnutrition, morbidity and mortality. The beneficiaries under the scheme are; children in the age group of 0-6 years, pregnant and lactating mothers and adolescent girls.

The objectives of ICDS are;

- To lay the foundation for proper psychological, physical and social development of the child;
- To reduce the incidence of mortality, morbidity, malnutrition and school dropout;
- To achieve effective co-ordination of policy and implementation amongst the various departments to promote child development; and
- To enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.

Services which are provided under the scheme includes; supplementary nutrition, pre-school non-formal education; nutrition and health education; immunization, health check-up and referral services.

The ICDS operates through Anganwadi Centers (AWC) managed by Anganwadi Worker (AWW) and Helper (AWH). Each AWC caters to 200 households and a total population of 1000. All the services are provided through these centers under the Ministry of Woman and Child Development. There is inter-departmental convergence with various departments to optimize the health and wellbeing of its beneficiaries. In Gujarat, weekly recipes for the AWC were charted out and followed. Fortified Take-home rations or premixes are available as Baal-shakti (earlier known as Balbhog) and Matru-Shakti for preparing around 77 recipes. To address the needs of socially and geographically excluded populations mostly in the remote interior areas, Government of Gujarat has started Mobile Anganwadi Vans to provide services to the beneficiaries in these areas using the State's Budget (https://icds-wcd.nic.in/icds.aspx).

BEHAVIOUR CHANGE COMMUNICATION (BCC)

Behaviour Change Communication is "an interactive process with communities (as integrated with an overall program) to develop tailored messages and approaches using a variety of communication channel to develop positive behaviours; promote and sustain individual, community and societal behaviour change; and maintain appropriate behaviours." (Family Health International, 2002).

Knowledge determines the attitude of an individual and individual's attitude determine the behaviour. Social factors including caregiver's poor knowledge on nutrition contribute to poor infant and young child nutrition and poor feeding practices.

Information Education and Communication (IEC) came into existence in 1990s (WHO, 2001). IEC as stated by the World Health Organization "is an approach which attempts to change or reinforce a set of behaviours in a target audience regarding a specific problem in a predefined period of time." (WHO, 2001). IEC gradually evolved to BCC and it forms an integral part of BCC. IEC is concerned with awareness generation whereas BCC goes a step ahead and is action oriented (NHM, 2020). BCC is primarily concerned with creating a conducive environment which will enable people to change their behavior from the negative to the positive side (Nancy and Dongre, 2021).

PUBLIC-PRIVATE PARTNERSHIP IN HEALTH AND NUTRITION

Low and middle-income countries are most vulnerable to high levels of stunting, wasting and undernutrition (Caballero 2005, WHO 2014 and CECO 2016). With limited resources, childhood malnutrition appears resistant to local or single sector solution (Dobbs et al, 2014). To address this, transformative approaches are required to ensure deeper engagement by multi-sectoral partners (Dobbs et al, 2014).

The implementation of the UN Decade of Action on Nutrition offers a unique opportunity to all countries and stakeholders to increase the visibility, coordination, efficiency, and effectiveness of nutrition action at all levels (ECDPM, 2017). United nations have encouraged governments, intergovernmental organizations and civil society to engage with private sector through Public-Private Partnership (PPP) to address malnutrition (WHO 2014, Freire 2014).

Achieving SDG2—Zero Hunger by 2030 will require strong political will and both public and private investment. Policymakers, researchers, program implementers, and civil society are already crossing sectoral boundaries to learn from past experiences and scale up successes, as they did at the recent IFPRI/FAO Global Event on Accelerating the End of Hunger and Malnutrition (IFPRI, 2019).

Among various initiatives to address malnutrition, the ones which have had collective multi-sectoral partnerships have been among the most successful and sustainable (Abdullah, 2015). Community Plus online component (EPODE) is such an example of social marketing partnerships with engagement of government, NGOs and private partners. Messaging related to nutritional choices and physical activity were disseminated through communities which now functions globally. The national level program, Change4Life (HM government, 2010) and UNICEF Kid power (http://unicefkidpower.org) were designed by public agencies to achieve public health goals through multi-sectoral involvement.

UNICEF also worked closely with the World Bank and other partners to develop public and private financing mechanisms for early action in humanitarian situations – which can prevent them from reaching crisis levels. In 2018, the Pandemic Emergency Financing Facility enabled a rapid response to the Ebola outbreak in the Democratic Republic of the Congo (UNICEF, 2018).

In the Netherlands, public-private partnerships are considered a major vehicle for development cooperation. GAIN's "Amsterdam Initiative against Malnutrition" a key recipient of PPP facility specifically for food security established in 2012 at a value of Euro 60 million, with matching private sector co-investments. In Germany, the "German Food Partnership" launched in June 2012 with major German and European companies, the German government, and local SMEs to significantly increase productivity and nutrition in rice, potato, and oilseed value chains in Asia and Africa. In UK, Ireland, and Switzerland, exploring the development of PPP platform to speed up innovation in nutritious products and their delivery to poor income. In the US and EU, Strong emphasis has been made on private sector engagement in food security and nutrition (Gain, 2013).