Child Malnutrition and the Role of Policy in India

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No doubt that India is improving the standard of living of its people, economic growth rate, productivity and survival of its children. Under-nutrition remains a serious issue and putting the health of the people in danger. The most vulnerable group is children, which is needed to be addressed first. India is one of the highest-ranking country in the world which have undernourished children, ultimately leads to sickness and death of the child. Although children's is facing several nutritional problems, the most common are stunting, wasting and underweight among under-5 children. The objective of this paper is to examine the challenges of nutritional security among children and the role of a policy framework for enhancing nutritional security. It is found that if India wants to achieve nutritional security, then more investment is required by the appropriate policy framework. Child malnutrition is a sensitive issue for a country like India; so there is a need to give this issue a national importance. Policy plays a vital role in this aspect; through effective policy framework and their proper implementation, this problem can be handled by focusing on children's and women's health.

Keywords: *Child malnutrition, policy framework, child mortality, stunting, wasting and underweight.*

INTRODUCTION

The so-called Asian enigma, South Asia has long been remarkably high rates of child undernutrition. It has been seen that the higher prevalence of child under-nutrition in South Asia than in sub-Saharan Africa, which perform better in most socio-economic indicators and India, the largest country in South Asia, was a contributor to this enigma (Jose and Hari, 2015). No doubt that India is improving the standard of living of its people, economic growth rate, productivity and survival of its children. But still,it is far behind from its neighbors and the world. According to the recent report of the Rapid survey on children (RSoD), 38.7 percent of the Indian children under the age of five are stunted, 15.1 percent of the child suffering from wasting and 29.4 percent are underweight children (IFPRI, 2015). Undernutrition in India is a serious issue, putting the health of the people in danger and the most affected group is children. According to the World Bank, India is one of the highest ranking countries in the world which have undernourished children (Gragnolati, 2005).Child malnutrition ultimately leads to sickness and mortality, which are extensive. Undernutrition has also impacted productivity because failure to achieve nutrition reduces probably economic growth. Stunting, wasting and underweight is the most common indicator of undernutrition problems among children.

Malnutrition under five children is a major public health problem in India. This is reflected by the fact that the occurrence of underweight children in India is among the highest in the world, and is approximately double that of Sub-Saharan Africa (Gragnolati, 2005). Stunting and other forms of under nutrition are undoubtedly a major donating factor to child mortality, disease and disability (UNICEF,

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2013). "Women's low education levels, unequal social status and limited decision-making power can negatively influence the nutrition status of their children, as well as their own" (UNICEF, 2013). The health of pregnant or lactating women is directly linked to the health of their child. Those children whose mothers are illiterate and malnourished themselves are more likely to experience difficulties due to under nutrition, so for improving the nutrition status of children, there is a need for improving the nutrition status for their mother.

Nutrition education for the experts as well as the public is very essential to ensure proper strategies for the production and home consumption. Some national and international studies highlight the importance of the farmstead production of vegetables, fruits, pulses, millets and foods of livestock beginning. In a four-nation study in Asia, Hellen Keller Institute verified the positive impact of intensive home cultivation with technological inputs on the frequency and variety of vegetables consumed by preschool children and decline in the occurrence of anaemia in children, however not in adult women(NAAS, 2012).

Bio fortification will become a possible solution for these nutrition problems. Bio fortification is a seed-based method where the germplasm is enhanced with specific nutrients-protein, fatty acids, amino acids, micronutrients. It can be done by three methods: conventional breeding, markers driven molecular breeding, or genetic engineering (NAAS, 2012). It is a process of breeding higher levels of micronutrients, especially iron, zinc, and Vitamin A directly into key essential foods, numerous efforts to the conventional breeding by using non-GMO breeding techniques such as beta-carotene-rich, sweet potato and iron & zinc-biofortified pearl millet is ongoing (Kadiyala, Joshi, Dev, Kumar and Vyas, 2012). Some of the favorable products that have emerged are: β carotene-rich sweet potato and cassava, zinc and iron-rich rice, wheat and maize (NAAS, 2012).India should give priorities to public research investment to boost up the development of technologies and effective supply chains to enhance the production and consumption of these nutrients-rich foods by the technique biofortification (Kadiyala, Joshi, Dev, Kumar and Vyas, 2012). If India wants to achieve the nutrition status of the children, effective food fortification policies should become the possible solution must be implemented, and feeding practices of young children and mothers must be enhanced. However, beside the availability of nutritious food, the poor population does not have accessibility for purchasing the nutritious and healthy foods for themselves and their children consumptions.

