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# Global Poverty, Hunger, and Malnutrition: 2 A Situational Analysis

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## Abstract

The world continued to face problems of poverty, hunger, and malnutrition, although good progress has been made in this direction by national governments and international development institutions. About 52 % of the population in the developing world thrives on less than \$1.25 per day during 1981 which has declined significantly to 17 % during 2011. Despite over 59 % increase in population in the developing world, the people living in extreme poverty have significantly declined from 1.96 million in 1981 to 1.01 million in 2011. Sub-Saharan African and South Asian regions are home to most number of poor people. Poverty is both a cause and a consequence of hunger. Still about 805 million people are suffering from chronic hunger and nearly two billion people worldwide are affected by micronutrient deficiencies. Among children, about 162 million (one fourth) under five years of age are chronically malnourished (stunted), about 99 million are underweight, and nearly 55 million are acutely malnourished (wasted). In this context, a situational analysis is carried out involving an integrated approach including agricultural development as it is the key for eradicating poverty and reducing the prevalence of hunger and malnutrition. In addition, biofortification of food crops is a feasible alternative to reduce malnutrition.

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## Keywords

Hunger • Malnutrition • Poverty • Role of Agriculture

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## 2.1 Introduction

Poverty and food and nutrition insecurity have been some of the most pressing global challenges of the twentieth century the world has been facing and will continue to be facing in the twenty-first century. Many development programs in several countries have been targeted toward alleviating poverty, hunger, and malnutrition and are being continued. Though the efforts paved the way toward reducing the intensity of these ills, it could not improve on regional imbalance and inequity. The World Bank Position Paper on Poverty and Hunger defined food security as “food security must assure access by all people at all times to enough food for an active and healthy life” (World Bank 1986). The 1996 World Food Summit added nutrition aspects and defined food security as “when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO 1996; DFID 2003). Thus, food insecurity was defined as the lack of access to enough, safe, and nutritious food for a healthy and active life. The complex interrelationship between food security, hunger, and poverty gained recognition from developmental organizations and governments globally and started making serious efforts to alleviate poverty and ensure food security.

During the 1996 World Food Summit, it was targeted to halve the number of chronically undernourished people by 2015. This goal was at the heart of the Rome Declaration on World Food Security and formed the basis of the first Millennium Development Goal (MDG). To eradicate extreme poverty and hunger, the aim was set to halve, between 1990 and 2015, the proportion of people whose income is less than \$1.25 a day. At that time, nearly 788 million people were chronically undernourished and about two billion people were suffering from different types of micronutrient deficiencies, including vitamin A, iron, and iodine deficiencies (FAO 2001). Though good progress has been made across the globe toward alleviating poverty, providing food

and nutritional security, unfortunately, many countries are not on track to achieve the goal of reducing the number of people suffering from hunger, malnutrition, and poverty (Gómez et al. 2013). The UN Secretary-General recently announced meeting the challenge of “zero hunger” to be achieved by 2025.

About one third of preschool children in developing countries suffer from malnutrition—causing the death of 5–10 million of these children every year (FAO 2014; Andersen 2015). Inequality is also posing a serious problem as the richest one percent of the world’s population earns as much as 57 % than the rest (UNDP 2002), and relative global income distribution is getting worse. It is evident that poverty and inequality contributes to national instability and armed conflict (Messer Ellen et al. 2001). The linkage between poverty and inequality, on the one hand, and instability and crime, on the other, particularly in urban areas is well known (Caldeira Teresa 2000). In 1960, average per-capita incomes in industrialized countries were nine times the average per capita in sub-Saharan Africa, and the gap has widened to more than 20 times. The condition is deteriorating mainly in low-income and sub-Saharan countries. The governments and their development partners are now refocusing on the plight of the poor and the hungry and continue to put efforts toward reducing these ills from the society.

To ensure adequate and nutritious food for everyone, the capacity and resources in the world are sufficient enough. Nevertheless, the large difference in availability of food across the regions of the world still persists. The efforts of governments and development agencies during the last two to three decades resulted in a decline in poverty and hunger. But about 805 million people still suffer from chronic hunger and nearly two billion people worldwide are affected by micronutrient deficiencies. Among children, the estimates indicated that about 162 million (one in four globally) under five years of age are chronically malnourished (stunted, inadequate length or height for age), almost 99 million

are underweight (about 15 % of total children), and about 55 million are acutely malnourished (wasted) (UN 2014; IFPRI 2014a). Apart from the ethical dimensions of this complex problem, there are huge human, social, and economic costs to society at large in terms of lost productivity, health, well-being, decreased learning ability, and reduced fulfillment of human potential.

