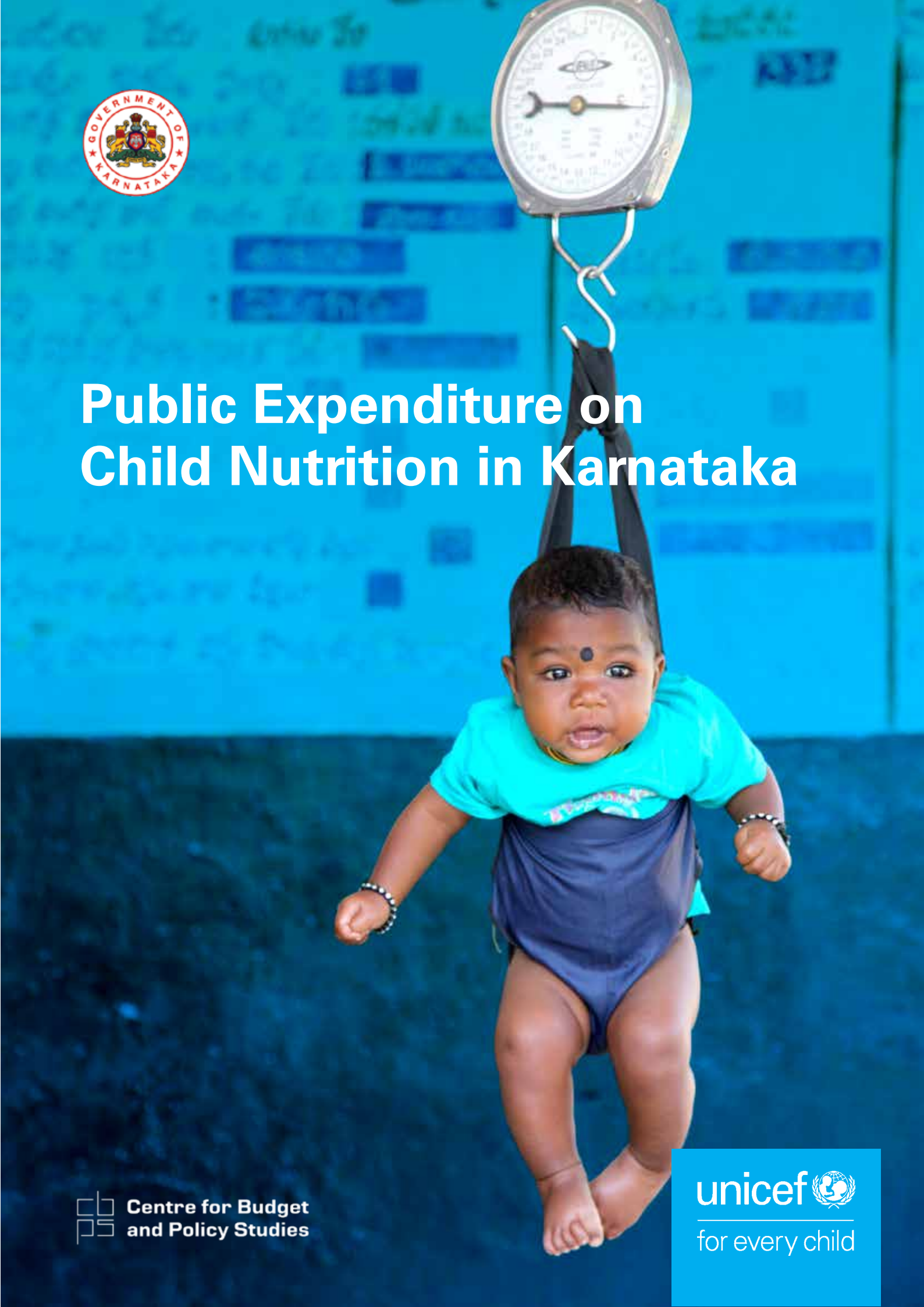

Public Expenditure on Child Nutrition in Karnataka

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Public Expenditure on Child Nutrition in Karnataka

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List of Acronyms

CDI	:	Child Development Index
DHDR	:	District Human Development Report
FFC	:	Fourteenth Finance Commission
GDP	:	Gross Domestic Product
GSDP	:	Gross State Domestic Product
ICDS	:	Integrated Child Development Services
KCRO	:	Karnataka Child Rights Observatory
MDG	:	Millennium Development Goals
MDM	:	Mid Day Meals
MGNREGA	:	Mahatma Gandhi National Rural Employment Act
NCPCR	:	National Commission for Protection of Child Rights
NHM	:	National Health Mission
NRDWP	:	National Rural Drinking Water Programme
NRLM	:	National Rural Livelihoods Mission
PDS	:	Public Distribution System
RSOC	:	Rapid Survey of Children
SABLA	:	Rajiv Gandhi Scheme for Empowerment of Adolescent Girls
SAM	:	Severe and Acute Malnutrition
SBA	:	Swachh Bharat Abhiyaan
SCPCR	:	State Commission for Protection of Child Rights
SDG	:	Sustainable Development Goals
SECC	:	Socio-Economic and Caste Census
SUN	:	Scaling Up Nutrition
UNCRC	:	United Nations Convention on the Rights of the Child
UNICEF	:	United Nations Children's Fund

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Chapter 1

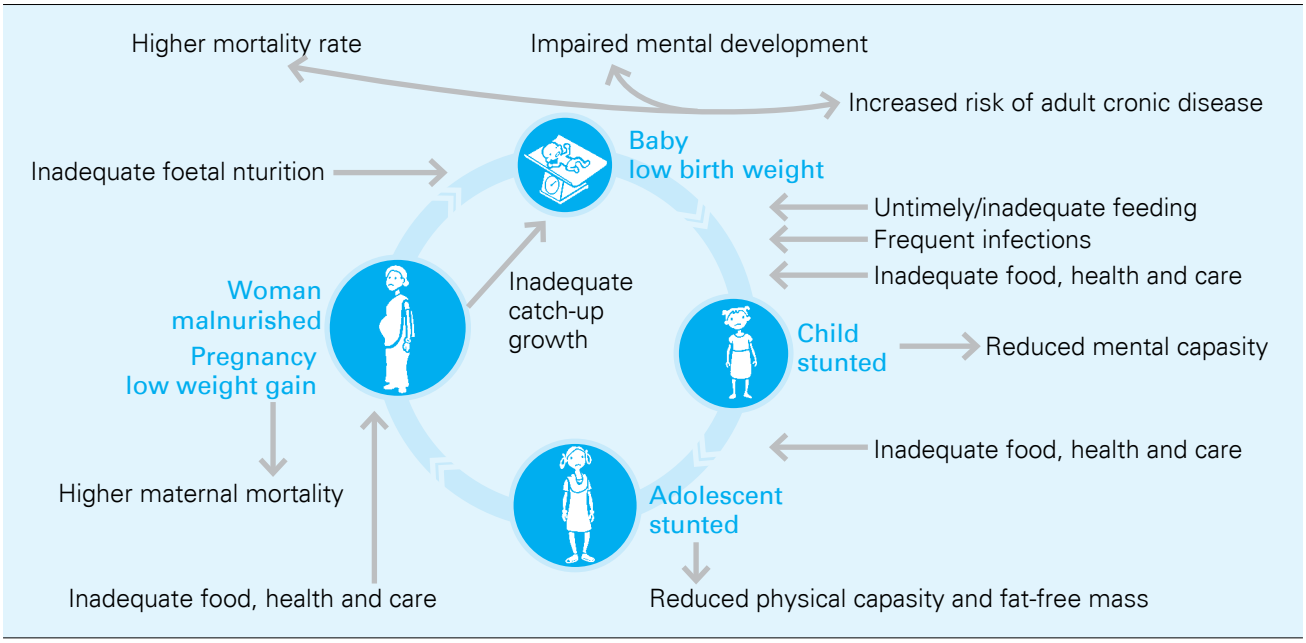
Introduction

1.1. The importance of adequate and quality nutrition

The term nutrition refers to 'the availability of energy and nutrients to the body's cells in relation to body requirements' (Mishra, Lahiri and Luther, 1999). When the foods consumed by an individual contain the required nutrients in adequate quantities, healthy growth becomes possible. Improper diets lead to malnutrition, which presents itself in the form of undernutrition and overnutrition (leading to obesity). While both pose serious health concerns, undernutrition, which results from insufficient food intake and repeated infectious diseases, is a greater concern in a developing country like India. Undernutrition causes growth retardation and developmental compromises and is particularly harmful during childhood, which is a period of rapid growth. Globally, three indicators are used to measure the extent of undernutrition: stunting (low height for age), wasting (low weight for height), and underweight (low weight for age). In addition, other indicators of undernutrition include severe acute malnutrition (SAM) marked by visible severe wasting and micronutrient deficiency (vitamin A, iron and iodine).

Adequate nutrition is essential from the earliest stages of life for proper growth and development. The initial period of life between 0-6 years is crucial for brain development and can be hindered by a lack of adequate nutrition (UNICEF, 2013; Young, 1996). This period is vital to the development of important cognitive, motor and social skills. Other social and personal habits also begin to emerge during this period. Studies show that there can be irreversible physical and cognitive deficits, which can further affect future health status, educational achievement and economic productivity due a lack of adequate nutrition during the first 1000 days

Figure 1
Cycle of Undernutrition



Source: Adapted from the ACC/SCN-appointed Commission on the Nutrition Challenges of the 21st Century

of life, i.e., in the first two years of life (UNICEF, 2013). Other studies have shown that 'non-steady supply of nutrients during the prenatal and early childhood period can have long-term effects, such as an increased risk of high blood pressure[4,5,] heart-related health problems[6] or even schizophrenia[7]' (as cited in Mosler, 2015).

Poor nutritional status during early childhood often gets worsened during adolescence, particularly in poor socio-economic communities (Chaturvedi et al., 1996). This has significant implications in post-infancy, critical to brain as well as other developments in a growing child. Research shows that many areas of the brain are not fully developed during early childhood and brain development continues through later childhood and adolescence. For example, the frontal lobe, the brain area responsible for higher order functions such as planning, problem solving and hypothesis-testing continues to develop right up to adulthood (Bryan et al., 2004).

Adequate financial investment and nutritional support during childhood is vital as it also becomes the foundation for development during later stages (UNICEF, 2001).

Adequate financial investment and nutritional support during childhood is vital as it also becomes the foundation for development during later stages

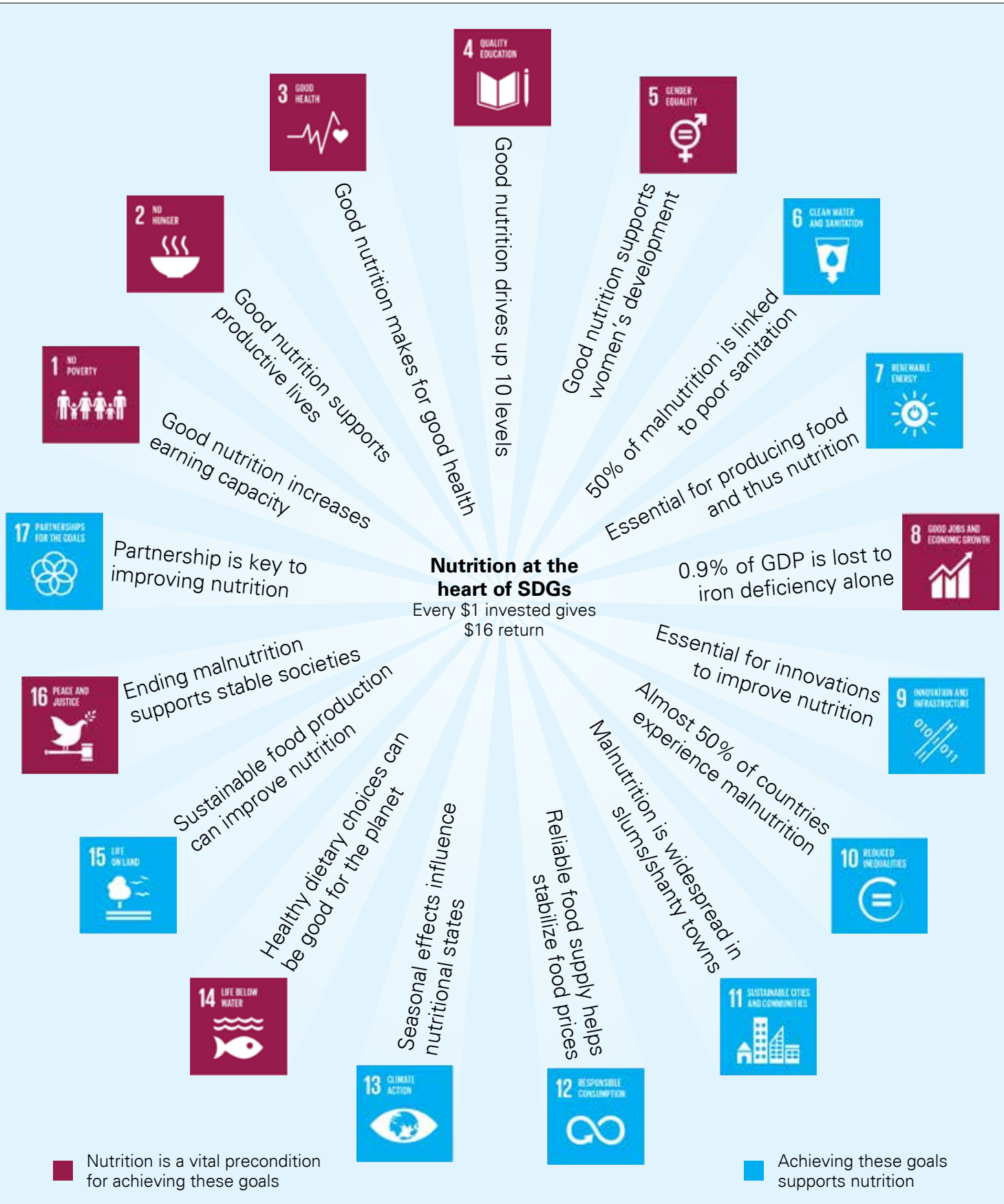
1.2 Rationale for public investments in nutrition

1.2.i. Economic benefits of public investments in nutrition

Undernutrition also leads to loss in the productivity of an individual and his/her capacity for work. The World Bank has estimated that 'the annual cost of malnutrition to the world economy is approximately $80 billion, of which the direct cost to the Indian economy is around $10 billion, and the total costs, direct and indirect, are 23% of the [Gross Domestic Product] GDP' (Dehejia, 2011). Thus, undernutrition is a serious challenge that affects individual development as well as the

Figure 2

Return of investment in nutritional programmes



Source: http://scalingupnutrition.org/nutrition-and-the-sustainable-development-goals/

development of the country. At the individual level, undernutrition or poor nutrition can lead to poorer ability to avail economic opportunities, lower wages and poverty. At a macroeconomic level, the problem of undernutrition has inter-generational and cyclical effects. Hunger and undernutrition may be passed on to future generations as a result of poverty, which poses serious concerns for individual survival as well as the economic and social development of the country as a whole.

Various studies have analysed the financial returns of investing in nutrition initiatives. Research has indicated that improving nutrition is one of the single most effective investments in reducing child mortality as well as in improving development indicators for a nation. Health and nutrition interventions have demonstrated higher benefit-cost ratios when compared with other investments to improve children's development status that occupy competing positions in global developmental agendas (cf. Alderman, Behrman and Hoddinott, 2007; Belli, Bustreo and Preker, 2005). Particularly in South Asia, studies show the benefit-cost ratio to exceed one with higher than market internal rates of return on investment (Hoddinott et al., 2013; Mosler, 2015).

