Hunger scenario in India
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Abstract

Hunger means dietary intake that does not provide the kind and quantity of food that is needed for growth, activity and the maintenance of good health. Hunger comes in many guises, four of which (i.e. starvation, undernutrition, micronutrient deficiency and nutrient depleting diseases) serve as indices of hunger in compiling global estimates. Around 1.02 billion people do not have enough food to eat, more than the population of USA, Canada and European Union. Deaths due to undernutrition and starvation are high in number than deaths due to killer diseases like Cancer, Aids or any other disease. Micronutrient malnutrition is now focus of the worlds nutrition community because of its largely covert deleterious effect on large portion of the population, including physical and mental deformities, high risk of infection, low work productivity and increases mortality in young children. Everyday 6,000 children below the age of five die in India and more than half of these deaths are caused by malnutrition-mainly lack of vitamin A, Iron, Iodine, Zinc and Folic acid. Vitamin A deficiency (VAD) is a common problem in many developing countries. VAD causes death of about 500,000 children worldwide each year. Clinical manifestation of eye disease due to VAD affects 5 to 10 million children every year. Hunger has always been with us, and the most detailed long term computer simulation of future food availability finds as many or more hunger people in the year 2060 as there are today. But it need not happen. It is possible to visualise the world of coming century without famine, with little seasonal or chronic undernutrition and with virtually no nutrient deficiency and nutrition-related illness. But ending the hunger is not a simple matter. It will require a broad acceptance of food as a basic human right, an increased food availability that is far in excess of increased population, prevention of post harvest losses, an extensive growth in household income and a pervasive safety net of emergency assistance, entitlements and special need programs. There will be a need as well for a worldwide capability to cope with the surprises of the future. Thus ending hunger is both a deeply desired outcome and an extraordinary challenge.

Keywords: malnutrition, starvation, undernutrition, famine, post harvest losses

Introduction

Hunger means a dietary intake that does not provide the quantity of food that is needed for growth and activity and the maintenance of good health. As biologically-defined in this way, hunger comes in many forms, four of which serve as indices of hunger in compiling global estimates. The absence of dietary intake suffered in the course of famine can be contrasted with undernutrition-which is the chronic or seasonal absence of needed proteins and caloric energy. Hidden Hunger- (i.e.) micronutrient deficiency of which three dominate:
dietary shortage of iron, iodine and vitamin A. Nutrient depleting diseases-in which dietary intake may not be absorbed, or is wasted by fever or parasite that are carried in the body. Thus hunger encompasses not only shortage of food, but also lack of food of adequate nutritional quality.

*Global hunger scenario*

On an average, a person dies every second and a child dies after every 5th second as a result of direct or indirect malnutrition. More than 1.02 billion do not have enough to eat-more than the population of USA, Canada, and the European Union. Out of which, 907 million people in developing counties alone are hungry. Asia and the pacific region is the home to over half the world’s population and nearly two third of the world’s hungry people. Women make up a little over half of the world’s population, but they account for over 60% of the worlds hungry. The 65% of world’s hungry live in only seven countries: India, China, the Democratic republic of Congo, Bangladesh, Indonesia, Pakistan and Ethiopia (FAO, 2009).

*Global child hunger*

More than 70% of the world’s 146 million underweight children under age five years live in just 10 countries, with more than 50% located in south Asia alone. In developing countries 10.9 million children under five die each year, malnutrition and hunger-related diseases cause 60% of the deaths and one out of four children-roughly 146 million in developing countries are underweight (UNICEFF, 2007).

*World scenario of malnourished people*

As per WHO reports, 25% preschool aged children and 18% of women are vitamin A deficient. As a result of VAD, 250,000 to 500,000 children become blind every year in the world and half of them die within 12 months of losing their sight. Out of the total world’s population 37% is anaemic, while as 35% of the world’s population is at risk of iodine deficiency and 20% is estimated to be at risk of zinc deficiency. Iron deficiency anaemia (IDA) impairs cognitive performance, infant and child growth, immune status and work capacity. Even mild to moderate iron deficiency without anaemia may lower work capacity and resistance to fatigue and impair cognition (Brownlie, 2004).