OBJECTIVE

- To analyze the magnitude of the problems of child malnutrition.
- To highlight the role of policy framework for reducing child malnutrition problem.

METHODOLOGY

The study is based on descriptive research where secondary data is used to analyse the magnitude of the problem, which is obtained from *international agencies* like FAO yearly report (SOFI), IFPRI report, Global nutrition report and *national report* like NFHS(National family Health survey) reports, NSSO(National Sample Survey Organization) reports, and RSoC (Rapid Survey on Children) reports also taken into account.

LITERATURE REVIEW

Sahu et.al,(2015), analyses the burden of under-nutrition as well as over-nutrition under the age five years of children in India. They observe that under nutrition among under 5-year children are widely spread and lack of research and study on over nutritional aspect has been done. **Panagariya, (2012)** analyzed that despite achieving the economic growth and a reduction in the poverty, India is facing

the problem of child malnutrition which is high even from Sub-Saharan Africa. Nearly half population of children under the age of 5 suffers from the stunting and underweight problem. **Ramchandan, (2012)** observed that as compared to other countries, India performed well in Infant Mortality Rate and under 5 mortality rate, but when the underweight is used as an indicator of food security in under five children, India performs poorly compared to Sub-Saharan Africa. However, if we used, wasting as an indicator, India performs better. Poverty and inability to buy necessary foods is the leading factor of undernutrition and micronutrient deficiencies, which is prevalent in the poor section of the society of the population. There are dual nutrition burden over and under nutrition and both related to health hazards. **Svedberg, (2008),** used OLS regression for finding the relationship between different variables related to child health. He found that poverty reduction is related to child malnutrition, illiteracy among women found a strong determinant of child malnutrition. Male and female ratio have also impacted child health in the form of gender bias. **Von Braun, (2008)** observes that more than half deaths of Indian children are due to malnutrition and the progress towards reducing malnutrition is very slow. India has many social safety net programs, but they are not properly utilized. **NAAS (2012)** India has undoubtedly had the highest burden of malnutrition in the world more than that of Sub Saharan Africa. Studies show that avoidance of undernutrition among young children decreases the effectiveness of investment in education and economic development. The more responsibility of our nation is to rise of the nutritional status and the standard of living of its people and betterment of society health as its primary duties. **Nandy, Irving, Gordon, Subramanian & Smith, (2005),** observes that how the prevalence of undernutrition in children is measured and claims that the standard keys of stunting, wasting and underweight may each be undervaluing the scale of the problem. Undernutrition remains to be a major cause of ill-health and premature death among children in the developing countries. The paper has shown that alternative indicator such as conventional indices reflect distinct biological processes (CIAF) can be created to provide a single, combined figure of the number of undernourished children in a population. Reducing undernutrition, illness and death depend on decreasing poverty and raising people's living standards by improving the quality of homes and by increasing access to clean drinking water and sufficient sanitation. These types of interventions have positive effects on health, and executing these also goes on the way to fulfilling people's basic human rights.

Nature and Magnitude of the Problem

India's under-nutrition is among the highest in the world, far beyond that of Sub-Saharan Africa. In spite of its incredible economic growth in the past decade, India's progress in reducing child malnutrition has been extremely slow (IFPRI, 2015). The prevalence of child malnutrition in India turns further from the expected level at the country's per capita income than in any other large developing country (IFPRI, 2015). With close to half of its pre-schools suffering from malnutrition, India are one of the countries with the highest proportion of malnourished children in the world, along with Bangladesh, Ethiopia, and Nepal (IFPRI, 2015). India's rates are almost double than Sub-Saharan Africa and five times higher than those of China. 38.7 percent of the Indian children under the age of five are stunted, 15.1 percent of the child suffering from wasting and 29.4 percent are underweight children (IFPRI, 2015).

The critically important period in children's lives is the first two years of a child because this is the time when their nutritional base is shaped and when they respond well to all the actions aimed at reducing under-nutrition. Nearly 70 percent of women, children and teenage girls suffering from iron deficiency anaemia (IIPS2007).''The problem of malnutrition is a matter of national shame'' (NAAS, 2012). Under-nutrition in India is

a serious issue putting the health of the people in danger and the most affected group is children. Micronutrient deficiencies are also common in India. More than 75 percent of pre-school children suffer from iron deficiency anaemia and 57 percent of preschool children have sub-clinical Vitamin A deficiency (Gragnolati, 2005). The consequences of anaemia in pregnant women include increased threat of low birth weight or premature delivery, perinatal and child mortality. Iron deficiency is widespread in 85 percent of districts (Gragnolati, 2005).