With respect to India, too, studies have noted the economic benefits of investing in nutrition programmes. In a paper titled 'The Economic Returns of Stopping Stunting in India? A State[7] wise Cost-Benefit Analysis', Mosler (2015) has argued that an effort to counter the problem of stunting among children in India is not only necessary but is also an investment which will yield a good rate of return. Based on various national and international data, Mosler argues that investments in nutrition show a benefit-cost ratio of higher than one for all states in India. Almost two-thirds of the states, according to his study, show a benefit-cost ratio of 10:1 (which implies that the returns from the investment are ten times the cost of the investment). Further, he has demonstrated that for every one US dollar invested in childstunting reduction programmes, an economic gain of above 16 US dollars might be made (Figure 2) (under the medium impact scenario, which is defined as a situation of reducing child stunting by 20 per cent).

Hunger and undernutrition may be passed on to future generations as a result of povertywhich poses serious concerns for individual survival as well as the economic and social development of the country as a whole.

Other studies have estimated the cost-benefit ratio of investing in nutrition to be 1:16 at a compound growth rate of 10 per cent return (Mebrahtu and Sethi, 2016) which translates into a return of Rs. 38.6 for every rupee invested on essential nutritional interventions. This has been calculated based on nutritional interventions which include nutritional counselling, food and micronutrient supplementation and health services at appropriate times, ensuring adequate coverage of target populations. The costs of these essential nutritional interventions are estimated at Rs 38,550 crore per year for the entire country (Chakraborti and Menon, 2016).

1.2.ii. Importance of investing in nutrition from a child rights perspective

In addition to an economic rationale for investing in nutrition programmes for children, the importance stems from a child rights perspective and India's commitment to several child rights treaties. While 'nutrition is not a recognised right in any of the major international human rights instruments' (Jonsson, 1996), it is indirectly covered through guarantees to food, basic health services and adequate caring practices in major conventions and policies on the protection of the child, such 8 as the United Nations Convention on the Rights of the Child (UNCRC, 1989). Jonsson (1996) argues that 'As food, health and care are all necessary, and in combination will ensure good nutrition, nutrition, in this sense becomes a right.' One of the fundamental UNCRC principles is the basic right to survival and development, which includes rights to life, education and access to opportunities for development. The UNCRC also guarantees all children access to early childhood care and developmental progress, which can be interpreted as a key pointer that also serves as a guarantee to nutrition for children worldwide.

The UNCRC's resolution was followed by the World Summit for Children (WSC) in 1990, where in eight

nutrition-related goals were targeted and a plan of action for implementing the World Declaration on the Survival, Protection and Development of Children was signed by most states. A major goal agreed upon at this meet included the reduction by half of moderate and severe malnutrition among children under five, between 1990 and 2000.

Reduction of child malnutrition was once again reiterated in the Millennium Development Goals (MDGs) adopted by the United Nations and ratified by 189 nations that made a promise to free people from extreme poverty and multiple deprivations. Reduction of underweight children under five was identified as one of the indicators of achieving the first goal of the MDGs – eradicating extreme poverty and hunger (Patwari, 2013). Further, the fourth goal of the MDGs focuses on child health and reduction in child mortality. Taken together, these two goals again provide significant emphasis on ensuring child nutrition.

Following the MDGs Summit, the UN General Assembly organised another meet to deliberate a plan to create a 'World Fit for Children', in 2002. At the meet, the importance of the 'Care for Every Child' was reiterated, with a declaration that:

> Children must get the best possible start in life. Their survival, protection, growth and development in good health and with proper nutrition is the essential foundation of human development. We will make concerted efforts to fight infectious diseases, tackle major causes of malnutrition and nurture children in a safe environment that enables them to be physically healthy, mentally alert, emotionally secure, socially competent and able to learn (UNICEF, 2002; as cited in Rao, 2005).

Within both the MDGs and the declaration on a 'World Fit for Children', nutrition has been conceived multi-dimensionally to include more than just access to food, recognising as Freeman (2000) notes, that:

> Good nutrition does not only mean that all nutritional requirements are met (as needs) but that these needs are met in a sustainable and dignified way. Nutrition as

> a right implies the realisation of the child's rights to food, care and health (Jonsson, 1997, p. 376). It also 9 implies ... the realisation of the right to basic education, to a minimum amount of resources and the right to information.

Within these various frameworks that seek to ensure nutritional justice, access to nutrition forms just one dimension, while aspects such as ensuring quality nutrition and sustaining the gains made from eradicating nutritional insecurity are equally emphasised (Jonsson, 1996).

The Indian constitution encompasses most rights included in the United Nations Convention on the Rights of the Child (UNCRC) as fundamental rights and directive principles of state policy. India is a signatory of the UNCRC as well as the MDGs (and now the Sustainable Development Goals [SDGs]). This makes it imperative for the Indian state to protect a child's right to survival, development and nutrition. The Indian constitution also reinforces the need to pay attention to children's health and development and indirectly nutrition. Rao (2005) has noted that:

> The Indian Constitution has numerous safeguards to ensure children's rights to survival, protection, and development, and a number of policies are directly concerned with child development. In addition to these policies, there is a wide range of laws that are designed to extensively protect the rights and entitlements that are guaranteed by the constitution.

The table below shows some of the articles of the constitution that directly and indirectly make guarantees for children's nutrition.

The Indian constitution encompasses most rights included in the United Nations Convention on the Rights of the Child (UNCRC) as fundamental rights and directive principles of state policy.

Article 21(a) – The State shall provide free and compulsory education to all children of the age of 6–14 years in such manner as the State may, by law, determine.

Article 24 – No child below the age of 14 years shall be employed to work in any factory or mine or engaged in any other hazardous employment.

Article 39(e) – The health and strength of workers, men and women, and children of tender age shall not be abused and that citizens shall not be forced by economic necessity to enter avocations unsuited to their age or strength

Article 39(f) – Children shall be given opportunities and facilities to develop in a healthy manner and in conditions of freedom and dignity and childhood and youth shall be protected against exploitation and against moral and material abandonment

Article 45 – The State shall endeavour to provide early childhood care and education for all children until they complete the age of 6 years.

Article 47 – The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties.

Recognising the vital importance of investing in children's early nutrition needs, both from a rights-based perspective as well as from concerns of reducing long-term costs of secondary 10 handicaps resulting from undernutrition, as well as in order to meet its other goals on gender parity in schooling and workforce participation[1] (Rao, 2005), the government of India (GoI) has put in place several programmes on nutrition. However, despite this, the rate of progress has been slow and much remains to be done in terms of safeguarding children's rights to adequate

[1] This is based on the argument that having early childhood care and education programmes can allow women to join or return to the workforce.

nutrition and health (Evans, 2000). In the following section, we undertake a brief review of the status of child nutrition in India in general and Karnataka in particular. Critical gaps in achieving the desired impact through various nutritional programmes in place, we argue, may be a result of the lack of alignment between policies to promote health with other policies for economic and social development, including access to school education, provisions for safe drinking water, sanitation, housing, women's empowerment, and so on (Planning Commission, 2002; Rao, 2005).

1.3 Child undernutrition in India and Karnataka

India currently still records the highest number of undernourished and under-weight children in the world, higher than even sub-Saharan Africa (Ramachandran, 2014). Forty-seven million children under the age of five in India are stunted (Tripathi, 2016). An analysis of the recent Rapid Survey of Children (RSOC)[2] by Dasgupta et al. (2016) compared the progress in relation to the third National Family Health Survey NFHS-III (2005-06) with respect to various health indicators, along with nutrition. The authors showed that while there have been improvements in child malnutrition since 2005-06, absolute levels of child malnutrition continue to be high. The prevalence of stunting had reduced from 48% to 38.7% among children under five, while the prevalence of underweight children has reduced from 42.5% to 29.4%, and wasting from 19.8% to 15.1%. However, a disturbing trend reported by the authors is that some states have seen an increase in rates of wasting with a decline in rates of stunting.

While Karnataka is a relatively better-faring state in terms of indicators of child health and nutrition, the nutrition scenario in the state is a cause for concern when compared with other southern states such as Andhra Pradesh, Tamil Nadu, Telangana and Kerala. According to NFHS-III data, Karnataka performed relatively worse on indicators such as Infant Mortality Rate (IMR – 43 in Karnataka, 30.4 in Tamil Nadu and 15.3 in Kerala) and Under-5 Mortality Rate (U5MR – 54.7 in Karnataka, 35.5 for Tamil Nadu and 16.3 in Kerala) compared to these other states. The percentage of children under three who were stunted in Karnataka was also higher than the national average, according to NFHS-III (i.e., 42.4 for Karnataka as compared to 38.4 at the national level).[3] These indicators have shown some improvement according to the latest, fourth round of the NFHS data (NFHS-IV, 2015-2016). For example, IMR and U5MR have reduced to 28 and 32 respectively. Other indicators have shown little improvement from NFHS-III. For example, the percentage of children under five who are under-weight has reduced from 37.6% to 35.2%; percentage of children between 6-59 months who are anaemic has reduced from 70.3% to 60.9%. NFHS-IV[4] data also highlights an increase in the proportion of children under five who are moderately or severely wasted, which is a matter of concern. The RSoC conducted in 2013-14 estimates that in Karnataka 34.2% of children under the age of five are stunted while 15.1% are severely stunted. Moreover, 28.9% of children in the same age group have reported underweight, of whom 9.8% are said to be severely underweight.

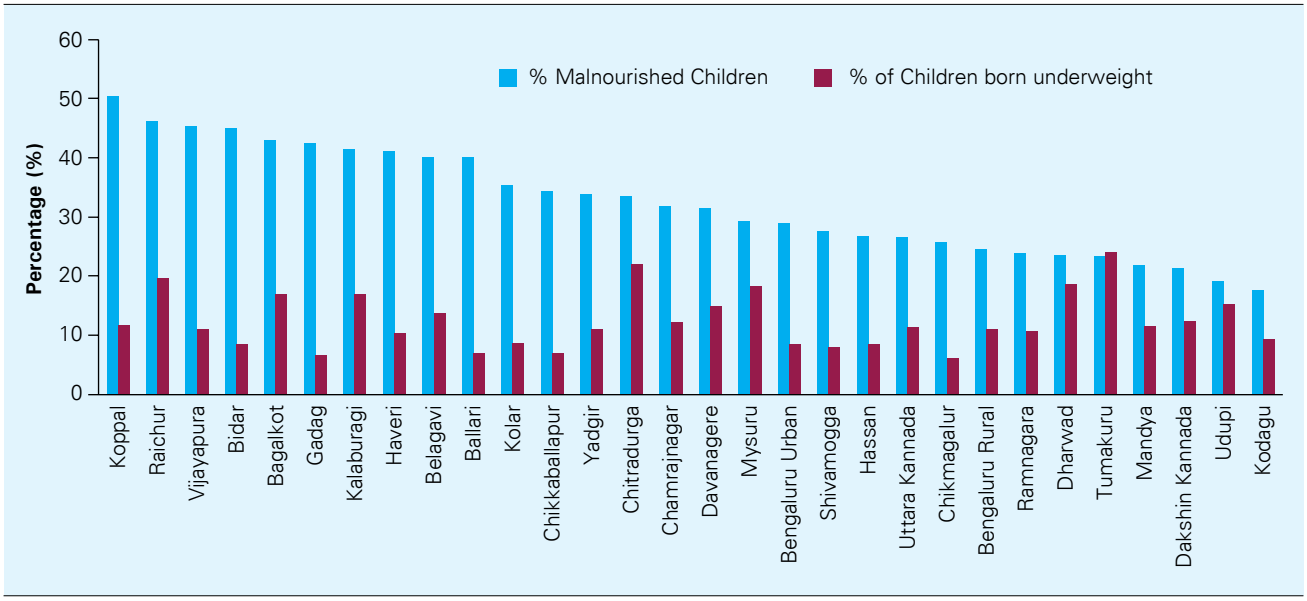
The prevalence of stunting had reduced from 48% to 38.7% among children under five, while the prevalence of underweight children has reduced from 42.5% to 29.4%, and wasting from 19.8% to15.1%.

The Child Development Index (CDI) based on the four parameters (proportion of children fully immunised, female literacy rate among 10-14 age group, proportion of births preceded by complete antenatal check-ups and proportion of underweight children in the same age group) indicated that Karnataka improved its index value from 0.670 in the year 2005-06 to 0.759 during 2013-14, as well as its ranking from ninth to seventh position during the same period (Khera and Drèze, 2016). Inter-district disparities in the incidence of malnutrition

[2] Conducted jointly by Ministry of Women and Child Development, Government of India and UNICEF in 2013-14
[3] Source: Karnataka Comprehensive Nutrition Mission: Concept Paper (Government of Karnataka, n.d.)
[4] http://rchiips.org/NFHS/pdf/NFHS4/KA_FactSheet.pdf-

Figure 3

Proportion of malnourished and underweight children across districts in Karnataka



Source: Human Development: Performance of Districts, Taluks and Urban Local Bodies in Karnataka – A snapshot (2014), Government of Karnataka (GoK).

are also high in Karnataka. Koppal, Raichur, Vijayapura and other northern districts have the highest proportions of malnourished children (Figure 3).

The continued prevalence of these high rates of malnutrition are directly related to the poor quality of nutrition accessible to/adopted by a majority of the population. Studies have noted that the average calorie consumption among Indians since 1972-73 has consistently seen a downward trend both among urban as well as rural households (Ramachandran, 2014). Moreover, calorie consumption per capita has been found to be below the minimum norms laid down by the Planning Commission Task Force in 1979 (Ramachandran, 2014). While consuming sufficient calories is an important determinant, other factors also contribute to the poor nutritional status. For example, Deaton and Drèze (2009) have pointed out the inadequacies of the Indian diet, which is largely cereal-based, but poor on other sources of nutrition such as fruits, vegetables, fats and proteins, critical in retaining calories and fighting diseases. Other studies have also found that over 70% of the Indian population was found to have a micronutrient intake of less than 50% of the recommended dietary allowance (RDA) levels (Kotecha, 2011). This has resulted inproblems of morbidity, mortality and, at a macrolevel, a loss of one per cent to the GDP (Kotecha, 2011).

Similarly, other studies have demonstrated a higher prevalence of malnutrition among older infants, resulting from poor feeding practices. For example, Kilaru et al. (2005) have pointed out that prevalence of malnutrition is higher among children between six and eleven months (39 per cent), compared to those below six months (6 per cent), corresponding with the shift in diet from only breast feeding to inclusion of complementary food. This has been associated with a lack of appropriate knowledge of young child feeding and nutritional care among caregivers. The authors found that education has been effective in reducing diarrhoea, increasing calorific intake and prolonging breastfeeding.

There is indeed a need for more holistic interventions related to nutrition, focusing both on provision of food, as well as addressing other factors that affect nutrition, such as education, water and sanitation in Karnataka and in the country as a whole.

1.4 Addressing malnutrition critical to achieve Sustainable Development Goals (SDGs)

The 2016 Global Nutrition Report has provided wide and holistic insights into the problems the world faces with respect to malnutrition. It is no surprise that malnutrition has cascading effects at the individual, national and international levels, as the

report highlights. The problem has been known to affect an individual's physical and cognitive growth and development, making her more susceptible to infections and placing her at a higher risk of chronic diseases. This, in turn, has been linked to losses in the GDP to the tune of 11% in Africa and Asia. Apart from that, many individuals affected by these chronic illnesses spend a large proportion of their income on obtaining treatment. Therefore, it is important that the expenditure on nutrition, which has one of the highest rates of return on investment, is prioritised.

There is a call to end malnutrition in all its forms by the year 2030, which refers to ending childstunting, wasting and micronutrient deficiencies, and preventing non-communicable diseases. The Global Nutrition Report also called for greater political will in combating the issue, investing in proven solutions while finding new solutions to tackle malnutrition. Moreover, malnutrition is directly or indirectly linked to 12 of the 17 SDGs, which makes it important for countries to commit to solving the problem. This can only be done with effective investment and better allocations. For example, low-to-middle-income countries invest just 2.1% of their expenditure on malnutrition while at the same time spend approximately 30% on agriculture, education and other social priorities.