*Hunger scenario in India*

The Indian subcontinent has nearly half the world’s hungry people. Africa and the rest of Asia together have approximately 40% and the remaining hungry people are found in Latin America and other parts of the world. The global Hunger Index (GHI) 2010-a joint report released by International Food Policy Research Institute (IFPRI), Welthungerhilfe, a German NGO and Concern Worldwide, an Irish Charity-ranks India as 67th (i.e.) Below the countries such as Rwanda and Sudan, putting it firmly in the alarming levels of hunger range. We need to look at what is happening to the poorest of poor. The Indian state hunger index (ISHI) scores for Indian states range from 13.6 for Punjab to 30.9 for Madhya Pradesh. Punjab is ranked 34th when compared with the GHI country ranking, and Madhya Pradesh is ranked 82nd.

*Undernourishment/undernutrition scenario in India*

On one side, India dominates the world in agriculture production, ranks first in millet and pulse production, second in rice, wheat, fruit and vegetable production. At the same time India is having highest number of undernourished people in the world (217.05 million) followed by China (154 million) and then
Bangladesh (43.45 million) (Sheffrin, 2003). Between 2003 and 2007, the nutritional status of children under five years of age was measured in demographic and health surveys in the same way in 41 developing countries. The prevalence of underweight in children was higher in India than in any of the other 40 countries, but was only slightly higher than the prevalence in Bangladesh and Nepal. The prevalence of underweight in children in India (48%) is almost twice as high as the average prevalence for the 26 sub-Saharan African countries that have similar data (25%). The proportion of children under age five years who are underweight ranges from 20% in Sikkim and Mizoram to 60% in Madhya Pradesh. In addition to Madhya Pradesh, more than half of young children are underweight in Jharkhand and Bihar. Other states where more than 40% of children are underweight are Meghalaya, Chhattisgarh, Gujarat, Uttar Pradesh and Orissa. In Meghalaya, Madhya Pradesh and Jharkhand, more than one in every four children is severely underweight. Although the prevalence of underweight is relatively low in Mizoram, Sikkim and Manipur, even in these states more than one third of children are stunted. Wasting is most common in Madhya Pradesh (35%), Jharkhand (32%) and Meghalaya (31%) National Family Health Survey.

Fig. 1. Nutritional status of women and men of 15-49 years of age

Thirty-six percent of women and 34% of men are undernourished in India (Fig. 1) with a BMI less than 18.5, indicating a high prevalence of nutritional deficiency. Overweight and obesity are emerging problems in India. Thirteen percent of Women and 9% of men are overweight or obese. The simultaneous occurrence of overnutrition and undernutrition indicates that adults in India are suffering from a dual burden of malnutrition. Only 52% of women and 57% of men are at normal weight for their height (NFHS-3). The proportion of women who are too thin varies substantially by state and region of the country. More than 40% of women are too thin in Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh and Orissa. In 13 states, more than 35% of women are too thin. Delhi, Kerala, Punjab and six small north-eastern states have the lowest proportion of women who are too thin (less than 20%). The proportion of women who are overweight or obese, although much lower overall than the proportion that are too thin, varies substantially by state. More than one-quarter of women in Punjab, Kerala and Delhi are overweight or obese. Tamil Nadu and Goa also have a high prevalence of overweight and obesity (more than 20%). The % of women who are overweight or obese is lower than the % that is too thin in every state except Delhi, Punjab, Sikkim, and Kerala. Obesity (BMI greater than equal to 30) is highest in Punjab (9%) and Delhi (8%) (NFHS-3).