Poverty, hunger, and malnutrition are interrelated phenomena. The circumstances of poor people reinforce them to hunger and malnutrition. Poor people do not have enough money to buy or produce enough and nutritious food for themselves and their families and, in turn, tend to be weaker and cannot produce/earn enough to buy more food. The persons chronically undernourished are gripped in a vicious cycle—not getting adequate and nutritious food on a regular basis and therefore not being able to lead a healthy and active life and earn for their livelihood, not having access to health care, and thus not being able to either produce or procure required nutritious food. Poverty is both a cause and a consequence of hunger. Thus, there is close and complex interaction between hunger, malnutrition, and poverty, and this phenomenon portrays poverty trap—the poor are hungry and their hunger traps them in poverty (Ingutia et al. 2009).

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## 2.2 Poverty Reduction: A Peep into Progress

Poverty is a social evil affecting the quality of human life, food intake, and other surroundings the people are suffering from. The poor household, unable to access quality and nutritious food and health services, is not able to produce more and support the family. There are different measures of poverty; the most prevalent is income or expenditure measure. The world is now growingly accepting poverty as a multidimensional concept encapsulating deprivation in different dimensions limiting opportunities for a happy, healthy, and productive life. The key deprivations include income poverty, hunger,

malnutrition, gender bias, social exclusion, and lack of access to education, health services, and housing (Grewal et al. 2012; IFPRI 2014a).

The Herculean task of reducing poverty by the international developmental organizations and national governments has made dramatic effects. Extreme poverty, less than US\$1.25 of income per day PPP (2005), in the world has decreased considerably in the last three decades (Table 2.1 and Fig. 2.1). About 52 % of the population in the developing world lived on less than \$1.25 per day in 1981. This has declined significantly to 17 % in 2011. Furthermore, despite over 59 % increase in population in the developing world, the people living in extreme poverty have significantly declined from 1.96 million in 1981 to 1.01 million in 2011. The global poverty reduction has been mainly due to growth progress in the fast-growing economies of East Asia and to a lesser extent of South Asia (DFID 2005). However, the persons living in extreme poverty (1.01 billion) are still very high, requiring incessant efforts in this direction.

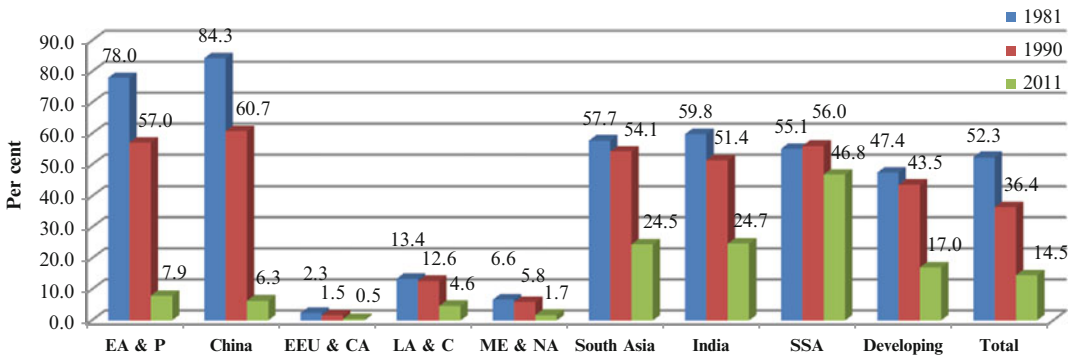
The regional pattern of decline in persons in extreme poverty line shows a disturbing picture. Though the percentage of the poor has declined in all the regions, the number of poor people in extreme poverty is steadily increasing in sub-Saharan Africa (Table 2.1) between 1981 and 2011. The people living below \$1.25 a day in the sub-Saharan African region has almost doubled in 2011 (415.4 million) compared to 1981 (210.11 million). As a result, the share of extremely poor people in sub-Saharan Africa has increased from merely 11 % of the world in 1981 to about 41 % presently.