1.5 Strategies for addressing malnutrition/improving efficacy of nutritionexpenditure

Combating child malnutrition requires holistic approaches that cut across different groups and sectors. Studies show that the efficacy of a nutritional programme depends on its ability to integrate aspects such as health, education, nutrition, social and economic development. Also noted is that the benefits of these programmes are higher for younger children than older children (Chopra, 2015). Large-scale nutritional initiatives have been focused on reducing the gap between the RDA and the average daily intake (ADI) for young children and pregnant and lactating mothers with the hope that it, in turn, reduces low birth weight, anaemia while improving child growth and enhancing cognitive development. The interventions in addressing these issues have

Moreover, malnutrition is directly or indirectly linked to 12 of the 17 SDGs, which makes important for countries to commit to solving the problem.

largely been in terms of correcting the imbalanced/insufficient food intake rather than making provision for RDA-based consumption in order to ensure adequate nutrition (Deaton and Drèze,2009).

Considering the multidimensional nature of the nutritional problem, the Coalition of Sustainable Nutrition Security in India, chaired by Dr M.S. Swaminathan (2010), has made the following recommendations based on a continuum of care approach (i.e., right from the conception to two years after child birth or the first 1000 days of care continuum to have a greater impact on reduction of intergenerational malnutrition):

1. Early initiation of breastfeeding (within one hour) – reduces neonatal mortality, improves immunity and prevents infections.
2. Exclusive breastfeeding (for six months) – increases immunity and prevents onset of early infections, improves child survival and development.
3. Timely introduction of complementary feeding (after six months) – contributes to growth and development, reduces stunting.
4. Age-appropriate complementary feeding, adequate in terms of quality, quantity and frequency for children in age group 6-24 months – contributes to growth and development, reduces stunting.
5. Safe handling of complementary foods and hygienic complementary feeding practices – reduces infections and stunting.
6. Adequate feeding during and after illness – prevents wasting.
7. Immunisation and micronutrient supplementation (Vitamin A, Iron and Zinc) – improves immunity, better survival.
8. Adequate feeding for severely undernourished – addresses wasting and reduces mortality.
9. Adequate nutrition for adolescent girls and women of reproductive age – reduces stunting by improving maternal nutrition.

10. Adequate nutrition for pregnant and lactating women – reduces stunting by improving maternal nutrition.

However, it is important to bear in mind that factors contributing to malnutrition are several and include poor socio-economic conditions of marginalised populations (Lokshin et al., 2005), lack of adequate food security, healthcare provisions and civic services (Rao, 2005). Addressing malnutrition requires addressing these other concerns as well. These findings have been reiterated by the special committee appointed by the High Court of Karnataka, under the chairmanship of Justice N.K. Patil in 2012, to address the high prevalence of malnutrition in the state. The committee identified similar factors and also noted that some of the leading causes of malnutrition within the state were not just attributed to female literacy or mother's education levels, but to a whole lot of environmental determinants like poverty, food insecurity, poor breastfeeding practices, gender discrimination and early marriage, among other factors.

The pathways to malnutrition, as pointed out by UNICEF (1990), result from both macroeconomic factors as well as micro-dynamics within households and families. UNICEF (1990) has identified certain importance linkages in explaining malnutrition: inadequate usage of resources due to political, cultural, religious, economic and social factors, such as women's status and inadequate and/or inappropriate knowledge and attitudes, which limit household access to actual resources. This leads to the underlying causes at the household level, like insufficient access to food, inadequate maternal and child care, poor water sanitation and inadequate health services. Eventually, this contributes to inadequate dietary intake and leads to diseases which are the immediate cause for childhood malnutrition, disability and later mortality.

Improving the nutritional status of children requires bringing about improvements in a whole range of public infrastructure and services, including improvements in delivery systems of food rations, increasing accessibility of clean drinking water and improving infrastructure for health and sanitation. Apart from infrastructural issues, beneficiaries also need to be better educated about best practices. The lack of awareness about appropriate food types and nutritional needs and myths perpetuated

by cultural practices are also among the underlying causes of malnutrition, even in families where adults are able to meet their dietary requirements (Kilaruet el., 2005). Finally, in order for large-scale nutritional initiatives to work 'certain political commitment, national policies and programmes based on sound evidence and analysis, the presence of trained and skilled community workers collaborating with communities, effective communication and advocacy, and multi-sectoral, integrated service delivery' (UNICEF, 2013) are essential.

1.6 Context of the study

Nutritional initiatives have an immense potential to change the economies of nations while improving and, more specifically, changing the lives of individuals. These nutritional initiatives require meticulous planning, effective implementation, ensuring adequate human resources and maintaining a continuous supply of provisions, among other factors. While such programmes are not always inexpensive, it is up to the state-run institutions to ensure that they remain adequately funded while running efficiently and that they are constantly assessed.

Karnataka, a pioneer in the field of decentralisation, has made considerable economic progress but its health and nutrition indicators are much worse than other southern Indian states such as Tamil Nadu and Kerala. Consequent to the implementation of recommendations of the 14th Finance Commission (FFC), a higher proportion of central taxes was shared with states and while funds to the centrally sponsored schemes decreased starting from 2015-16. This calls for a rationalisation of schemes at the state level to ensure higher allocation towards health and nutrition-related schemes to offset the deficit in the allocation of funds from the centre.

Karnataka state had brought out a policy on children affirming its intent and commitment towards the holistic development of children.[5] Nutrition has assumed a greater focus with schemes focusing on improving the nutrition levels of pregnant women, lactating mothers, Anganwadi and school children. The GoK is also committed to bring out a budget statement on the lines of the Statement 12 (earlier Statement 22) of the GoI. It has also brought out policies for women's empowerment and for the girl child.[6] Karnataka has several state-constituted bodies to protect the interests of children, which include the Commission for Protection of Child Rights (KSCPCR), Karnataka Child Rights Observatory (KCRO), a Legislators' Forum for advancing child rights and the recently constituted Food Commission. The state has several other organisations working for the welfare of the children from the child rights perspective.

This report attempts to analyse the patterns and trends observed in public expenditure on nutrition in Karnataka. The analysis focuses on various nutrition-related expenditures incurred over a period of five years (2012-13 to 2017-18). The report is also an attempt to observe whether efforts from multiple agencies have translated into enhanced allocations for children's nutrition in the state.

[5] Karnataka state policy for Children 2014-draft
[6] http://dwcdkar.gov.in/

Chapter 2

Public Resources for Nutrition in India – Structures, Estimates and Methodology

2.1 Public expenditure responsibilities and mechanisms

Government has a major role in translating its commitments towards SDGs and the UNCRC into goals, targets, milestones and programmes. In ensuring child rights, the responsibilities are shared between the GoI and state governments. Most responsibilities relating to health, education and nutrition fall under the state and concurrent lists.[7] The policies, goals and programmes designed emanate from this framework of responsibilities. Apart from formulation of policies, the creation of institutions particularly addressing child nutrition, which will undertake research, create evidence and guide the formulation of programmes and customise them to suit the varying conditions across the country, are equally important.

The creation of institutions such as the National Commission for Protection of Child Rights (NCPCR) and State Commission for Protection of Child Rights (SCPCR) play important roles in protecting child rights. Addressing poverty, healthcare, drinking water and sanitation, critical to improving nutrition is also part of good governance. The national policy on children (2013) emphasises the need for a multi-sectoral and multidimensional approach to secure the rights of children in the four major areas of survival, health and nutrition, education and development, and protection and participation. It also calls for convergence across sectors and co-ordination at different levels of governance.

One of the ways to demonstrate their commitment to addressing nutrition issues is for the government to allocate more public resources towards it. Public resources are made available at GoI, state government and sub-state government levels, through budgets. The implementation of these developmental programmes is at sub-state and block/taluk levels. Though there are stated nutritional goals, there are no stated target expenditures the state must incur towards these goals.

The funds and functionaries to third-tier governments (Panchayati Raj institutions [PRIs] and urban local bodies [ULBs]) depend on the functions devolved to them. This also needs to be taken into consideration while assessing the flow of funds towards sectors that support nutrition, such as water and sanitation.

The Constitution of India mandates higher expenditure responsibilities and lower taxation powers to state governments while the GoI has been given higher taxation powers (with buoyant sources for better tax collection and management) and lower expenditure responsibilities. The Constitution also has made provision for formation of a Finance Commission (FC), every five years, to look into the taxation and to recommend to the GoI a suitable formula for sharing revenue with the states (also called vertical devolution). The FC also recommends the share of each state (also called

The creation of institutions such as the National Commission for Protection of Child Rights (NCPCR) and State Commission for Protection of Child Rights (SCPCR) play important roles in protecting child rights.

[7] The legislative section in the Seventh Schedule of the Indian constitution is divided into three lists: Union List, State List and Concurrent List. Union government makes laws and policies for the Union List, state governments for the state list and both the union and state governments formulate laws and policies for the Concurrent List. Union government has the right to make laws and policies on the residual areas that do not figure in any of these.

horizontal devolution) considering various factors such as area, population, per capita income, forest cover, etc. GoI resources to states follow two routes: one is the share of tax revenue while the other is in the form of schemes/developmental grants. While the former is untied, the latter is tied to the purpose and often linked to the achievement of nationally prioritised goals, requiring the state to contribute its share in the implementation of programmes/schemes. Important programmes such as Integrated Child Development Services (ICDS), Mid-day Meals (MDM), National Health Mission (NHM), Mahatma Gandhi National Rural Employment Act (MGNREGA), National Rural Livelihoods Mission (NRLM), Swachh Bharat Abhiyaan (SBA), and National Rural Drinking Water Programme (NRDWP) are examples of tied resources. In most of these, the state government also contributes its own resources based on a specific sharing formula agreed for respective schemes.

The FFC recommended the sharing of taxes for the period 2015-20 to increase from 32% (2010-15) to 42%, which resulted in a significant jump in the amount of fund flows to states. However, the FFC recommended a nominal increase in the total outflow of resources to state from 62.9% to 63.2%. This essentially meant that though the outflow of resources to states almost remains same, the amount of funds by way of untied funds (share of taxes) has gone up, which increases the scope (referred to as fiscal space) for states to undertake customised developmental projects. With the share of funds in the form of schemes reducing from around 30% to 20%, budgets for important national schemes such as ICDS, MDM, NHM (with the critical component of nutrition) have begun to shrink since the year 2015-16, at least from the GoI. State governments are expected to rise to the situation and rationalise the schemes implemented in the state to suit the requirements and fill the deficit in GoI funding on schemes of national importance.

2.2 Public expenditure on children in India: Past trends

The GoI expenditure on nutrition-specific interventions reduced from Rs. 27,220 crore in

2012-13 to Rs. 25,573 crore 2016-17 (BE). The analysis of expenditure on nutrition-specific interventions in the states of Maharashtra, Odisha, Madhya Pradesh and Andhra Pradesh indicated that budget outlays on nutrition as a percent of total expenditure showed a reduction during 2015-16 (FFC period) except for Maharashtra (Srivastava, 2016).

Flair et al. (2015) note that despite promises made by GoI to increase public investment in agriculture, overall allocation to the Ministry of Agriculture witnessed a decline in 2015-16 budget estimates (BE) from the 2014-15 revised estimates (RE). Allocations to improve sanitation and drinking water access, which are closely linked to the development of a child have seen a fall in allocation compared to the 2014-15 (RE). The food subsidy provided by the GoI rose from 2012-13 to 2014-15 (RE), but it decreased in 2015-16 (BE). The study also indicates that the share of the nutrition expenditure in the total budget as well as percent of GDP is not sufficient given the country's imminent battle against malnutrition.

Save the Children (2016) noted that the GoI budget of 2016-17 had not provided adequate attention to children. The allocation to Sarva Shiksha Abhiyan (SSA) was 1.14 per cent of the total budget witnessing, a decrease in the share compared to 2014-15 (BE) which was 1.55 per cent of the total budget. The allocation for the mid-day meal scheme also witnessed a fall. Budgets in India have historically failed to set a good precedent in allocations for children despite children forming 39% of the total population in India. Programmes and services for children are allocated less than 3.2% of the total budget allocation (The Citizen Bureau, 2016). Krishnan (2016) reports a significant decrease in the allocation for ICDS in 2016-17 as compared to earlier years.

While the requirements for addressing nutrition issues are compiled by experts cutting across disciplines and departments, the budgets allocated and expenditures incurred are not compiled in a compartmentalised manner making the task of analysing total expenditure on nutrition difficult and challenging. This requires pooling information across departments and at times at different levels of governments. Conventional evaluations of schemes focusing on single schemes such as ICDS or MDM do not look into all aspects of children/nutrition. Different departments implement different schemes relating to nutrition. Hostels are run by the Backward Classes Welfare Department (BCWD) while MDM is with the Department of Education (DoE) and supply of Vitamin A and folic acid tablets is with Department of Healthand Family Welfare (DoHFW). The GoI and GoK have several schemes with the objective of addressing the nutrition deficit among children, adolescents and women, especially pregnant and lactating women. Some of these can also be interpreted as defining the entitlements of citizens of different age-groups vis-à-vis state action. The Appendix lists the schemes and discusses relevant details.

2.3 Nutrition-specific interventions and nutrition-sensitive interventions

The fact that malnutrition is a multifaceted problem needs to be acknowledged in the first place. This helps in identifying the causes for malnutrition that cut across a number of sectors. Just like food security and adequate care practices, access to a healthy environment and health services are also important factors for optimal growth. It is also important to acknowledge that each of these factors is necessary but not sufficient.

It has been argued that sustainable solutions to problems of nutrition/malnutrition require governments to adopt alternative conceptual frameworks that do not view malnutrition as simply a lack of food alone (Jonsson, 1996). Others have similarly argued that large-scale interventions that seek to address and rectify problems related

The allocation for the mid-day meal scheme also witnessed a fall. Budgets in India have historically failed to set a good precedent in allocations for children despite children forming 39% of the total population in India.

to nutrition and accelerate progress towards health must both focus on nutrition-specific programmes as well as on those that are nutrition-sensitive (i.e., address underlying causes of undernutrition; Ruel et al., 2013). This implies designing public policies that address larger concerns of social security and protection as well, such as providing support to agriculture, designing social safety nets that ensure food security, women's empowerment, education and schooling, sanitation and hygiene, etc. (Jha and Acharya, 2016; Ruel et al., 2013). In fact, studies conducted in countries of the global south have proven greater effectiveness of social security programmes in combating persistent hunger, which in turn can help effectively combat malnutrition (Jha and Acharya, 2016).

The Lancet in its 2013 series [8] focusing on maternal and child nutrition highlighted the importance of nutrition-specific and nutrition-sensitive interventions. It pointed out that 'nutrition-specific interventions with coverage of over 90% can reduce stunting among children by 20 per cent while the remaining 80 per cent reduction can be achieved through effective nutrition-sensitive interventions' which impact the determinants of foetal and child development. Programmes relating to agriculture, livestock, fisheries, social safety nets, education and health are, therefore, more effective. However, this does not undermine the importance of nutrition-specific interventions critical in addressing the inter-generational nature of malnutrition among children.

Nutrition-specific interventions address the immediate causes of undernutrition, like inadequate dietary intake and underlying causes like feeding practices and access to food. This includes adolescence, pre-conception maternal health and nutrition; maternal dietary ormicronutrient supplementation; promotion of optimum breastfeeding; complementary feeding and responsive feeding practices and stimulation; dietary supplementation; diversification and micronutrient supplementation or fortification for children; treatment of severe acute malnutrition; disease prevention and management; nutrition in emergencies. Nutrition-sensitive interventions

Programmes relating to agriculture, livestock, fisheries, social safety nets, education and health are, therefore, more effective.

address some of the underlying and basic causes of malnutrition by incorporating nutrition goals and actions from a wide range of sectors. They can also serve as delivery platforms for nutrition-specific interventions.

Addressing malnutrition can be prioritised effectively, especially in developing economies, through nutrition-sensitive interventions and nutrition-specific interventions. The primary objective of nutrition-sensitive interventions is not just nutrition; they have the potential to improve food and nutrition security (Samba and Chahid, 2014). Family planning and secondary education have a direct bearing on reducing teenage pregnancies as well as in increasing birthspacing. The programmes focusing on antenatal care, interventions to improve water, sanitation and hygiene, social protection, agriculture and food security are part of nutrition-sensitive interventions (World Food Programme, 2014).