Vitamin and Mineral Deficiency Scenario in India

Every day, more than 6,000 children below the age of five die in India. More than half of these deaths are caused by malnutrition mainly lack of vitamin A, iron, iodine, zinc and folic acid. About 57% of pre-schoolers and their mothers have subclinical vitamin A deficiency (Micronutrient initiative, 2007). Anaemia prevalence
among children under five years is 69% and among women it is over 55% (National family health survey, 2005-06). The consequences of micronutrient malnutrition are unacceptably high morbidity and mortality (National Nutrition Monitoring Bureau, 2002). Vitamin A, iron and zinc deficiency when combined constitute the second largest risk factor in the global burden of diseases; 330,000 child deaths are precipitated every year in India due to vitamin A deficiency; 22,000 people mainly pregnant women, die every year in India from severe anaemia; 6.6 million children are born mentally impaired every year in India due to iodine deficiency; intellectual capacity is reduced by 15% across India due to iodine deficiency; and 200,000 babies are born every year with neural tube defects in India due to folic acid deficiency and 7.4 million low birth weight babies are born every year. Out of 26 million children born every year in India, approx.1.83 million die before their fifth birthday. Half of these children actually die within a month of being born (Prakesh, 2008). The reason behind this entire disastrous scenario is the intake of micronutrient which is far from satisfactory and largely less than 50% RDA is consumed by over 70% of the Indian population (National Nutrition Monitoring Bureau, 2002). In NFHS-3, anaemia in children was measured and it was found that seven out of every 10 children of age 6-59 months in India are anaemic. Three percent of children of age 6-59 months are severely anaemic, 40% are moderately anaemic and 26% are mildly anaemic. Anaemia among children is widespread throughout India. The prevalence of anaemia varies from 38% in Goa to 78% in Bihar. Seven percent of children in Rajasthan and Punjab are severely anaemic, more than twice the levels in India as a whole. Almost half of children in Uttar Pradesh, Bihar, Chhattisgarh, Andhra Pradesh, Madhya Pradesh, and Rajasthan are moderately or severely anaemic.

Fig. 2. Anaemia status of children of age 6-59 months by whether or not they are malnourished

Micronutrient deficiency, particularly an inadequate intake of Iron, has a direct impact on nutritional status of young children and is most common cause of anaemia. Children who are stunted, wasted or underweight are much more likely than other children to suffer from moderate to severe anaemia (Fig. 2). Half of young children who are stunted or underweight are moderately or severely anaemic, compared with 36-37% of those who are not stunted or underweight.

Fig. 3. Anaemia among children of age 6-59 months by mothers education and household wealth

Both the mother’s education and household wealth affects the prevalence of anaemia in children. The prevalence of anaemia decreases from 75% among children whose mother has no education to 55% among

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children whose mother has 12 or more years of education. Anaemia decreases steadily from 76% among children in the poorest households to 56% among children in the wealthiest households (Fig. 3). Even in the highest education and wealth group, more than half of children are anaemic. This is clear indication of how pervasive children’s anaemia is in population (NFHS-3).

Fig. 4. Anaemia status of children age of 6-59 months by mothers anaemia status

An intergenerational examination of anaemia shows that the likelihood of a child being anaemic is strongly related to the mother’s anaemia status (Fig. 4). The prevalence of anaemia in children of age 6-59 months increases steadily with the mother’s level of anaemia, reaching 82% for children of mother’s who are severely anaemic. All of the increase is in the moderate and severe categories of anaemia. One third of the children whose mothers are not anaemic are moderately anaemic compared with half of children whose mothers are severely anaemic. Severe anaemia is rare for children whose mothers are not anaemic (2%). Children whose mothers are severely anaemic are more than six times as likely to be severe anaemic as children whose mothers are not anaemic. Although the prevalence of anaemia among women varies widely among the states, it is widespread in every state. The highest prevalence of anaemia in women (more than 60%) is found in eight contiguous states along the East Coast of India continuing north through Jharkhand and Bihar into the Northeast. Severe anaemia is highest in Assam and Andhra Pradesh. The lowest levels of anaemia are in five states that are widely scattered throughout the country (Punjab, Manipur, Mizoram, Goa and Kerala). Even in these states, however more than 30% of women are anaemic. The geographical pattern of anaemia for men is generally similar to the pattern for women. The lowest prevalence of anaemia for both women and men is in Kerala (NFHS-3).