Improvement in reducing the prevalence of micronutrient deficiencies in India has been very slow. Although under nutrition has been gradually decreasing over the past few years, the rate of under nutrition remains deplorable, the prevalence of different micronutrient deficiencies varies extensively across different states (Gragnolati, 2005). To increase nutrition value, bio fortification can also be used; it is a technique through which nutrient quality of food crops improved either through conventional breeding or through genetic engineering. The

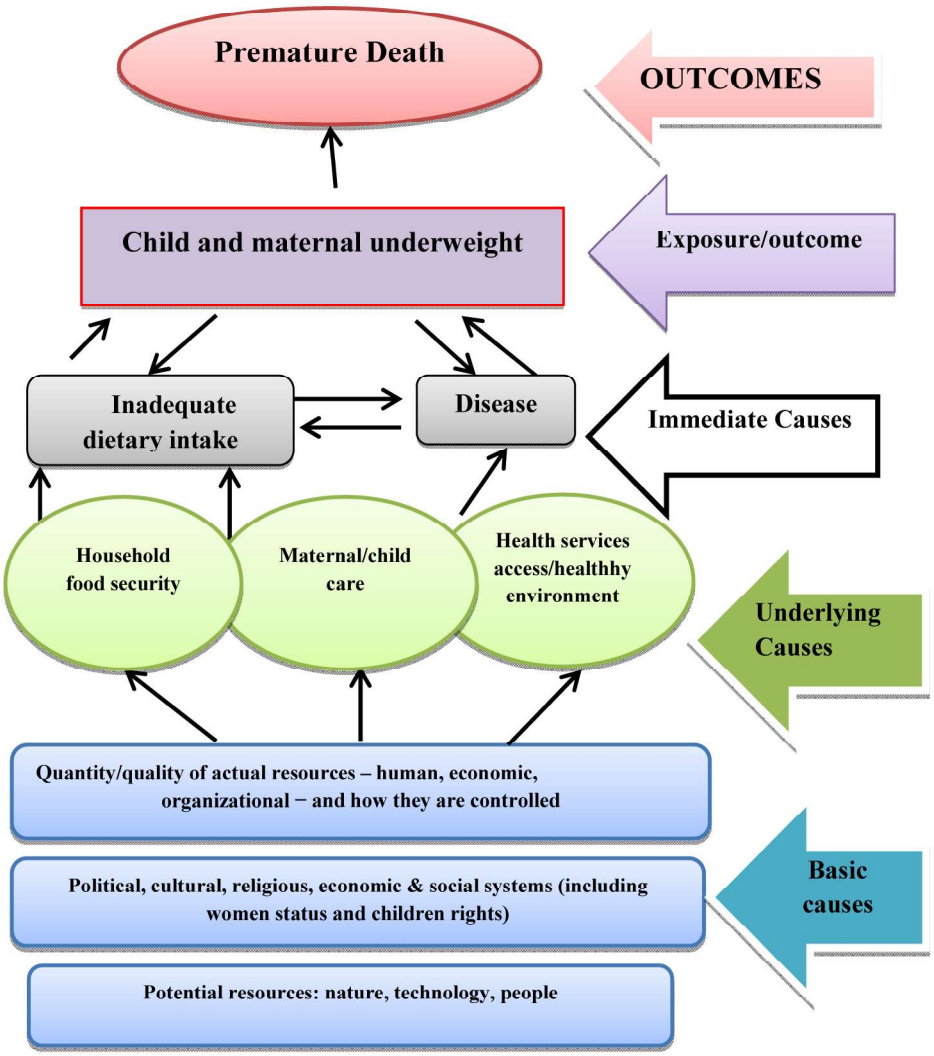

Figure 1. Casual Framework of Malnutrition

Source: UNICEF as cited in Malnutrition: Quantifying the health impact at national and local (WHO, 2005)

possible effect of bio fortification is believed to promising in India (Stein, 2008).To understand the relationship between various factors the following framework can be used that how basic, underlying and immediate causes leads to child and maternal underweight and the ultimate outcome is the premature death of the child (see figure 1).