Programmes that boost agricultural production help keep prices low, enhance access to diverse diets and support livelihoods. Research has indicated that investment in nutrition as part of education programmes improve academic achievement and the efficiency of the programmes. Education positively contributes to women empowerment, delays age of marriage, prepares young women to be informed and empowers mothers. Social security programmes decrease the vulnerability of families, especially among the poor and contribute to the reduction in child and maternal mortalities. Healthcare and public health facilities and nutrition are closely linked and impact the development of an individual. It is well-demonstrated that basic sanitation and safe drinking water can enhance the efficacy of nutrition interventions as well as play significant roles in reducing child mortality.

[8] http://www.the lancet.com/series/maternal-and-child-nutrition

Definitions by The Lancet series, and SUN Movement

The Lancet series[9] 2013

The Lancet series (2013) on maternal and child nutrition clubbed ten proven interventions addressing maternal nutrition, infant and young child feeding, breastfeeding and complementary foods, micronutrient deficiencies and management of acute malnutrition as nutrition-specific interventions which would be able to avert 0.9 million child deaths (<5 years) and reduce the stunting population by one-fifth (33 million) once the coverage of these interventions gets extended to 90% of the population. The cost of reaching 90% coverage was estimated at 9.6 billion USD per year. Activities addressing underlying determinants of nutrition, such as programmes in agriculture, cash transfers, early child development and schooling, shown to improve nutrition and broader developmental outcomes for children, were termed nutrition-sensitive activities.

Scaling Up Nutrition (SUN) Movement[10]

The SUN movement defined nutritionspecific interventions to include support for exclusive breastfeeding upto six months and appropriate nutritious food along with breast-feeding upto two years, fortification of foods along with micronutrient supplementation and treatment of severe malnutrition. Nutrition-sensitive interventions were to include efforts to increase agricultural production, improve provision of clean water and sanitation, enhance education and employment, augment healthcare, enlarge the support for resilience, and supplement women's empowerment.

Limitations

There is no clear consensus[11] on interventions classified as nutrition-sensitive but they broadly include agriculture, food security, healthcare, and water, sanitation and hygiene (WASH) activities. This is partly because of the fact that research/ evaluations may fail to notice or do not cover unintended positive externalities of developmental programmes impacting nutrition. Agriculture

[9] http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(13)60988-5.pdf
[10] https://www.karger.com/Article/Pdf/452392
[11] https://www.humanitarianresponse.info/system/files/documents/files/OMD%20Nutrition%20Bulletin%201%20-%20July%202014.pdf

Figure 4

Nutrition-specific and nutrition-sensitive interventions (Indian context)

BOX 1: **Nutrition-Specific and Nutrition-Sensitive Intervention**	
Nutrition-specific interventions	**Ministry responsible**
1. Early initiation of breastfeeding within one hour of birth	Health
2. Exclusive breastfeeding during the first six months	Health
3. Timely introduction of complementary feeding after completion of six months	Women and Child
4. Age-appropriate complementary feeding, adequate in terms of quality, quantity and frequency for children in age group 6-24 months	Women and Child
5. Safe handling of complementary foods and hygienic complementary feeding practices	Women and Child
6. Preventive micronutrient supplementation and deworming (Vitamin A, Iron, Zinc and Iodine)	Health
7. Frequent, appropriate and active feeding for children during and after illness	Health
8. Timely and quality therapeutic feeding and care for all children with severe wasting	Health
9. Improved food and nutrient intake for adolescent girls particularly, to prevent anaemia	Health/ Women and Child
10. Improved food and nutrient intake for women, including preconception, pregnancy and lactation – these include access to consumption of fortified foods, iodised salt, iron and folic acid supplements and supplementary foods (in food-insecure settings)	Health/ Women and Child
Nutrition-sensitive interventions 1. **Health sector** • Improving antenatal coverage and quality, particularly in first trimester • Strengthening immunisation services • Preventing and treating pneumonia, diarrhea and malaria. • Family planning to prevent pregnancies too early, too many and too soon	Health
2. **Water, Hygiene and Sanitation sector** • Maintenance of water supply – adequate quality and quantity • Eliminating the practice of open defecation	Drinking Water and Sanitation
3. **Education sector** • Early stimulation and learning (ECCD) • Schools as delivery platforms for nutrition interventions • Promoting secondary education of girls	Human Resource Development
4. **Agriculture sector** • Availability and access to diverse nutrient-dense foods coming from production, valve-chain interventions or markets	Agriculture
5. **Poverty alleviation** • Reduce nutrition vulnerability and support nutrition-focus in livelihoods among the poor and socially-disadvantaged populations	Rural Development/ Labor
6. **Social safety nets** • Access to and use of food, entitlements and services, including through conditional and unconditional cash/social transfers that provide or substitute for income	Food and Civil Supplies Women and Child Development
Over-arching & enabling environment to ensure budgets, targets, strategies	NITI Aayog

Source: Budget Track on Nutrition, CBGA (2016)

promoting the productivity of homestead plots may significantly aid nutrition but measuring it would be difficult unless it is part of the programme. There are challenges around building the evidence for nutrition-sensitive activities and grouping them.[12] The limitations are not just in identifying nutrition-sensitive programmes but also in ascertaining the expenditures that have impacted nutrition.

In the Indian context, while the analysis of nutrition-specific interventions is possible, scanning the different interventions along with their expenditures is a daunting task. Analysis of nutrition-sensitive expenditures is far more difficult and complex, given the expenditures that affect the underlying causes of nutrition. Analysis of expenditures on nutrition-sensitive interventions becomes further complicated once we interpret it for the children. Tagging for age is extremely difficult and questionable in the absence of use-data. Nutrition-sensitive programmes, by and large, aim at family welfare as a whole, and some programmes, such as those of social safety nets, cannot be classified as expenditure on children alone. All programmes related to education, health, agriculture, irrigation, rural development, food security, social security benefits, have an impact on nutrition and this becomes an exhaustive list when the expenditures of both GoI and of the states are considered together. The analysis of nutrition-sensitive expenditures of GoI is relatively easier compared to those of the states. States have their own schemes that supplement or complement the schemes of the GoI.

An analysis of GoI nutrition-sensitive interventions/ schemes in four states (Bihar, Odisha, Chhattisgarh, and Uttar Pradesh) was undertaken by the Centre for Budget and Governance Accountability (CBGA). The analysis looked into different programmes/ schemes in the budget that address malnutrition and grouped them into nutrition-specific and nutrition-sensitive interventions.

The analysis also grouped nutrition-specific interventions into four areas which included improving care and feeding practices for children, enriching micronutrient content and improving nutrition among women and young adolescent girls. The study was undertaken to understand the expenditures at the state level after the implementation of the FCC recommendations. The study revealed that the expenditure on nutrition-sensitive programmes increased in absolute numbers during the period 2014-15 (AE) to 2016-17 (BE) while it decreased as a proportion of total expenditure of the state. It was also found that food security and social safety nets formed the largest chunk of nutrition-sensitive interventions.

While broadly following this classification of nutrition-specific and nutrition-sensitive expenditures, in the context of children it made sense to focus more on nutrition-specific expenditures to be able to understand the implications, needs and directions and examine if these expenditures require any change or enhancement.

[12] http://files.ennonline.net/attachments/2463/FEX-51-WebFINAL_SHARE.pdf

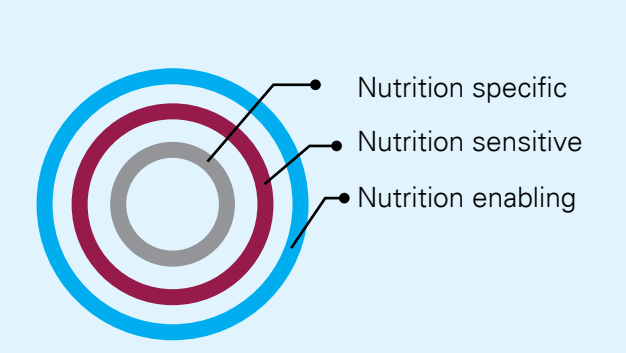
Chapter 3

Public Expenditure on Nutrition in Karnataka

3.1. Methodology

Analysing nutrition expenditure is complex and the complexity increases when one attempts to separate the expenditures meant for children. Analysing the expenditure by way of nutritionspecific interventions is clear and possible, though navigation through the different budget heads is difficult. Expenditure on nutrition-sensitive interventions is even more difficult owing to the limitations in defining nutrition-sensitive interventions, as explained earlier.

Figure 5:
Nutrition interventions (Indian context)



Some interventions pertaining to rural development, especially those which do not figure under nutrition-sensitive interventions including rural connectivity, transport, electrification, and watershed management, could arguably have a higher potential to impact the lives of the rural poor, thereby impacting their nutritional behaviour as well. Thus, the whole gamut of expenditure son rural development gets into the zone of nutrition-sensitive interventions and many of these are initiatives based on local needs. Similarly, a good proportion of expenditure meant for the urban poor also has the potential of impacting behaviour towards intake of nutritious food. Therefore, it is important to recognise and acknowledge them distinctly in the framework of analysis. These large numbers of rural development and other programmes, which have a higher potential to impact the lives of rural poor, could be termed as nutrition-enabling interventions as they target the environment in which the people live. It is also important to understand that attributing expenditures that affect nutrition is a highly difficult task. At the same time, while quantifying them as nutrition-enabling creates difficulties, acknowledging them as enablers is equally important.

Our analysis of nutrition expenditure is confined to nutrition-sensitive and nutrition-specific, with a greater focus on the latter. Nutrition-sensitive expenditure highlights the inclination of the state government in incurring expenditure that improves the efficacy of the nutrition specific expenditure. This is confined to schemes of national importance, partly or substantially funded by GoI. Nutrition-specific expenditure is compiled by a thorough analysis of expenditure heads that affect child nutrition directly and this includes schemes funded both by the GoI and the state.

The analysis of public expenditure on nutrition for children in Karnataka state is for a period of five years, from 2012-13 to 2017-18. The analysis is based primarily on the figures obtained from state budget documents. The economic survey documents, annual reports and websites of respective departments were used for understanding the physical parameters and financial progress of the schemes. Specific scheme documents were referred to wherever needed. In some cases, department officials were also consulted for additional information not available in the public domain.

A. Nutrition-sensitive expenditure

Given the importance of nutrition-sensitive interventions/programmes, schemes that are

Figure 6:
Nutrition sensitive sectors

Source: Adapted from 101322_000_Unicef_Brief_NutritionOverview_A4_v1r15.indd - Brief_Nutrition_Overview.pdf

critical and substantially funded by the GoI are analysed. The analysis is expected to reflect the prioritisation of nutrition-sensitive interventions at the state level. The analysis cannot be construed as the analysis of total nutrition-sensitive expenditure as it does not include statespecific schemes that complement and supplement GoI nutrition-sensitive schemes. Nevertheless, the analysis does give an indication of nutrition-sensitive expenditure covering important schemes focusing on the critical nutrition-sensitive sectors.

B: Nutrition-specific expenditure

Nutrition-specific expenditure refers to all expenses incurred by state governments on children from 0-18 years in the form of food and nutritional supplements, including the medical expenses of malnourished children. This is nutrition-specific expenditure which directly addresses issues relating to nutrition. It does not include the salary expenses related to implementation of nutrition interventions. Nutrition-specific expenditure in Karnataka includes the following:

1. Supplementary nutrition to pregnant and lactating mothers *(Mathru Pustivardhini and Mathru Sam Poorna)*
2. Nutrition to children aged 0-3 years and 3-6 years through ICDS
3. Midday meals provided in the schools *(Akshara Dasoha)*
4. Milk provided in anganwadis and schools for children *(Ksheera Bhagya)*
5. Food expenses in residential schools (government and aided)
6. Food expenses in hostels (run by social welfare, minority welfare, backward classes and tribal welfare departments)
7. Food expenses in orphanages run by government and aided institutions
8. Food expenses provided to needy students who do not get hostel accommodation
9. Food subsidies through the Public Distribution System (PDS)
10. Nutrition specific schemes such as the Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (SABLA), B*ala Sanjeevini and Sneha Shivira*

Some expenditures, such as child care allowances towards health and nutritional care of new born infants of visually impaired women, day care centres for children with autism and multiple disabilities, which have a component of food expenses, apart from healthcare and personnel expenses, are not counted. The food expenses, along with the other expenses, are subsumed under one head and it is very difficult to estimate the share of food expenses.[13]

While the major head 2236 in the budget document is exclusively related to nutrition, it also contains a salary element. Similarly, though the object code 373 is used for nutrition, it is not used for expenses other than that of the ICDS.

The above nutrition-specific expenditures are spread across various departments and directorates of the state government and are covered under different budget heads. Identification of a budget head in relation to a nutrition component is the first step and segregating nutrition expenditure the next. The budget heads across various departments were checked for nutrition-related components. The nutrition component is spread across education (budget head MH 2202), health and family welfare (budget head MH 2211), welfare of SC/ST and OBC (budget head MH 2225), social security and welfare (budget head MH 2235) and nutrition (budget head MH 2236) heads and extracting expenses exclusively on nutrition is a challenging task. While the major head 2236 in the budget document is exclusively related to nutrition, it also contains a salary element. Similarly, though the object code 373 is used for nutrition, it is not used for expenses other than that of the ICDS.

Some schemes such as ICDS, MDM and SABLA have a separate account head for food expenses and therefore it was relatively easier to separate those. Inother cases, such as the maintenance of hostels/residential schools, the head includes food and other expenses as well, making it difficult to separate the expenses on food and nutrition. The food expenses of the hostel students/residential schools were therefore calculated based on per-student allocation of food expenses and the number of students for a period of 10 months (expenses are paid only for 10 months).

The hostels are classified into pre-matric and post-matric hostels and the post-matric hostels include students from class XI and class XII (I and II PUC) as well as undergraduates/post graduates. In this case, it was important to separate students likely to be above 18 years of age. For that, an assumption was made that the students of I and II PUC would be 18 years and below and they constitute 50% of the total strength of the post-matric hostels. This then formed the basis of estimating food expenses for that head. This assumption was arrived at on the basis of consultations with officials dealing with the specific scheme in the BCWD. The government also provides for separate boarding and lodging charges for students who do not get hostel accommodation. In this case, since the expenditure is for both boarding and lodging, half of it was assumed to be meant for food.

Population percentages of children (18 years and below) were used to arrive at the assumption for schemes where it was otherwise not possible to separate this group from the rest. Therefore, 32% (based on the population of children in the age group of 0-18) of the food subsidy through the Public Distribution System (PDS) was included in the estimation.

3.2 Total expenditure on nutrition-sensitive interventions

The state government's usual expenditure on health, education, agriculture, employment, labour and livelihood, early childhood, women and others have not been included in the nutrition-sensitive expenditure. These are viewed as nutrition-enabling public expenditure and, as explained earlier, do not form part of the estimation exercises we carried out. Under nutrition-sensitive expenditure,

[13] However, since the size of such expenditure is very small, i.e., only about 25-30 lakh per annum, it does not affect the macro picture either for the absolute total or for the trends over a period of time.

schemes started by the GoI but continued with the support of both union and state governments are analysed. The rationale is that these expenditures have direct linkages with nutrition though they are not directly on nutrition – these add value to the usual state expenditure in these sectors. The value addition is what we are taking note of, in this estimation. These include pace-setter schemes in the sectors of agriculture, drinking water and sanitation, employment, livelihoods, health, education and social security. The schemes relating to food security (PDS and mid-day meals) have been included under nutrition-specific expenditure.