The dramatic decline in the number of extremely poor people (from 1107.4 million in 1981 to 160.76 million in 2011) as well as poverty rate (from 78 % to 7.9 %) was observed in East Asia. This was mainly due to the high growth of economy particularly in China where the rate of poverty has declined from more than 84.27 % in 1981 to merely 6.26 % presently (Fig. 2.1). India accounts for about 29.8 % of the world's extreme poor (higher than 21.8 % in 1981); Nigeria comes next, contributing 9.8 %

**Table 2.1** Population below extreme poverty line

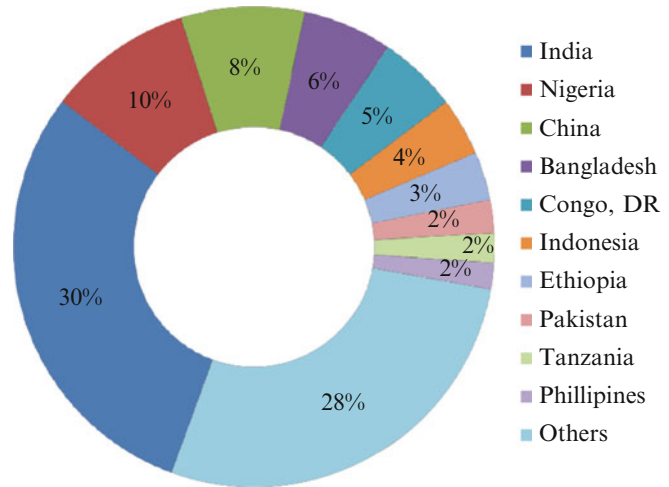
Regions	At \$1.25 a day (PPP)			At \$2 a day (PPP)		
	1981	1990	2011	1981	1990	2011
Number of poor people (millions)						
East Asia and the Pacific	1,107.44	939.11	160.76	1,312.87	1,333.79	459.58
China	837.55	689.51	84.14	972.12	960.82	394.62
Europe and Central Asia	12.55	7.15	2.35	35.75	31.48	10.35
Latin America and the Caribbean	42.49	55.17	27.63	86.63	97.61	55.38
Middle East and northern Africa	15.26	13.01	5.64	51.82	52.88	38.69
South Asia	570.33	620.47	398.95	810.65	958.75	979.47
India	427.42	446.26	301.26	620.70	721.93	862.42
Sub-Saharan Africa	210.11	287.07	415.4	287.58	389.20	616.58
Developing world	1,958.27	1,921.74	1,011.37	2,585.29	2,863.78	2,160.05
Poverty head count ratio (% of population)						
East Asia and the Pacific	77.96	57.01	7.93	92.41	80.79	22.67
China	84.27	60.74	6.26	97.81	84.64	29.79
Europe and Central Asia	2.88	1.54	0.49	8.32	6.78	2.16
Latin America and the Caribbean	12.58	12.63	4.63	23.77	22.36	9.28
Middle East and northern Africa	8.79	5.77	1.69	30.06	23.46	11.59
South Asia	61.35	54.09	24.50	87.20	83.58	60.15
India	59.77	51.36	24.67	86.63	82.62	72.42
Sub-Saharan Africa	52.76	56.02	46.81	72.20	75.95	69.48
Developing world	52.71	43.35	16.99	69.59	64.60	36.18
Share (in the world)						
East Asia and the Pacific	56.55	48.87	15.90	50.78	46.57	21.28
China	42.77	35.88	8.32	37.60	33.55	18.27
Europe and Central Asia	0.64	0.37	0.23	1.38	1.10	0.48
Latin America and the Caribbean	2.17	2.87	2.73	3.35	3.41	2.56
Middle East and northern Africa	0.78	0.68	0.56	2.00	1.85	1.79
South Asia	29.12	32.29	39.45	31.36	33.48	45.34
India	21.83	23.22	29.79	24.01	25.21	39.93
Sub-Saharan Africa	10.73	14.94	41.07	11.12	13.59	28.54
Developing world	100.00	100.00	100.00	100.00	100.00	100.00

Source: <http://iresearch.worldbank.org/PovcalNet/index.htm>



**Fig. 2.1** Level of extreme poverty in different regions

**Fig. 2.2** Top ten countries with largest share of global extreme poor, 2011 (%)



(higher than 1.8 % in 1981) followed by China, accounting for about 8.3 % (down from 42.77 % in 1981).