The first level shows the most immediate causes of malnutrition and highlights the importance of food intake and risk of infection. The two immediate causes of malnutrition, poor dietary intake and infection, are closely interconnected to the three underlying determinants of nutritional status: household-level access to food, health resources (Gragnolati, 2005). Finally the framework associate the link that underlying resources to a set of basic determinants which includes importance of actual resources in the form of availability of human, economic and organizational resources, the use of which is formed by how society is organized in terms of economic structure, political and ideological expectations, and the associations through which actions and resources within society are controlled, social values are met, and potential resources are transformed into actual resources (Gragnolati, 2005).

Consequences of Child Malnutrition

The extensive understanding of the overwhelming consequences of undernutrition on morbidity and mortality is based on well-established evidence (UNICEF, 2013). Awareness of the impact of stunting and other forms of under-nutritionon social and economic progress and human capital formation has been supported and expanded by more recent research (Victora, 2008). Stunting, wasting, underweight and other forms of undernutrition are clearly a key contributing factor to child mortality, disease and disability. For instance, a severely wasted child faces a nine times higher risk of dying, and a severely stunted child is at a four times higher risk (Black, 2008).Some nutritional deficiencies, for example, vitamin A, iron or zinc deficiency also increases danger of death, the effects of iron deficiency, which decreases school performance in children and the physical ability to work between adults, has also been documented (UNICEF, 2013). "Undernutrition can cause various diseases such as blindness due to vitamin A deficiency and neural tube defects due to folic acid deficiency" (UNICEF, 2013).

The nutritional status of children and women is specifically important, because it is through women and their child that the malicious effects of malnutrition are spread to forthcoming generations. Anunder nourished mother is probably to give birth to a low birth-weight (LBW) baby vulnerable to disease and premature death, which only added damages to the economic development of the family and the society, and continues the cycle of poverty and malnutrition (WTO, 2005). From the framework given by UNICEF (see figure 2) one can see that the ultimate result of child and maternal under nutrition is premature death. The conceptual framework for nutrition by UNICEF discloses that actions to target malnutrition need to be encouraged all together, targeting three types of constraints (immediate causes, underlying causes and the basic causes) to tackle the ultimate result of malnutrition and for the nutrition secure economy.

Global Status of Malnutrition among Children

At present 795 million people undernourished globally, 291 in South Asia and 194.6 million in India **(FAO, 2015).** In 2014, 23.8 percent means one in four children under the age of 5 were stunted growth worldwide. Between 1990 and 2014, the stunting rate declined from 39.6 percent to 23.8 percent. In south Asia, the percentage change of reduction is 39 percent, i.e. from 61 percent in 1990 to 37 percent in 2014. Still, South Asia is the home of the greatest prevalence of stunting rate as compared to other region of the world (UNICEF/WHO/World Bank, 2015).In 2014, 14 percent children under the age of 5 are

stunted and in south Asia, 30 percent children are underweight in 2014. The rate of reduction between 1990 and 2014 is 42 percent (UNICEF/ WHO/World Bank, 2015).Similarly, in 2014, 50 million children under the age of five were wasted and 16 million were severely wasted. Approximately all wasted children live in Asia (69 percent). At present 14.9 percent south Asia's wasting prevalence has a critical health problem(UNICEF/WHO/World Bank, 2015).

TABLE 1
Rate of wasting, Stunting and Underweight in South Asia

Countries/regions	*Wasting*	*Stunting*	*Underweight*
Afghanistan	9.5	40.9	25
Bangladesh	14.3	36.1	32.6
Bhutan	5.9	33.6	12.8
India	15.1	38.7	29.4
Maldives	10.2	20.3	17.8
Nepal	11.3	37.4	30.1
Pakistan	10.5	45	31.6
Sri Lanka	21.4	14.7	26.3

Source: UNICEF/WHO/World Bank, 2015

Annual Rate of Reduction

The fastest annual rate of reduction in stunting could be seen since 2006 i.e. 2.3 percent per year, it means that finally, the rate of decline in India is similar to the rate of reduction in other countries, but between 2011 and 2014, Nepal had a 3.3 percent average rate of reduction of stunting in Nepal which is more than that of India(Figure 6). But the annual rate of reduction per year of India is now similar to Bangladesh and Ethiopia i.e., 2.3 percent per year.