The expenditure, budget estimates and their sector-wise breakup for nutrition-sensitive expenditure are given in Table 1. It is clear that the allocations and expenditures on nutrition sensitive programmes/ schemes are increasing in both absolute numbers and as a proportion of state expenditure (Figure 7).The expenditures as a proportion of state expenditure increased during 2014-15 and it has

Table 1:
Expenditures on important nutrition-sensitive interventions/schemes

SCHEMES	2012-13 AC	2013-14 AC	2014-15 AC	2015-16 AC	2016-17 RE	2017-18 BE
Agriculture and Allied						
Rashtriya Krishi Vikas Yojana (RKVY)	31448	49929	42562	65557	41784	60265
Rashtriya Pashudhan Vikas Yojna	1952	6975	5133	777	876	1453
Integrated Development and Management of Fisheries	2526	1527	2938	3685	3225	1500
Water and Sanitation						
National Rural Drinking Water Programme (NRDWP)	55992	69580	159636	156937	198000	220000
Swachh Bharat Mission	5367	3998	12001	4898	61000	158553
Labour and Livelihood						
Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)	20599	26503	170762	160783	179193	178264
National Livelihood Mission	2081	9469	1977	15867	35100	13658
Social Security						
National Social Assistance Programme (NSAP)	151886	175057	188213	207229	250638	236177
Indira Gandhi Matritava Sahyog Yojana (IGMSY)	1676	516	1147	1476	3600	11580
Health						
National Health Mission	42544	44072	66789	121174	137696	118413
Education						
Sarva Shiksha Abhiyaan	100599	75845	88153	104214	110414	149359
Rashtriya Madhyamika Shiksha Abhiyaan	5462	12883	52286	53604	42434	43500
Total (Rs. In lakhs)	**422132**	**476354**	**791597**	**896201**	**1063960**	**1192722**
Total (Rs. In crores) Nominal	**4221.32**	**4763.54**	**7915.97**	**8962.01**	**10639.60**	**11927.22**
Total (Rs. In crores) Real (2004-05 prices)	**2453.00**	**2382.00**	**3880.00**	**4309.00**	**4949.00**	

Source: Budget documents and Annual Plan documents – various years

Figure 7:
Share of nutrition-sensitive interventions/ expenditures in total expenditure of the state (in %)

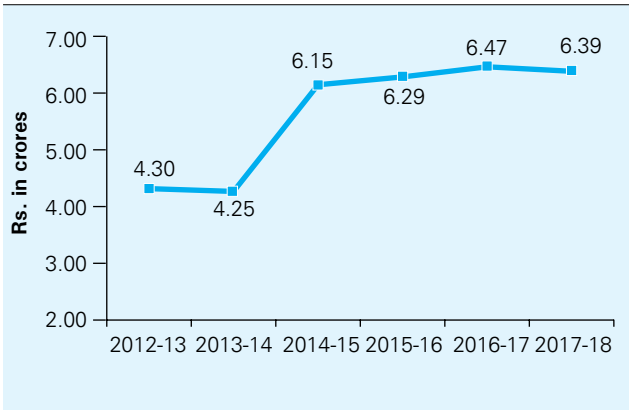
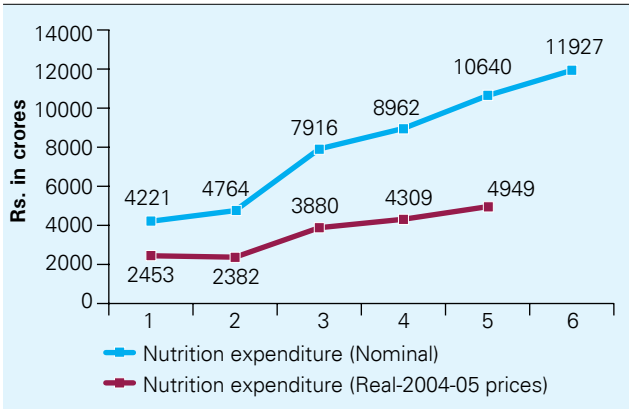


Figure 8:
Nutrition-sensitive interventions/ expenditures in nominal and real terms



been hovering around 6.5%. This is indicative of the commitment of the state towards creating an enabling environment that addresses malnutrition. It is also important to note that the expenditure has not just increased in nominal but also in real terms (Figure 8) although the rate of increase in real expenditure is less (22%) than that of nominal expenditure (25%).

3.3 Total expenditure on nutrition-specific interventions[14]

The following table lists different heads of nutrition using budget categories and provides the annual expenditure for five years. This includes expenditure coming through the union government in the form of centrally sponsored schemes in addition to that coming from the state government. While the first three years depict actual expenditure, the fourth year shows revised estimates and the fifth presents only budget estimates.

The total expenditure on food and nutrition increased from Rs.2471 crore to Rs.6099 crore in the period of six years (Table 2). Although there has been a consistent increase in total expenditure in monetary terms, the increase has been most notable between 2012-13 and 2013-14 and during 2016-17. During these years, the increases were high even in real terms after adjusting the prices for inflation. The introduction of two schemes by the new government in power: (i) *Ksheera Bhagya*, making provision for milk in both anganwadis and schools, and (ii) *Anna Bhagya*, making provision for free additional food grains and other provisions at highly subsidised rates through PDS were mainly responsible for the jump in this expenditure during 2013-14. Similarly, the extension of provision of milk to school and anganwadi children for five days a week from the earlier three days a week has contributed to the increase during 2017-18. So far, it has been too early to gauge the impact of these two programmes on the nutritional status of children but it would be crucial for the state to understand to what extent such programmes have led to results, especially in view of the fact that Karnataka continues to report high prevalence of underweight and stunted children.

Food expenses under MDM showed a steady increase over these years while food subsidy through PDS showed a continuous decline after 2013-14, except for the current year 2017-18.

This needs to be probed further. While the increase in MDM expenditure may be explained by way of enhancement in enrolment and uptake, the reduced expenditure in PDS might be indicative of reduced uptake or inefficient distribution.

14 The tables for the graphs in this section are provided in Annexure 2

Table 2:

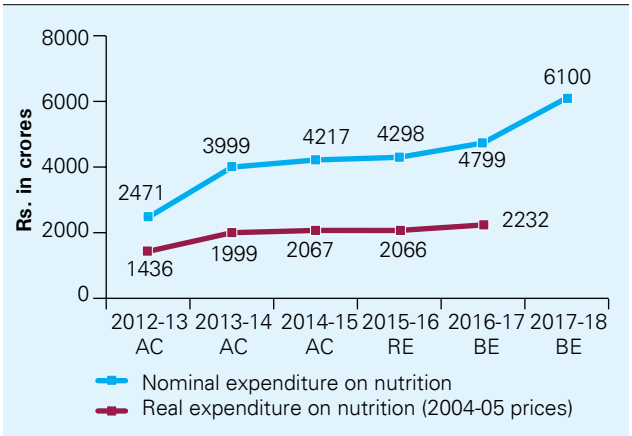
Public expenditure on nutrition-specific interventions for children in Karnataka (Rs. in crores)

SL.	No Description	2012-13 AC	2013-14 AC	2014-15 AC	2015-16 AC	2016-17 RE	2017-18 BE
1	Block Grants – National Nutrition Mission	760.00	850.25	1076.50	1329.79	1521.16	1657.86
2	*Anna Bhagya* for BPL beneficiaries towards subsidies for food grains	317.10	974.73	810.65	563.66	430.35	987.20
3	Universalisation of primary education – *Akshara Dasoha* (mid-day meal)	1093.17	1277.46	1423.99	1497.80	1771.26	1602.36
4	*Sneha Shivira*			1.06	0.00	4.24	0.00
5	Multi-sectoral nutrition programme	0.00	0.00	0.50	0.00		
6	Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (SABLA)	2.91	1.09	1.08	1.24	4.34	24.23
7	Karnataka Comprehensive Nutrition Mission – Pilot project	1.25					
8	Meeting medical expenses of malnourished children (*Bala Sanjeevini*)	14.98	18.04	19.45	19.69	33.12	5.00
9	GIA to orphanages (boarder charges) 2225-00-103-0-73	1.22	1.22	1.22	2.33	2.33	4.00
10	Orphanages – Minorities Directorate	1.54	1.54	1.54	1.54	1.54	1.14
11	Pre-matric Hostels	153.74	158.97	153.19	153.19	186.10	222.15
12	Post-matric Hostels	54.62	65.91	75.88	75.88	91.27	121.84
13	Residential schools	60.01	60.01	60.01	60.01	72.01	91.43
14	Payment of extra boarding and lodging charges	2.95	1.93	4.98	4.98	4.98	4.98
15	Providing spirulina (180 days for 25,000 children)					3.60	
16	*Mathru Pustivardhini* (nutrition to pregnant and lactating women)/*Mathru Poorna*					42.00	302.00
17	*Ksheera Bhagya* – anganwadi children	170.35	170.35	170.35	170.35	283.92	
18	*Ksheera Bhagya* – anganwadi children full cream milk					42.50	89.50
19	*Ksheera Bhagya* – school children		409.50	409.50	409.50	409.50	694.50
20	*Juvenile Justice* – children's homes food expenses	0.96	0.96	0.96	0.96	0.96	0.96
21	National child labour project- subsumed under state scheme -special residential school cum rehabilitation centres	6.84	6.84	6.84	6.84	6.84	6.84
	Total	**2471.29**	**3998.80**	**4217.20**	**4297.76**	**4798.95**	**6099.90**

Source: Compiled from budget documents, based on various supporting scheme-related information

Figure 9:

Public expenditure on nutrition-specific interventions for children in Karnataka

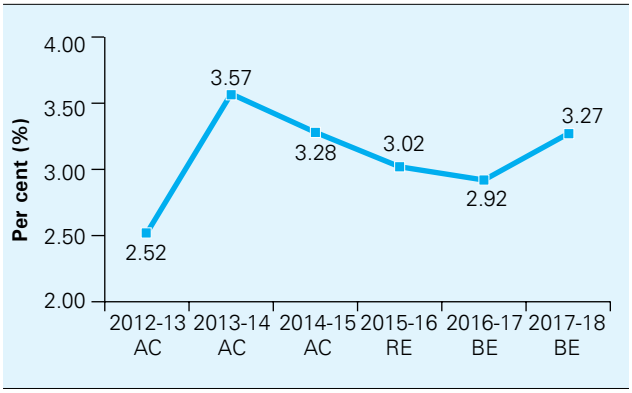


Source: GoK budget documents (Various years)

Though the amount spent on the nutrition of children is increasing both in nominal and real terms, the increase is not significant when compared with the increase in the total expenditure of the state (Figure 9). The amount spent on nutrition as a proportion of total expenditure of the state has been hovering around 3% over the last few years (in nominal terms). This share went up from less than three per cent in 2012-13 to more than 3.5% in 2013-14 but since then it has been declining except for the current year, which has increased marginally to 3.27% (Figure 10).

Figure 10:

Nutrition-specific expenditure as a proportion of total state expenditure

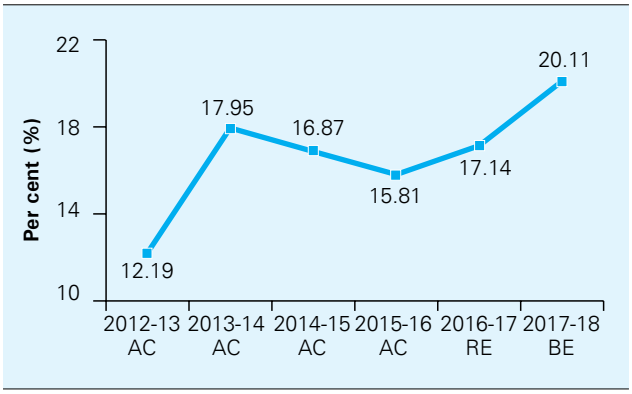


Source: State budget documents (Various years)

Nutrition-related expenditures contribute fairly largely to all expenditure related to children. Using CBPS estimates for total public expenditure on children (CBPS 2017) as the base, it emerges that the share of nutrition expenditure in total public expenditure on children went up from about 12.19% in 2012-13 to nearly 18% in the following year but came down to 15.81% in 2014-15 and again rose to all-time high of 20.11% during 2017-18 (Figure 11).

Figure 11:

Nutrition-specific expenditure as a proportion of total expenditure on children

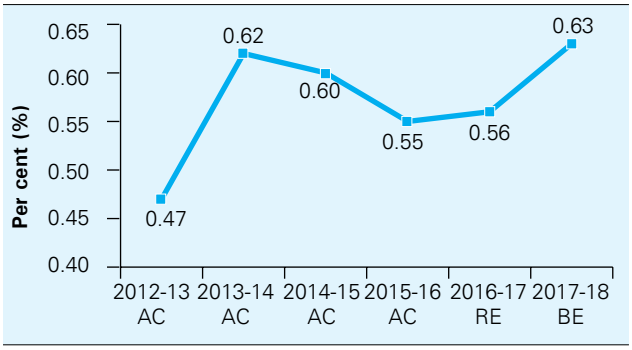


Source: Nutrition expenditure compared to total public expenditure on children (CBPS)

When viewed as a proportion of the Gross State Domestic Product (GSDP), nutrition expenditure for children forms a very small component. This is to be expected, especially since total public expenditure on children aged between 0-18 years itself is only about 3-3.5% of GSDP in Karnataka (CBPS 2017). The share of nutrition expenditure varied between 0.47% and 0.63% during 2013-13 and 2017-18 (Figure 12). However, what needs to be noted is that this share has gone down to 0.55% and 0.56% in 2015-16 and 2016-17 revised estimates respectively. This needs to be watched seriously as this is indicative of lower allocations for this head as compared to other heads.Whether this trend continues in the future and whether this means that the needs in this sector remain unaddressed are subjects for further attention.

Figure 12:

Nutrition-specific expenditure on children as a proportion of GSDP



Source: State budget documents (Various Years)

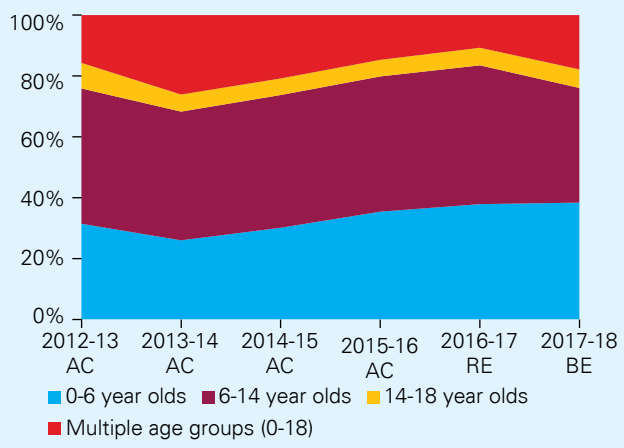
Children belonging to the 0-14 age bracket received about 80% of total nutrition expenditure in 2015-16 (Table 3). Since the relative shares of different age groups have not changed in different years, this can be taken as indicative of a general trend. While children on the 6-14 age bracket receive a proportion close to their numbers, the same is not true for adolescents. The nutrition expenditure of the 0-6 age group has been a little higher than their proportion in terms of population. This is a welcome trend, perhaps reflective of the higher focus on pregnant women and anganwadi children. Although adolescents form about one-fourth of the total child population, they received only about 5% of the total nutrition expenditure. While high expenditure on the 0-6 year age group is understandable and justified (Figure 13), given the criticality of early years for a healthy adult life, adolescents also deserve greater attention.

Table 3:
Distribution of nutrition expenditure across age groups (2015-16 actual expenditure)

Age group	Percentage of total state population* (%)	Percentage of total nutrition expenses (%)
0-6 years	32	35.36
6-14 years	44	44.54
14-18 years	24	5.36
Multiple age groups	-	14.74

*Child population figures obtained from public expenditure on children in Karnataka (CBPS 2017)

Figure 13:
Share of nutrition expenditure on children in different age groups



Source: State budget documents (Various years)

An important point about public expenditure on the nutrition of children in Karnataka is that the state is the main contributor. The GoI share in nutrition expenditure has been fairly constant at roughly 30% while the state contributes the remaining 70% (Figure 14). Although these estimates are based on a simple analysis of sharing patterns for different schemes rather than actual flow from the union government to state budgets, this gives us a fairly good indication of the distribution. The central share mostly constitutes expenses over the mid-day meal scheme, the National Nutrition Mission and towards boarding expenses of hostel for students, while the state's share mainly goes towards the costs towards food subsidies through the PDS, nutrition for anganwadi children and pregnant women and the *Ksheera Bhagya* (Table 4).