The loss due to micronutrient deficiency costs India 1% of its GDP. This amounts to a loss of Rs. 27,720 crore per annum in terms of productivity, illness, increased health care costs and health (Prakash, 2008). The epidemiological findings revealed that prolonged vitamin and mineral deficiency can lead to DNA damage and increase the risk of developing cancer (Bruce et al., 2002). Thus the acute deficiency of vitamins and minerals may be the reason behind high % of cancer in developing countries. Despite the fact that India is one of the first countries to start anaemia control programme along with initiating vitamin A supplementation, both as early as 1970’s, the current scenario is not satisfactory.

For almost two years now all the states are depleted of iron and folic acid tablet stocks for pregnant women acknowledging that anaemia contributes to 20% of maternal deaths every year in India (Prakash, 2008). Progress in reducing number of hunger people world wide

Target set at the 1996 world food summit was to halve the number of undernourished people by 2015 from their number of 824 million in 1990-92, but in 2009, the number had climbed to 1.02 billion people. The world
food summit goal is a global goal adopted by the nations of the world; the present outcome indicates how marginal the efforts were in face of the real need. So, overall, the world is not making progress towards the world food summit goals.

Why does hunger exist?

In purely quantitative terms, there is enough food available to feed the entire global population and yet one in nearly seven people is going hungry. One in three children is underweight. The various causes of hunger are:

Nature: Natural disasters such as floods, tropical storms and long periods of drought are on the increase with calamitous consequences for food security in developing countries. Drought is now the single most common cause of food shortage in the world. In 2006, recurrent drought caused crop failures and heavy livestock losses in parts of Ethiopia, Somalia and Kenya.

War: From Asia to Africa to Latin America, fighting displaces millions of people from their homes, leading to some of the world’s worst hunger emergencies. At the end of 2005, global number of refugees was at its lowest level, but last few years have witnessed a significant increase in refugee numbers due to violence taking place in various parts of the world. By the end of 2008, total number of refugees exceeded 10 million and number of conflict induced internally displaced persons reached some 26 million worldwide.

Poverty Trap: In developing countries, farmers often cannot afford seed to plant the crops that would provide food for their families. Nor does the poverty-stricken person have enough money to buy or produce enough food to feed themselves and their families. So, the poor are hungry and their hunger traps them in poverty. Poor health, low levels of energy and mental impairment due to hunger leads them to even greater poverty by reducing their ability to work and learn.

Agricultural Infrastructure

The improved agriculture infrastructure can be the quickest fix for the poverty and hunger. But, unfortunately developing countries lack the good agricultural infrastructure like good roads, warehouses, irrigation etc. The results are high transport costs, lack of storage facilities and unreliable water supplies which ultimately limits the agricultural yields and access to food. Although economy of most of the developing countries depend on agriculture. But, their government economic planning often emphasises more on urban development.

Requirements for ending hunger: Implementation of Food as a Basic Human Right

A world without hunger means when adequate food is a human right. There is growing agreement that no nation, government authority, or faction has the right to starve its own or neighbouring people.

A growing Food supply

The present world is not short of food. But, due to low purchasing power and poor and inequitable trading policies people don’t have proper access to food. If the food that is currently available will be evenly distributed among 6.04 billion people on earth (providing each individual with a minimum intake of 2,500 calories), there would be still a surplus left for 800 million people. Thus, in the present world problem is not production but clearly of access and distribution. But there are 8 billion people to feed by 2020, thus, while food production is on the increase, it is less than the population increase. So, a definite increase in crop yield is required in coming
years. There is also concern of hazards, new plant and animal diseases, increased ultraviolet radiation, air pollution, climate change and sea level rise that might constrain the continued growth in food production. There are also socioeconomic constraints of inadequate markets, infrastructure and research investment and limited access by poor farmers to land, capital and technology.

*Adequate household income*

Poverty or inadequate household income is one of the main reasons of hunger in the world. The improvement in the productivity will not only supply more food, but will also provide more opportunities of employment in the developing world. Increasing income as a prime mode of ending hunger is also not enough. Even after the average household income is raised above the poverty level, there is still need for a comprehensive safety net.