Present Scenarios of Child Malnutrition in India

India's progress was very slow in the past two decades, which could be seen in the prevailing rate of stunting, wasting and underweight among under three children, as calculated in the three rounds of National Family Housing Survey (NFHS). From 53 percent in 1992-93 to 45 percent in 2006, the stunting rate in under the age three years children reduced by only 8 percent points in more than a decade, the average rate of decline was 1.2 percent[1]. During this period, while wasting declines by 1 percent point and underweight by 8 percent point. However the rate of progress precipitate since National Housing Survey 3 and the rate of stunting decline of 2.3 percent per year under five as compared with a rate of decline 1.2 percent per year between the years 1992 to 2006. An equally important, but very less focused measure of nutrition is micronutrient status. Deficiency of essential minerals and vitamins are highly prevalent in India.

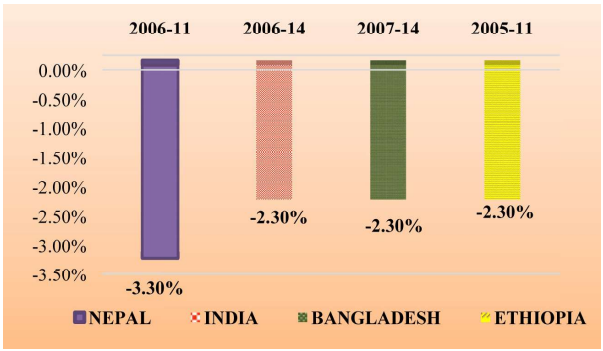

Figure 2: Annual Rate of Reduction

Source: IFPRI, 2015

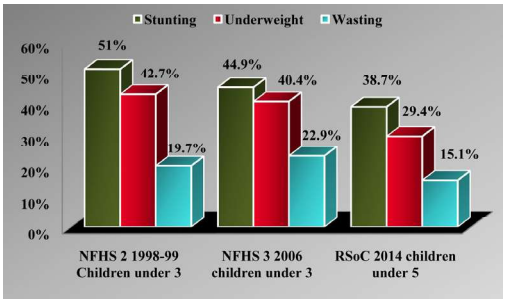

Figure 3: Trend of Child Malnutrition from 1998-99 to 2014

Source: NFHS 2, NFHS 3, RSoC 2014 as cited in IFPRI 2015

[1]We show here the trend from 1998-99, NFHS 1 data is not represented in the graph because of unavailability of some elements.

Child Mortality

Child Mortality means the death of infant and children under the age of five years due to Diarrhea, Malaria, Malnutrition, Pneumonia and Preterm birth condition. According to UNICEF Statistics 2015, Diarrhea, malaria & Pneumonia together are responsible for three out of ten child death before the age of five and approximately half of under-five death globally. India performs better when we use infant mortality rate as an indicator of food and nutrition security (Ramachandran, P. 2013).

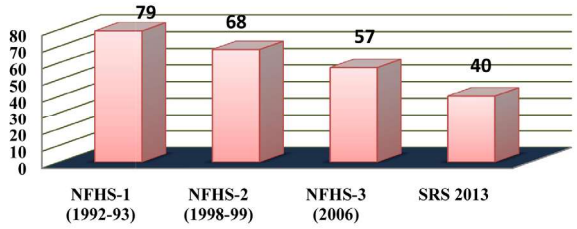

Figure 4. Infant Mortality Rate

*Source: IFPRI, 2015/IFPRI [*SRS- Sample Registration system]*

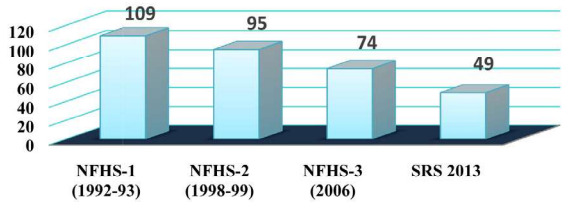

Figure 5. Under five mortality rate

Source: IFPRI, 2015

We can observe from the following graph that 1992-93 the infant mortality rate is 79 percent and in 2013 it is 40 percent, so progress can be seen in the form of reduction in infant mortality rate with the 55.7 percent change of reduction. Progress is also seen in under-5 child mortality rate that is from 1992-93 the rate is 109 percent and in 2013 it is 49 percent, the percentage change of reduction is 55.04 percent.

Prevalence of anaemia

Anaemia in children and women is a sensitive issue in India. In young children, anaemia continue to persist about 70 percent in most part of India and Asia in spite of policy being in place and program that has been introduced for a long time (Kotecha, P. V. 2011). We can see from the above(Figure 6) that moderate anaemia at the age 6 to 11 months is 55 percent, according to NFHS 3 data, means this age group is more vulnerable to the risk of anemia. Also, the age group 12 to 23 months old has moderate anemia 29.9 percent and severe anemia 3.1 percent. The average rates of anaemia from the age 6 to 59-months are 28.88 percent mild, 40.94 percent moderate and 2.28 percent severe anaemic.