Figure 14:
Shares of centre and state in nutrition-specific expenditure on children

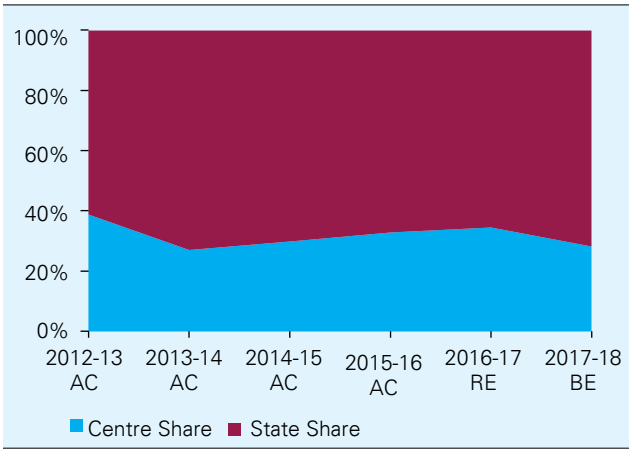


Table 4:

Shares of GoI and state in public expenditure on nutrition in Karnataka (Rs. in crore)

Sl. No	Description	Centre (%)	State (%)	2012-13 AC	2013-14 AC	2014-15 AC	2015-16 AC	2016-17 RE	2017-18 BE
1	Block Grants – National Nutrition Mission	50	50	760.00	850.25	1076.50	1329.79	1521.16	1657.86
2	*Anna Bhagya* for BPL beneficiaries towards subsidies for food grains	0	100	317.10	974.73	810.65	563.66	430.35	987.20
3	Universalisation of primary education – *Akshara Dasoha* (midday meal)	40	60	1093.17	1277.46	1423.99	1497.80	1771.26	1602.36
4	*Sneha Shivira*	75	25			1.06	0.00	4.24	0.00
5	Multi-sectoral nutrition programme	75	25			0.00	0.00	0.50	0.00
6	Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (SABLA)	100	0	2.91	1.09	1.08	1.24	4.34	24.23
7	Karnataka Comprehensive Nutrition Mission – pilot project	0	100	1.25					
8	Meeting Medical Expenses of Mal Nourished Children (*Bala Sanjeevini*)	0	100	14.98	18.04	19.45	19.69	33.12	5.00
9	GIA to orphanages (boarder charges) 2225-00-103-0-73	0	100	1.22	1.22	1.22	2.33	2.33	4.00
10	Orphanages – Minorities directorate	0	100	1.54	1.54	1.54	1.54	1.54	1.14
11	Pre-matric hostels	50	50	153.74	158.97	153.19	153.19	186.10	222.15
12	Post-matric hostels	50	50	54.62	65.91	75.88	75.88	91.27	121.84
13	Residential schools	50	50	60.01	60.01	60.01	60.01	72.01	91.43
14	Payment of extra boarding and lodging charges	0	100	2.95	1.93	4.98	4.98	4.98	4.98
15	Providing spirulina (180 days for 25k children)	0	100					3.60	
16	*Mathru Pustivardhini* (nutrition to pregnant and lactating women)/ Matru Poorna	0	100					42.00	302.00

Sl. No	Description	Centre (%)	State (%)	2012-13 AC	2013-14 AC	2014-15 AC	2015-16 AC	2016-17 RE	2017-18 BE
17	*Ksheera Bhagya* – anganwadi children	0	100		170.35	170.35	170.35	170.35	283.92
18	*Ksheera Bhagya* – anganwadi children full cream milk	0	100					42.50	89.50
19	*Ksheera Bhagya* – school children's	0	100		409.50	409.50	409.50	409.50	694.50
20	Juvenile Justice – children's homes food expenses	50	50	0.96	0.96	0.96	0.96	0.96	0.96
21	National child labour projectsubsumed under state scheme – special residential school cum rehabilitation centres	50	50	6.84	6.84	6.84	6.84	6.84	6.84
	Total GoI contribution			**958.26**	**1083.54**	**1258.16**	**1413.69**	**1655.57**	**1715.71**
	Total state contribution			**1513.03**	**2915.26**	**2959.04**	**2884.07**	**3143.38**	**4384.19**
	Total			**2471.29**	**3998.80**	**4217.20**	**4297.76**	**4798.95**	**6099.90**

Source: The sharing pattern has been taken from the budget documents of the GoK
Note: An assumption made here is that cost of sharing for residential schools and hostels is 50:50 as some residential schools (for girls and Ekalavya for tribals) and hostels are supported by the GoI.

Chapter 4

Conclusions and Suggestions

Karnataka is one of the very few states that has spent substantial amounts of its own resources on nutrition in the form of various state schemes such as *Anna Bhagya*, *Ksheera Bhagya, Mathru Pustivardhini* and *Matru Sam Poorna* as well as higher state share for schemes such as the ICDS. The state government spends about 70% of total expenditure on the ICDS and about 72% of total nutrition expenditure through its own resources.

While the estimates of nutrition expenditure on children do not indicate whether or not the expenditure is adequate, they definitely pave the way for further research and analysis. The expenditure analysis when corroborated with scheme-related information on implementation, efficacy and performance could prove very useful.

The paucity of data for district-level analysis makes it difficult to correlate the expenditures at the district level with that of child development indicators, now available in Karnataka because of the District Human Development Reports (DHDRs) for every district in the state. The DHDRs capture various aspects of human development using 129 indicators including that of the child development at the taluk/block level. The 176 taluks of the state can be ranked based on different indicators of child development as well as the Child Development Index (CDI), juxtaposing these against the district-level expenditure on children.

The analysis undertaken for estimating nutrition expenditure pointed to anomalies in various schemes even though they target similar groups and at times in the same geographical regions. For instance, the unit costs for monthly food expenses provided to students in residential schools and hostels vary for different schemes without any rationale even though they are in the same geographical region. Some of the unit costs are too low to be able to provide adequate nutritious food and that too deserves serious re-consideration. The feedback from evaluation studies about the adequacy and appropriateness, including acceptability of food/supplementary nutrition being distributed, need to be taken seriously to rationalise programmes and budgets.

The GoK has used a strategy of providing incentives to farmers for higher milk production and the milk is provided to anganwadi and school children. With the growing awareness regarding millets and their nutritional importance, the government might consider using a similar strategy to promote use of millets and minor millets for mitigating malnutrition. This will have a multiplier effect in terms of increasing the area under millets (which require very little water/rainfall compared to core cereals – rice/wheat – and can be grown on marginal lands) apart from acting as a coping strategy during the failure of monsoons.

It is also important to evaluate the impact of new programmes on food security and nutrition. Strengthening of evidence on the efficacy and limitations of the present schemes is critical for refining future approaches. Socio-economic and caste census (SECC) might be used effectively to verify whether poor and socially disadvantaged sections are availing the nutrition-care continuum, starting from anganwadi to mid-day meal, from hostels to other nutritional supplements.

The DHDRs capture various aspects of human development using 129 indicators including that of the child development at the taluk/block level.

With the removal of the plan – non-plan distinction in the budget, it is necessary to revisit and revamp existing development schemes. Based on the data on malnutrition as well as indicators of child development, a comprehensive nutrition plan should be developed for each district keeping in mind the food habits, target population, food crops grown (especially millets and minor millets) along with the local knowledge (of making food products from millets) in consultation with Central Food Technology Research Institute / agricultural universities. This would not only help to mitigate malnutrition but also help dryland agriculture.

The analysis of expenditures on nutrition-specific and nutrition-sensitive interventions provide guidance for augmenting interventions that aid addressing malnutrition in an effective manner.

As mentioned earlier, Karnataka has several institutions: KSCPCR, KCRO and a Legislators Forum to advance child rights. It has also recently constituted a Food Commission. All of these fora can make use of this analysis to further gauge allocations vis-à-vis the need and debate on increasing public expenditure on child nutrition.

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Annexure 1:

Public programmes and Schemes on Child Nutrition

India's, and Karnataka's, efforts at combating child malnutrition might be described as a multipronged one. There are several policies for children that directly or indirectly ensure nutrition and health. Together, they represent an array of schemes and programmes, ranging from broadbased ones that focus on children's overall protection and well-being to more focused approaches that aim at supplementing or completing nutritional intake available or accessible to a majority of its children facing several forms of disadvantage. The available public infrastructure for child nutrition in the country can be divided into three sections – guiding policy frameworks that set the roadmap for action, specific schemes and programmes that directly contribute to child nutrition and programmes and schemes that create a supportive environment to ensure child health and nutrition.

The following Table lists these acts and schemes in India.

Table A1:
Policies for Children in India

1974	National Policy for Children
1975	Integrated Child Development Services Scheme
1983	National Health Policy
1986	National Policy on Education
1987	National Policy on Child Labour
1991–2000	National Plan for SAARC Decade of the Girl Child
1992	National Plan of Action for Children
1993	National Nutrition Policy
1996	Communication Strategy for Child Development
1996	Reproductive and Child Health policy
2000	National Population Policy
2001	National Policy for the Empowerment of Women
2006	Integrated Child Protection Scheme
2005	National Commission for Protection of Child Rights
2010	Right to Education Act
2013	The National Policy for children

Source: Chopra, 2015

Important nutrition schemes are discussed below, highlighting their coverage, efficacy and issues of implementation.

A. Nutrition-specific programmes

1. Integrated Child Development Services (ICDS)

This is the world's largest programme on early childhood care and education.[15] The ICDS is a central government programme started in 1975 with the aim of addressing child nutrition, health and overall development of the child using a life cycle approach that aims to provide a 'continuum of care' before and after birth. This programme was universalised in 2008-09 to cover children from 0-6 years as well as pregnant women, lactating mothers and adolescent girls. Children from 3-6 years are provided with hot cooked meals and micronutrient-fortified food at anganwadi centres. Supplementary nutrition for pregnant women, children below three years, lactating mothers and adolescent girls is provided under this programme. Immunisation, health check-ups and referral services are also part of this programme.

NFHS3 data inform us that only 81% of children below the age of six years are covered by an anganwadi centre, while 88% respondents

[15] ECCE; Department of Women and Child Development, DWCD, 2015-2016)

reported that distance from the anganwadi was an important reason for not using it. Only 26.5% children had received the supplementary nutrition (SNP), of which the proportion that received it regularly was even less (12%). Among women, a mere 21% of pregnant and 17% of lactating women had received SNP. The NFHS-3 also reported dismal performance on other indicators such as immunisation (only 20% children were immunised), and health check-ups (only 18% children had received health check-ups).[16] Despite the commitment to universalisation of ICDS and with the recent cuts in the child budget by the union government, which are expected to affect the ICDS scheme as well as the National Nutritional Mission (Ghosh, 2015), this does raise questions about the efficacy as well as commitment of the state towards child nutrition.

Universalisation has brought its own challenges, programmatic as well as financial, as noted by many. Other problems have also been seen to be plaguing the ICDS programme. Irregularities in food supply, lack of delivery of food to target individuals, lack of awareness among mothers regarding supplementary nutritional services offered at the anganwadi, poor infrastructure, lack of safe drinking water, toilets, absence of teaching aids to impart pre-school education, weighing machines and space for children to play are all issues faced at the anganwadi level. Further, poor record maintenance at anganwadis, ineffective training for anganwadi workers, and poor monitoring and coordination between stakeholders, corruption in recruitment, poor budget allocation and too much emphasis on food security without much attention to other provisions important to increase nutrition at lower costs has also been noted. (Lokshin et al., 2005; Programme evaluation organisation, 2011)

The ICDS programme in Karnataka has been reaching 56 lakh beneficiaries through more than 60,000 anganwadis and 3,300 mini anganwadis distributed across 204 projects.[17] According to the Annual Programme Implementation Plan (APIP, 2013-2014), a total of 65% of the eligible population are registered for the ICDS services, with 89% of the children between six months and three years, 76% children between three and six years children and 94% of pregnant and lactating mothers being covered by the programme.[18] Further, an evaluation study by the Planning Commission (2011) notes that while all 175 taluks and 10 urban areas in the state are covered by the ICDS programme, the access and coverage for Karnataka is perhaps better when compared with pan-India levels, it faces other serious shortages with respect to manpower, infrastructure and training of anganwadi workers.

2. Mid-day meal scheme (MDM)/Akshara Dasoha

A programme that contributes directly to child nutrition in addition to the ICDS programme is the National Programme of Nutritional Support to Primary Education (NP-NSPE), started by the Government of India in 1995. Managed by the Department of School Education and Literacy, Ministry of Human Resource Development (MHRD), the MDM programme is the world's largest school-feeding programme, catering to 12 crore children across 12.56 lakh schools (Chopra, 2015; James, 2013), with an annual budget allocation of Rs. 11,937 crores (Karande and Gogtay, 2014). It aims at improving the nutritional status of school-age children, school enrolment, retention and attendance. In addition, it has also been described as a multi-faceted programme that goes far beyond addressing immediate nutritional concerns, aiming also to ensure food security and access to education for the most disadvantaged groups of children (James, 2013). Incidentally, it has also promoted certain other personal habits such as hand-washing which also contributes towards better nutrition and better levels of socialisation among students.

MDM was introduced in the form of dry rations and it was not until 2002 that cooked mid-day meals (CMDM) were introduced (James, 2013). As part of the CMDM scheme, children between six and 14 in primary and upper primary schools are covered by this programme. As part of the programme, primary school children are provided 450 calories and 12 gm of protein, while children in the upper

[16] Source: NFHS-3; Saxena and Srivastava (2009).
[17] MWCD, Government of Karnataka, 2013-14
[18] ibid

primary classes are provided 700 calories and 20 gm of protein (Das, 2013; MHRD, 2016), in the form of cooked meals at school during lunch break or mid-day (and hence called the mid-day meal programme; Afridi, n.d.). In addition 25–30 gm of pulses and 65–75 gm vegetables (Chopra, 2015) are also provided to offer a balanced meal.

The programme provides for food grains (wheat/rice) at 100 gm per child per school day for classes I-V, and 150 gm per child per school day for classes VI-VIII. Costs for cooking are Rs.1.58 per child per day at the primary level and Rs.2.10 per child per day at the upper primary level (James, 2013). In addition, costs for transportation, management and monitoring (at 1.8% of the cost for food grains, transportation and cooking), and one-time cost for kitchen sheds is also borne by the central government.

Globally, school-feeding programmes have been reported to significantly improve attendance levels and the cognitive performance of disadvantaged children (based on Cochrane and BMJ studies; Karange and Gogtay, 2014). School-feeding programmes are currently being implemented in 169 countries, both in the developed and developing world. It has been estimated that up to US$75 billion is invested each year in this programme. However, it has also been noted that school-feeding programmes have least coverage in low-to-middle income countries with the maximum need (between 18% and 49%). India performs relatively better in comparison, with a reported 79% coverage (Karande and Gogtay, 2014).

A few problems noted with the programme are the disruption of classroom time due to the diversion of teachers and students towards this activity; shortage of basic infrastructure and poor infrastructural facilities in relation to having adequate space to cook (cooking sheds), water and utensils. Further, pilferage and leakage of food grains and poor quality of food grains have been major concerns. Poor quality meals leading to sickness and repetition of menu due to insufficient budgetary allocations are also reported quite often. Finally, caste and religious discriminations in food distribution have always been noted (James, 2013).

They are provided similar food on the same scale of the pregnant women or nursing mother namely one that would provide 500 calories of energy and 20gms of protein.