*Safety net*

A world without hunger will still face natural and technological disasters that require emergency assistance. Poor people (even those whose average income is above the poverty level for food) will still require occasional income maintenance and supplementation, since swing in crop production, income, illness and loss will continue to generate a need for additional entitlement.

*Famine prevention*

In 1992-93, a major drought affected Southern Africa, reducing crop yields in some countries by as much as 50%. But, no famine was there. It was due to the remarkable achievements at national and international level. Efforts were made to prevent the occurrence of famines by providing early warning, identifying vulnerable populations, delivering emergency food aid, and providing opportunity for work and income. Thus, it is possible to anticipate widespread food shortages and to deliver needed food, quickly, almost anywhere in the world.

*Coping with surprise*

The unexpected surprises like new diseases on negative side can seriously disrupt plant or animal production. While on the positive side the new discoveries in biotechnologies, breeding, etc can provide substantial improvement in yields and nutrition. Thus, for well planned efforts to end hunger there is need to deal with surprises to take advantages of opportunity and to maintain social and technical flexibility to cope with surprising adversity.

*Food Fortification*

In general, the emphasis to reduce the micronutrient deficiency has been on agronomic management and plant breeding (conventional breeding and transgenic selection) which are considered as time consuming and expensive and may not be feasible for economically disadvantaged developing countries (Fidler et al, 2003). In addition, genetically engineered crops may face the opposition of consumer and governments due to their concerns about genetically modified (GM) foods. Thus an alternative cost effective way to deliver the adequate quantity of vitamins and minerals through the stable food system is required for urgently addressing the prevailing deficiency problems. Short term strategy such as nutrient supplementation (Giving a large dose of the micronutrients as a medicinal supplement) have been effective in providing immediate relief in several countries, but there is concern, that this approach is not sustainable in the long time. Further, consumption of large amount of vitamin A in the form of supplement...
capsule) leads to increased levels of circulative retinoic acid, which can cause teratogenicity (Birth defects) in the fetus. However, vitamin A in food results in much lower increase in retinoic acid (Buss et al, 1994). Thus, food fortification is more cost effective and sustainable solution. It can play a major role in improving the diet and meeting the micronutrient needs of the population. More than 70% of white rice consumed in U.S is enriched and fortified (Sajid et al., 2008). Iron fortification in rice flour has been promoted in Sri Lanka, and Philippines (Hettiarachchi et al., 2004). But it is not common in most developing countries.

Special need programmes

The special need programmes like anaemia control, immunization, and low-cost treatments of diarrhea, malaria need to be encouraged for Women, children and sick. Efforts to encourage and maintain breast feeding have been successful in many developing countries and the fraction of mothers who nourish their young in this way has held stable, or is even increasing. Effective low-cost systems of maternal and child health care supported by adequate nutrition education have already been demonstrated in many countries. To prevent anaemia in women and particularly those who are pregnant require a regular iron supplement. The availability of de-worming drugs as well as new research hold considerable promise for attacking the intestinal parasites that now prevent a billion people from absorbing the full nutritional value of the food that they eat. But, in the long run, basic improvements in sanitation and safe drinking water will also be necessary.

Conclusion

A lasting end to hunger requires an immediate attention. The increased food production, providing food in an environmentally sustainable manner, proper distribution of food and raising the income of poor people can be the keys while addressing the hunger. To reduce under nutrition to a minimum the world must not only be more wealthy, but also more willing and able to provide entitlements as needed to poor and vulnerable groups. To end the wasting and stunting of children and the exhaustion of their mothers require sufficient spacing between children to allow for their own and their mother’s nutrition and that allows for society’s ability to provide the needed services, education, and jobs to support those who are born. To end micronutrient deficiencies and nutrient depleting illness requires not only more diverse diets, but also the income to support widespread access to adequate sanitation, safe water, public health, and primary care services including immunization and nutritional and health education.

References