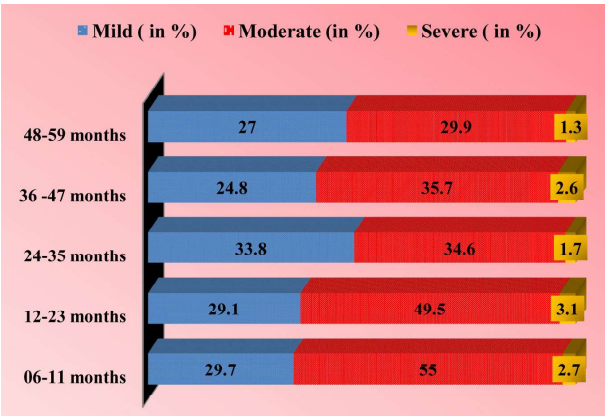

Figure 6. Prevalence of Anaemia in Children by Age

Source: NFHS 3, 2006as cited in IFPRI, 2015

Conclusions and Policy Recommendations

No doubt that India is improving the standard of living of its people, economic growth rate, productivity and survival of its children. In spite of its incredible economic growth in the past decade, India's progress in reducing child malnutrition has been extremely slow and still, it is far behind from its neighbors and the world. The children are suffering from stunting, wasting, underweight, anaemia-iodine deficiency, and other micronutrient deficiencies and these are the key contributing factors to child mortality, disease, and disability. According to latest estimates 38.7 percent, 15.1 percent and 29.4 percent of the children are stunted, wasted and underweight respectively in 2014. The

average rates of anaemia from 6 to 59-month-old children are approximately 29 percent mild, 41 percent moderate and 2 percent severe. Child malnutrition is a sensitive issue for a country like India; so there is a need to make this issue a national importance. The prevalence of child malnutrition in India turns further from the expected level of the country's per capita income than in any other large developing country. Special care is needed in the states that have the highest burden of child malnutrition. It is also found from the literature that more researches were done on under nutrition but over nutrition problem is neglected so more work should be done on this aspect also so that the full picture of malnutrition can be seen. The conceptual framework for nutrition by UNICEF discloses that actions to target malnutrition need to be encouraged all together targeting three types of constraints (immediate causes, underlying causes, and the basic causes). India is having an integrated child development program and mid-day meal programs, but these are not properly implemented, also food fortification will become the possible solution. We cannot neglect the role of policy for handling this issue, but there is a need for a proper policy framework and execution.

India needs a full-fledged nutrition policy with specific importance give to the 'vulnerable groups' children and female section of the society. Now the time comes when the country's policy maker has to know what is our strength and weakness and how we can reach the target of the 'child malnutrition free environment'. Children are the future of the country, so there is an urgent need of giving this issue a national and foremost importance. Policy plays the vital role in improving the nutrition status of the country. Nutrition policies should include service-oriented nutrition policies that carry nutritional improvement and incentive-oriented nutrition policies related to public and household participation and performance.

Short term policy recommendations related to child malnutrition: In the short run the main focus is how to serve the poor and needy people, that district and states where poor and vulnerable population resides should be addressed first by the policy maker. Policy and programs should be designed by focusing on children and women and health facility should be provided in those areas, short term program can be established for providing the nutritious food for the children in rural areas.

Medium-term policy recommendations related to child malnutrition: Medium term plans and policies to speed up the progress of reducing child malnutrition may include improving the gamut of nutrition, enlightening, targeting, and reinforce the implementation of existing programs and policies; ensuring that programs and policies are mainly focused on poor and nutrition and improving the health status of women's because child malnutrition is directly related to the health of the mother.

Long-term policy recommendations related to child malnutrition: Malnutrition is directly related to poverty and unemployment, so in the long run main focus is to reduce these two major problems. Policy maker design policy for reducing poverty and enhancing economic growth. Poor people do not have access to purchase healthy and nutritious food to feed themand their children, also gender inequality still prevails in the society. The policy should be designed to bridge these gaps. Target is to be made in rural areas because most of the malnourished children live in rural areas. For addressing micronutrient malnutrition, food fortification, bio fortification and food supplement will become the possible solutions.

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