3. Kishori Shakti Yojna/Rajiv Gandhi Scheme for Empowerment of Adolescent Girls – SABLA

In India, youth comprise a large part of the population and are seen as a demographic dividend. It is only of late that adolescent girls have been seen as an important target group for health and nutritional interventions in India (Venkaiah et al., 2002). With the objective to improve the nutritional and health status of adolescent girls in the age group of 11-18, to equip them to improve and upgrade their home-based and vocational skills and to promote their overall development, including awareness about their health, personal hygiene, nutrition and family welfare and management, the Government of India introduced the Kishori Shakti Yojna (KSY) in 1991-1992. The programme is managed by the Ministry of Women and Child Development (MWCD) and is administered through the ICDS platform. The scheme has two components: the first is a nutritional component for adolescent girls between 11-15 years, belonging to families whose income level is below Rs. 6400 per annum. The second component is an awareness programme for all girls between 11-18 years irrespective of income levels of the family.

Under the first component two girls at a time, between the ages of 11-15 are identified and affiliated to an ananganwadi. They are provided similar food on the same scale of the pregnant women or nursing mother, namely one that would provide 500 calories of energy and 20 gm of protein. The two girls so identified are also offered in-service training at the anganwadi from the worker and supervisor over a period of six months to become fully equipped individuals, capable of managing an anganwadi centre, such as management of stores, organisation of the feeding programme, immunisation schedules, weight-taking for children, home visits, preschool activities, etc. (Mapping of Adolescents' Programmes in India).

The study also termed fund utilisation as 'efficient', showing how 64.9% of the allocated fund was used in 2011-12 and 78% in the following year.

Under the second component, adolescent girls between 15 and 18 years receive training with a view to their social and mental development. Special emphasis is laid to motivate and involve uneducated groups belonging to this age group in non-formal education and improvement and upgradation of home-based skills.

There are several nutrition programmes for adolescent girls:

a. Nutrition Programme for Adolescent Girls (NPAG)

This programme was initiated as a pilot project in the year 2006-07 in 51 identified districts across the country to address the problem of undernutrition among adolescent girls. Under the programme, 6 kg of free food grains per beneficiary per month are given to underweight adolescent girls. Under-nourished adolescents were defined as girls between the ages of 11-15 years whose weight was below 30 kg; and below 35 kg in the age group of 15-19 years. Allocation of funds for NPAG is made as special central assistance on 100% grant basis to state/UTs.

b. Rajiv Gandhi Scheme for Empowerment of Adolescent Girls – SABLA

In 2010, the central government introduced the SABLA programme for this same group, replacing both the KSY and the NPAG programmes. Financial assistance and coverage under both schemes was limited and both catered to more or less similar target groups. They were therefore combined into the SABLA programme, envisioned as more comprehensive, with the aim of improving their nutritional and health status and empowering them with life-skills.

The SABLA programme has been introduced on a pilot basis in 205 districts across all states and UTs. In districts where the SABLA programme is still not available, the KSY programme continues to be operational. The programme is being implemented by state governments/UTs with full financing assistance from the central government for all inputs other than nutrition, for which 50% central assistance is provided to states. The programme has two major components, viz. nutrition and non-nutrition. Under the nutrition component, out-of-school adolescent girls in the age group of 11-14 years and all girls in the age group of 14-18 years are provided supplementary nutrition of about 600 calories, 18-20 gm of protein and micronutrients per day at a cost of Rs.5 per day for 300 days in a year. According to the recommendations of the Indian Council for Medical Research (ICMR), the RDA for the girls in the age group of 10-18 years ranges from 2010 kcal/day to 2440 kcal/day. The gap between the RDA and dietary intake among girls was found to be 626-810 kcal/day. The Working Group on Nutrition for the 12th Five Year Plan has suggested that the nutritional norms of the programme have to be reviewed and revised (MWCD).

With respect to the non-nutritional component, adolescent girls in the age group of 11-18 years were being provided IFA supplementation, health check-ups and referral services, nutrition and health education, Adolescent reproductive and sexual health (ARSH) counselling/guidance on family welfare, life-skills education, guidance on accessing public services and vocational training (for 16-18 year olds). This programme was conceived as a means of mainstreaming out-of-school adolescents into formal and informal education (PIB MWCD, 2015).

In terms of its impact, an evaluation study of the SABLA scheme, a report which was submitted to MWCD in 2013 has shown that the coverage of beneficiaries under the scheme has gradually increased over the two years of its implementation (i.e., between 2012 and 2013). It was also noted that in terms of funds allocation, the nutrition component received a much larger share (i.e., more than 80% of the allocations) than the non-nutrition component. The study also termed fund utilisation as 'efficient', showing how 64.9% of the allocated funds was used in 2011-12 and 78% in the following year. It was also reported that

100% of the beneficiaries had been counselled and were aware of the 'nutrition', 'health check-ups' and 'life-skills' components of the scheme; while counselling had also helped 48% (i.e., 1612) out-of-school girls re-join school (ASCI, 2013).

In terms of the nutritional impact of the programme, however, it has been difficult to assess the impact, as numerous factors contribute to nutritional status. Also, there has been no baseline to assess the health status of the beneficiaries. Poor tracking of BMI and inadequate monitoring of the consumption of the THR are also factors that make it almost impossible to examine the impact of a nutritional programme (ASCI, 2013)

With respect to Karnataka, it has been found that the coverage of nutritional and non-nutritional components have been generally good, IFA tablets have been regularly distributed, and *sakhi saheli* trainings have been imparted. Generally, awareness regarding SABLA has also been high. However, there are lacunae with respect to health check-ups, health referrals and counselling attendance.

4. National Nutrition Anaemia Prophylaxis Programme

This is now being included under the Weekly Iron and Folic acid Supplementation (WIFS) programme with an extension in the form of the National Iron Plus initiative for children, pregnant,lactating and women of reproductive age groups. 'Nutritional anaemia' refers to all pathologicalconditions in which the blood haemoglobin concentration level is abnormally low, due to adeficiency in one or several nutrients (Kotecha, 2011). These nutrients are central to haemoglobin synthesis: iron, folic acid, and vitamin B12 (ibid). The biggest group affected by anaemia are women of reproductive age and young children. It has been estimated that more than 50% of Indian pregnant women are anaemic. Twenty per cent of maternal deaths have been attributed to iron or folic acid deficiencies. Anaemia also contributes significantly to high incidence of premature births, low birth weight and perinatal mortality.

It has been argued that anaemia has hidden symptoms, and often goes undetected (Kotecha, 2011). According to Kotecha (2011):

> Policy makers often fail to recognise the massive economic costs, service providers often fail to recognise the significant health consequences, and societies are too often ignorant of anaemia's capability to cause permanent cognitive defects, denying children their right to full mental and emotional development, before they ever reach a classroom.

Weakness during pregnancy, which could be an indicator of anaemia, is considered normal and women do not seek medical intervention till the symptoms become severe. This is one of the reasons for the high prevalence of the deficiency among Indian women. The other factor that has been identified for this is the custom of women eating in the end, after the male members of the family have eaten. Due to this custom, they feed on leftover food which may not be sufficient. The other factors that result in dietary inadequacy are poor purchasing power, illiteracy, ignorance about cheap foods with high nutritive value, cultural taboos, superstition and the existence of large families (Chellan and Paul, 2010).

The causes of anaemia in children vary from inadequate dietary intake and absorption/utilisation of iron, to increased iron requirement during growth period, to blood loss due to parasitic infections like malaria and worm infestation transmitted from exposure to the soil. The significant causes for iron deficiency-caused anaemia among adolescent girls (10-19 years) stems from increased requirement of iron during this period, infections and worm infestations, poor intake of iron and early marriage and pregnancy. (GOI, 2012). Further, with the median age for marriage for girls in India being 18 years, it has been argued that there could be serious consequences of iron deficiencies developed during childhood and adolescence, during pregnancy, when there is a high demand for iron as well (Toteja et al., 2006).

Kotecha (2011) has argued that iron deficiency-based anaemia can be prevented at a low cost, with a high cost-benefit ratio. The National Nutritional Anaemia Programme (NNAP) was launched in 1972 with the intention of preventing nutritional

anaemia. A centrally sponsored scheme, it seeks to address this major public health problem in India.

In the light of these observations, the goals of the NNAP were to:

- promote the regular consumption of foods rich in iron.
- provide iron and folate supplements in the form of tablets (folifer tablets) to populations identified as 'high risk'
- identify and treat severely anaemic cases (MHFW, 1991)

Both central and state governments participate in the implementation of this scheme. The programme is operated as a part of Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A). The programme is also implemented through the convergence of several departments – Health and Family Welfare, Women and Child Development, as well as Food and Civil Supplies (Ministry of Health and Family Welfare, MFHW, 1991). While the programme is implemented through primary health care centres (PHCs) and sub-centres, functionaries of the ICDS programme assist in the distribution of iron tablets and impart education related to nutritional anaemia prevention, while the Department of Food and Civil Supplies is in charge of promoting consumption of iron-rich food (MFHW, 1991).

The programme is administered with full funding from the central government. While the central government is involved in the procurement of medicines, the states take care of distribution (Nayanatara et al, 2010).

Pregnant women and nursing mothers with haemoglobin less than 10 g/dl, children with haemoglobin less than 8 g/dl and women who undergo terminal methods of family planning and utilise intra-uterine devices (IUDs) are beneficiaries of the scheme (Nutrition and Health, 2016).

The recommended daily dosages of iron and folic acid (IFA) tablets are as follows:

Adult women : 60 mg elemental iron + 0.5 mg folic acid

Children (1-5 years) : 20 mg elemental iron + 0.1 mg folic acid. (Nutrition and Health, 2016)

Although the GoI has been endeavouring to combat iron deficiency-based anaemia for almost 50 years now, the efforts have not shown the desired results given that the prevalence of anaemia is still high. While the prevalence of anaemia in the country at 74.3%, our neighbours, i.e., Sri Lanka, Pakistan and Bangladesh, fare better than us on that front, with their rates being 29.09, 50.9 and 47% respectively (GoI, 2012).

The continuing high prevalence also led to a revision of guidelines by the MHFW. Based on several consultations, the new guidelines have stressed the need to include children between 6- 12 months under the programme. Elemental iron (of 20 mg) and folic acid (of 0.1 mg) is to be extended to the group of children between 6-60 months (i.e. up to 5 years). Further, it has also recommended extending the programme to school children between 6-10 years, and adolescents between 11-18 years. It has also suggested the use of newer products such as double fortified salts, sprinkles, ultrarice and other fortified micronutrient candidates to supplement the provisions of the programme.

Overall, an evaluation report of the efforts to combat nutritional anaemia suggests that, as a country, India has not been successful in addressing the situation (Kapur, Agarwal and Agrawal, 2002). Based on experiences within other countries, it has been suggested that interventions need to focus on long-term solutions, such as distribution of foods fortified with iron, such as fortification of food items like milk, cereal, sugar, salt with iron. Further, it has been argued that attention needs to be paid not just to iron deficiency to address this situation, but also B12, folic acid and other factors (Toteja et al., 2006). Further, adequate nutrition education, both through the ICDS platform and through school education programmes, has been stressed, so that target groups are made adequately aware of the necessity of the different

kinds of micronutrients required for the synthesis of haemoglobin (Kapur et al., 2002).

5. Vitamin A prophylaxis programme

Vitamin A deficiency is a leading cause of preventable blindness among children. It also reduces immunity, which causes risk of mortality from childhood diseases. Young children are more susceptible to vitamin A deficiency, both because of increased requirements of vitamin A during this period of intense physical development as well as susceptibility to various illnesses such as acute respiratory infections and measles, which reduce the vitamin A levels in the body (Kapil and Sachdev, 2013). Globally, 190 million children under five years of age are affected by Vitamin A deficiency (World Health Organisation, 2016) and research suggests that improving the Vitamin A status of a population can reduce mortality rates by 24% (Bhutia et al., 2013). However, other studies have contradicted these findings and have suggested that proportion of effects may vary with characteristics of population (Kapil and Sachdev, 2013).

In the year 1970, with the specific aim of preventing nutritional blindness due to keratomalacia and combat the high degree of xerophthalmic blindness prevalent in the country since the 1950s (Kapil and Sachdev, 2013), the Vitamin A prophylaxis programme was launched. The programme was supported fully by the central government (Kapil and Sachdev, 2013). The programme is implemented through existing primary health centres and sub-centres and the ICDS platform, where children between nine months to five years are given a mega dose of Vitamin A at six-month intervals. Food fortification with Vitamin A is an effective way to target Vitamin A deficiencies and is used widely in developing countries (Dalmiya and Palmar, 2007)

Kapil and Sachdev (2013) have noted several improvements as a result of the Vitamin A prophylaxis programme, including the virtual disappearance of keratomalacia and a drastic reduction in the incidence of clinical Vitamin A deficiency in the last 40 years. They have also observed that there have been claims of reduction

The programme is implemented through existing primary health centres and sub-centres and the ICDS platform, where children between nine months to five years are given a mega dose of Vitamin A at six-month intervals.

in child mortality by 23% due to prophylactic mega dose administrations of Vitamin A. However, they argue that these changes have also come about because of the overall significant improvement in dietary intake among children, improvements in immunisation coverage and improved food security (ibid), and therefore cannot be attributed to the Vitamin A prophylaxis programme alone.

In addition, they have also argued that large-scale changes have been true for only those regions where rudimentary health care facilities were available. There is significant clinical deficiency and substantial heterogeneity in populations. Arguing that currently 'universal supplementation of Vitamin A to Indian children is being undertaken irrespective of their family background and nutritional status', Kapil and Sachdev (2013) note that the deficiency is now limited to isolated geographical pockets and also that there is no evidence of the benefits of Vitamin A supplementation in children without clinical signs of deficiency. Based on a recent costanalysis of the programme, they have argued that while the dose per child cost annually amounts to Rs.68, (with the cost for the total population of under-five amounting to Rs.8 billion), a large proportion of this expenditure is being undertaken for questionable health benefits as it goes to children with no deficiencies. Taking the more detailed break-down of the cost of the programme,[19] they also have argued that 'Apart from the cost of the micronutrient, the programme also consumes precious human and material resources meant for the delivery of primary health care.' (Kapil and Sachdev). Taking the case of Karnataka, it can be seen that the coverage of children under the Vitamin A prophylaxis programme has increased from 13.6% (as per NFHS 3) to 78.7% (as per

[19] Annual per child cost of the programme distributed as follows: (i) programme-specific costs = Rs.26, (ii) personnel cost = Rs.33 and (iii) capital= Rs.6

NFHS 4). This increase in investments in the programme needs to be reconsidered in the light of the above arguments.

Further, Vitamin A supplementation in high dosages has also been found to be toxic (Kapil and Sachdev, 2013). The current mega-dose of Vitamin A (200,000 IU) given to children as part of the programme is 500 times higher than the daily recommended dose (400 IU; Kapil and Sachdev, 2013). Thus, it is recommended that a targeted approach to administer a prophylactic mega-dose of Vitamin A in preschool children be considered (Kapil and Sachdev, 2013). Further, with evidence that suggests that the prevalence of specific problems such as Bitot spots of 0.5% being limited to certain populations – socio-economically poor and with poor health infrastructure, specific forms of targeting are further required (Kapil and Sachdev, 2013).

Based on these various observations, Kapil and Sachdev (2013) have suggested that 'In India, for cost-effective utilisation of limited resources available to the health sector, the 'Triple A' (Assessment, Analysis and Action) strategy should be adopted.' This strategy involves analysing the causes of Vitamin A deficiency first and then targeting it through a combination of approaches which seeks to prevent the deficiency at the community level. Other nutritionists have also argued for a reconsideration of an approach that targets a single micronutrient with a food-based approach stating that 'This new exclusive approach to one micronutrient is illogical. Food contains a lot of phytonutrients and there is a balance of different micronutrients' (C. Gopalan, president of the Nutrition Foundation of India (NFI) and former Director of the National Institute of Nutrition (NIN), Hyderabad; as cited in Ramachandran, 2001). This is reflected even in the 12th Five Year Plan, which has advocated the importance of dietary strategies and health education to improve Vitamin A status in the long run. (Need to revisit Vitamin A supplementation programme in India) Sustainable food-based approaches focused on an increase in production and consumption of green leafy vegetables and other plant foods rich in caretenoids (Kapil and Sachdev, 2013) is thus preferred. Arguing that 'countries with limited financial resources and competing health priorities cannot afford the luxury of initiating interventions to raise serum biochemistry alone,' Kapil and Sachdev (2013) have also pointed out that food-based approaches are also more beneficial as they improve the overall nutritional status of children and protect against infections and other diseases.

6. National Iodine Deficiency Disorders Control Programme (NIDDCP)

According to the Ministry of Health and Family Welfare, 'Iodine is a micronutrient which is required in concentrations of 100-150 micrograms daily for normal human growth and development' (MHFW, 2013). While this quantity seems miniscule, its importance for development cannot be underestimated. Iodine deficiency exhibits its impact from the development of foetus to all ages later. It can result in spontaneous abortion, stillbirth, mental retardation, deaf-mutism, squint, dwarfism, goitre of all ages, neuro-motor defects, etc. According to Pandav et al. (1989), iodine plays an essential role in optimum brain development, starting right from the embryonic stage continuing up to adulthood. Further, they state that with 90% of brain development occurring within the first two years of life, early deficiencies in iodine can lead to irreversible damage. Delange et al. (2001) have also pointed out that iodine deficiency is a leading cause of preventable mental retardation during childhood.

According to Zimmerman, Jooste and Pandav (2008), two billion people across the world suffer from iodine deficiency, with the prevalence being higher in south Asia and sub-Saharan Africa. It is estimated that in India, about 200 million people are at risk ofiodine deficiency disorders (IDDs), and 71 million already suffer from goitre and other IDDs (MFHW, 2006). There is evidence of widespread distribution of iodine deficiency not only in the Himalayan region but also in sub-Himalayan terrain, riverine areas and coastal regions of India (Kapil and Kumar,1998). Currently in India, 167 million persons are at risk of IDDs and not a single state is free from this problem (Makwana et al, 2012). Out of 282 districts surveyed so far, IDD sare a major public health problem in 242 districts (NIDDCP). Even in the rural areas of south Karnataka, high prevalence of goitre was found (Manjunath et al., 2016).

Nutritional iodine deficiency has been reported to be a geochemical environmental problem (MFHW, 2006). The simplest solution to prevent the IDD is to consume iodated salt every day. (Pandav, 2011). Realising the magnitude of the problem in the country, the GoI launched a 100% centrally assisted National Goitre Control Programme (NGCP) in 1962 with the following objectives: 1) initial surveys to assess the magnitude of the IDDs, 2) supply of iodised salt in place of common salt and 3) resurveys to assess the impact of iodised salt after every five years.

In August 1992, the NGCP was renamed the National Iodine Deficiency Disorders Control Programme (NIDDCP). Under the NIDDCP, all people residing in endemic and non-endemic areas for IDDs are beneficiaries. Production and distribution of iodised salt, notification for banning use of non-iodised salt, establishment of a goitre cell and information, education and communication (IEC) activities were undertaken. Intersectoral co-ordination, laboratory support, training under NIDDCP, monitoring and reporting systems were also included as part of the guidelines. Evaluation programmes have also been included under its mandate, such as comparisons of iodised salt versus iodised oil in the prevention of IDDs.

Though there has been positive progress in implementation of the NIDDCP, its sustainability is vital for the elimination of IDDs. In India, about 70-80% of the population consumes iodised salt (S.C. Vir, 2007). The total production of iodised salt in the country is 5.82 million metric tonnes per year, against a total requirement of 5.2 million metric tonnes (Pandav et al., 2013). Progress has been made towards achieving the universal availability of iodised salt, which is the effective intervention for the elimination of IDDs under NIDDCP. Large goitre prevalence and other visible signs and symptoms of IDDs are no more seen, which has perhaps led to decreased political and administrative inputs to the NIDDCP (Kapil, 2007). There are constraints with respect to the effective functioning of the programme, which include lack of IDD control cells and monitoring labs in all states and non-completion of IDD surveys in all districts. There is a need to establish better enforcement of standards for distribution of iodised salt, need to create

The total production of iodized salt in the country is 5.82 million metric tonnes per year, against a total requirement of 5.2 million metric tonnes (Pandav et al.2013).

greater awareness among the population about the importance of iodised salt and the need for better-trained medical and para-medical personnel to implement the NIDDPC (MFHW, 2006).

A budgetary analysis should also be undertaken to assess the gaps in the implementation of the NIDDCP. Periodic urinary iodine excretion (UIE) test analyses (WHO 2001), through which areas with low UIE may be identified and supplied iodised salt, are necessary. This needs adequate budget allocation for the programme. Another mandatory step is to completely ban sale of non-iodated salt and IDD-monitoring laboratories should be set up in all states.

7. Promotion of ORS and Zinc

As Sazawal et al (1995) point out: 'In developing countries the duration and severity of diarrhoeal illnesses are greatest among infants and young children with malnutrition and impaired immune status, both factors that may be associated with zinc deficiency.' There is a direct link between diarrhoea and nutrition as undernutrition increases incidence and severity of diarrhoea. Persistent or repeated diarrhoea may result in weight loss and malnutrition in children who were previously well-nourished. Diarrhoea, especially persistent diarrhoea, often precipitates marasmus or kwashiorkor in children already mildly malnourished. Therefore, both malnutrition and diarrhoea often occur in the same children. Malnourished children with low immunity are prone to diarrhoea as malnutrition increases susceptibility to infections, which includes those that cause diarrhoea.

Low Osmolarity

Studies have shown that the efficacy of ORS for treatment of children with acute diarrhoea is improved by reducing its sodium concentration to 75 mEq/l, its glucose concentration to 75

mmol/l, and its total osmolarity to 245 mOsm/l. The original solution contained 90 mEq/l of sodium with a total osmolarity of 311 mOsm/l. There has been a concern that the original solution, which is slightly 'hyperosmolar' when compared with plasma, may risk hypernatraemia (high plasma sodium concentration) or an increase in stool output, especially in infants and young children.[20] According to NFHS-3 data, knowledge of ORS is good in communities (73%) but only 43% are using ORS, which shows a big gap between knowledge and practice. A reason for this could be that the remedy has not been effective in the past or due to other such unpleasant experiences. It is difficult to comment any further on this as the complete data for Karnataka is yet to be available.

B. Nutrition-supportive programmes

1. RMNCH+A (Reproductive, Maternal, Newborn, Child and Adolescent Health)

RMNCH+A was launched in the year 2013 with the objectives of reducing the infant mortality rate (IMR), maternal mortality rate (MMR) and total fertility rate (TFR) through the concept of 'continuum of care' which aims to ensure equal focus on all the various life stages in a sequential manner. Realising and accepting that reproductive, maternal and child health are interlinked, the programme works to address these issues together. The health of the adolescent girl impacts pregnancy and the health of the pregnant woman, which impacts the infant. Continuous care is needed throughout the life cycle and also between the places of care-giving, i.e., including households and communities, outpatient and outreach services, and clinical care settings (Karber et al, 2007).

There are many health services under RMNCH+A that combat malnutrition, including immunisation of pregnant women and children, anaemia prophylaxis and treatment, counselling on birth spacing, integrated management of neonatal and childhood illnesses, management of children with malnutrition, early initiation of breastfeeding, promotion of exclusive breast-feeding, timely and appropriate complementary feeding, Vitamin A, iron and folic acid prophylaxis, adolescent nutrition, iron and folic acid supplementation (Taneja, 2015).

Despite the guidelines seeming sufficient to address all the problems related to maternal, child and adolescent health, there are some drawbacks, like large vacancies of doctors and specialists, shortage of blood banks and blood storage units and lack of basic diagnostic tools like blood-testing equipment and tools. Special newborn care and newborn stabilisation units have not been set up as per requirements and government standards (*The Hindu*, 2014).

2. Indira Gandhi Maatritva Sahayog Yojana

The MWCD launched a new programme in the year 2010 for pregnant and lactating women called Indira Gandhi Matritva Sahyog Yojana (IGMSY). IGMSY works towards maternity health and is implemented using the platform of the ICDS, the focal point of implementation being the *anganwadi* centre (AWC). The programme was piloted in 52 districts across the country, and two districts – Kolar and Dharwad – have been selected in the state of Karnataka for implementation.

Earlier, Janani Suraksha Yojana (JSY), launched in 2005 by the Ministry of Health and Family Welfare, provided cash incentives to pregnant women for institutional/home births with skilled assistance. However, the scheme did not address a key concern, that of pregnant women being deprived of rest as they were expected to work up to the ninth month of their pregnancy. IGMSY was introduced to ensure rest, healthy feeding practices, as well as increased utilisation of health services and to compensate for wage losses. Under the scheme, all pregnant women of 19 years and above, except those employed by the government (central or state) or public sector undertakings, are entitled to a compensation of Rs.6000 per live birth, in two instalments, for the first two live births (Falcao and Khanuja, 2015). The scheme acts on conditions like timely registration, complete vaccination, attending counselling sessions and exclusively providing breastfeeding to the child up to six months.

[20] http://rehydrate.org/ors/low-osmolarity- ors-qa.htm

There are not enough studies to prove the impact of this programme so far. Hence there is an urgent need for impact studies that can provide accurate data to guide policies and universalisation with respect to the scheme. It has been suggested, however, that to intensify the focus on nutrition intervention, the scheme can be made more rigid by including conditions like weight gain of at least 8-10 kg during pregnancy and prescribing the birth weight of the newly born infant as over 2.5 kg. These measures can be adopted so that the beneficiary seeks nutrition counselling and it can be implemented with the support of family members. (Vir, 2016).

3. Rajiv Gandhi National Crèche Scheme

With the increasing number of nuclear families, working women need support in taking care for their young children while they are at work. Safe and effective day care facilities are a critical need in order to provide care for children. This also acts as a means to stop several issues of child labour, school dropouts, outreach for medical and health programmes, female literacy and malnutrition. There is an urgent need to improve the quality and the outreach of such child day-care centres or crèches. This will help working mothers to continue their jobs as well as work to advance the achievement of the SDGs.

It was to mitigate the effects of the above factors that the MWCD, GoI, in 2006, introduced the Rajiv Gandhi National Crèche scheme for the children of working mothers. Civil society organisations with the Central Social Welfare Board as the national nodal resource institute implemented this scheme.

The scheme focuses on children 0-6 years of working women, especially from vulnerable and disadvantaged sections of society in rural and urban areas, who are employed for a minimum period of 15 days in a month, or six months in a year. This scheme helps to improve the nutritional and health status of children, promote physical, cognitive, social and emotional development, i.e., holistic development of children and to educate and empower parents/caregivers for better child care (Performance of Rajiv Gandhi National Crèche Scheme for Children of Working Mothers). Ideally,

It was to mitigate the effects of the above factors that the MWCD, GoI, in 2006, introduced the Rajiv Gandhi National Crèche scheme for the children of working mothers.

the number of children in the crèche should not exceed 25. Of these, at least 40% of children should, preferably, be below three years of age. As on January 2015, there were 23,293 functional crèches across the country. However, it has been noticed that there is a decline in the number of crèche centres in selected states (12-27%) due to low financial assistance and lack of timely release of funds. Some centres were closed down due to non-availability of desired number of children (Supath Gramyodyog Sansthan, 2013).

4. Swachh Bharat Abhiyan

Diarrhoea is one of the three most common diseases which kills young children globally, pneumonia and malaria being the other two. 58% of these deaths could be prevented by clean water, sanitation and good hygiene, including washing hands with soap. Poor sanitation leads to repeated occurrences of infection in children, which in turn leads to malnourishment, as these children have reduced capacity to absorb nutrients (Wheeler, 2015). Studies have shown that stunting is prevalent in places with high rates of open defecation. It is a known fact that India is the world's second most populous nation, with 64% of the population without access to safe and private toilets (Wheeler, 2015). Another study has revealed 25% stunting in children up to 24 months (Chitty, 2014) can be attributed to diarrhoea, primarily caused due to poor sanitation.

The GoI launched the Swachh Bharat Abhiyan on October 2, 2014. The main aim of the campaign is to provide sanitation facilities such as toilets, solid and liquid waste disposal systems, village cleanliness, and safe and adequate drinking water supply by 2 October, 2019 to every family. The earlier versions of this programme were the Total Sanitation Campaign (1999) and Nirmal Bharat Abhiyan in 2012.

5. The Mahatma Gandhi National Rural Employment Guarantee Act

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 2005, mandates providing 100 days of guaranteed wage employment in a financial year (FY). This Act is for every rural household whose adult members do unskilled manual work. It has three objectives, that of social protection, livelihood security and democratic governance. MGNREGA has covered the entire country except for the districts which have 100% urban populations. While the policy may not have direct relation with ensuring nutrition for children between 0-18 years, the scheme indirectly influences this goal. In the year 2009-2010, the scheme provided employment to 52.53 million households, thus pulling them out of poverty (Jagannathan, 2012), by aiding the poor rural households in withstanding economic shocks and inflation. Studies prove that it improved the capacities of those households to purchase enough food grains and hence has contributed to breaking the vicious cycle of malnutrition. Other than improving purchasing power, it also helped in improving health outcomes. Studies that have measured the effects of MNREGA have also reported a significant reduction of 12% in the incidence of depression and reduction in health expenditure per capita by eight rupees. (Ministry of Rural Development, 2012).

6. Public Distribution System

The Public Distribution System (PDS) aims to provide 35 kg of food grains per month (rice or wheat) per family at Rs.5 and Rs.4 per kg respectively. In Karnataka, under the Anna Bhagya scheme, 1098.98 lakh priority households get free food grains through a network of 20,778 fair price shops in the state.[21] The beneficiaries are also provided with sugar, palm oil and iodised salt at lower rates. This has contributed to mitigate reduced food consumption owing to chronic poverty, crop failures and other severe conditions.

7. Bala Sanjeevini

This is a GoK scheme under which Rs.50,000 is provided for the treatment of neonates, i.e., children less than one year. This helps in combating secondary malnutrition. Secondary malnutrition results from an underlying disease that compromises growth directly or through its deleterious effects on appetite or absorption of nutrients.

[21] http://ahara.kar.nic.in/annabhagyyojana.html

Annexure 2:

Expenditure Tables

Table A2.1:
GSDP deflators, expenditure on children and total expenditure of state

Description	2012-13 AC	2013-14 AC	2014-15 AC	2015-16 AC	2016-17 RE	2017-18 BE
GSDP deflator (2004-05 base)	172	200	204	208	215	
Total state expenditure (Rs. in crores)	98,087	111,977	128,625	142,508	164,479	186,561
Total expenditure on children (Rs. in crores) (CBPS 2017)	20,273	22,279	24,991	27,189	27,994	30,325
SDP (Rs. in crores)	522673	641607	702131	780572	861227	973153

Table A2.2:
Total expenditure on nutrition (Rs. in crores)

Description	2012-13 AC	2013-14 AC	2014-15 AC	2015-16 RE	2016-17 BE	2017-18 BE
Nominal expenditure on nutrition	2471	3999	4217	4298	4799	6100
Real expenditure on nutrition (2004-05 prices)	1436	1999	2067	2066	2232	

Table A2.3:
Total expenditure on nutrition as percentage of total state expenditure

	2012-13 AC	2013-14 AC	2014-15 AC	2015-16 AC	2016-17 RE	2017-18 BE
Percentage of state expenditure	2.52	3.57	3.28	3.02	2.92	3.27

Table A2.4:

Total expenditure on nutrition as percentage of total expenditure on children

	2012-13 AC	2013-14 AC	2014-15 AC	2015-16 AC	2016-17 RE	2017-18 BE
Percentage of expenditure on children	12.19	17.95	16.87	15.81	17.14	20.11

Table A2.5:

Total expenditure on nutrition as percentage of GSDP

	2012-13 AC	2013-14 AC	2014-15 AC	2015-16 AC	2016-17 RE	2017-18 BE
Percentage of GSDP	0.47	0.62	0.60	0.55	0.56	0.63