During 1981 and 1990, the magnitude of extreme poverty was highest in East Asia, whereas presently about 80 % of the world's poor lives in South Asia and sub-Saharan Africa, and the share has doubled from 40 % in 1981. In South Asia, however, the number of people living below extreme level has decreased from 570.33 million in 1981 to 398.95 million in 2011, presently housing nearly 40 % of the world's poor (higher than 29 % in 1981). Growth is the major driver of poverty reduction and was instrumental in halving extreme poverty between 1990 and 2010 (World Bank 2015).

The extreme poverty head count in Latin America and the Caribbean region, after remaining stable at approximately 12 % for the last two decades of the twentieth century, has declined to merely 4.6 % in 2011. About three-fifths of the world's extreme poor are concentrated in just five countries: India, Nigeria, China, Bangladesh, and the Democratic Republic of the Congo (Fig. 2.2). Adding five more countries (Indonesia, Ethiopia, Pakistan, Tanzania, and the Philippines) would comprise just over 72 % of the extreme poor.

China and India, the most populous countries in the world, have played a great role in the global reduction of extreme poverty. The two

countries together lifted about 876.6 million people out of poverty from 1981 to 2011, about 92 % of the total people lifted from extreme poverty in the world during the period. The large reduction in poverty rates at the global level is mainly due to growth in China (Chen and Ravallion 2012). Even though there is a tremendous increase in global population during the period, the poverty rate has declined significantly from 52.7 % to merely 17 % over the period, a great achievement. There are countries, mainly in sub-Saharan Africa, where the number of people living in extreme poverty is equal to or more than 40 % of the population in 2011 and have a population of less than 30 million people. Nonetheless, reducing poverty in these countries is a moral imperative and as important as poverty reduction in any other country (World Bank 2015).

Although there is significant progress made in reducing the proportion of people below extreme poverty line, the progress has been slower at the higher poverty lines. In total about 2.16 billion people (a marginal decline from 2.59 billion in 1981) are living on less than US\$2 per day in 2011 (Table 2.1), the average poverty line in developing countries and another common measurement of deep deprivation (World Bank 2015a). Sumner (2012) argues that the international poverty line of US\$2 a day is conceptually stronger as it is the median average of poverty lines of all developing countries (Chen and

Ravallion 2008) and close to the poverty lines defined by poor people (Narayan et al. 2009).

The extreme inequality is prevalent in the distribution of income across the world population: the average income of the richest 5 % is estimated to be nearly 200 times that of the poorest 10 % (UNCTAD 2013). The gap between the rich and poor is widening in some of the developing countries (Milanovic 2011). The poverty level is not only extreme in low-income countries but also prevalent in medium-income countries (Sumner 2010) with higher inequality. Poverty profiling by Olinto et al. (2013) revealed that about 78 % of the poor resides in rural settings and most likely to earn from agriculture (63 %)—most of them are smallholders and agricultural laborers. The gender gap in education is concentrated among the poor. The poor have lower access to basic services like water, electricity, and sanitation. The national governments are mainly responsible for achieving the goal of reducing poverty (Besley and Burgess 2003).

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### 2.3 Reduction in Hunger and Malnutrition: Progress to Date

Hunger and malnutrition are two interrelated challenges the world is facing continuously and need increased attention toward providing food and nutritional security to the vulnerable sections. There are regions where a section of the people doesn't even get enough food to eat on a regular basis, making them weaker and less productive and in turn unhealthy and poor. The reduction in hunger around the globe continues incessantly with the interventions from governments as well as the international development community. According to latest FAO estimates, about 805 million people are estimated to be chronically undernourished in 2012–2014, more than 100 million lower over the last decade, and 209 million lower than in 1990–1992 (FAO, IFAD, and WFP 2014). The incidence of undernourishment has declined from 18.7 % to 11.3 % globally and from 23.4 % to 13.5 % for the

developing countries during the corresponding period (Table 2.2 and Fig. 2.3).

The target of halving proportion of people undernourished by 2015 from the level of 1990–92 set under UN Millennium Development Goal 1c seems attainable, even many countries have already achieved, although the World Food Summit target of halving the number of undernourished people by 2015 seems far from reach. Of the total number of people undernourished globally, about 98.2 % resides in developing countries. Nearly 63 developing countries not only achieved the target, but even in about 11 countries, the proportion of undernourished people is below 5 % since 1990–1992. In this direction, the growing concern is that 805 million people in the world still do not get enough food on a regular basis.

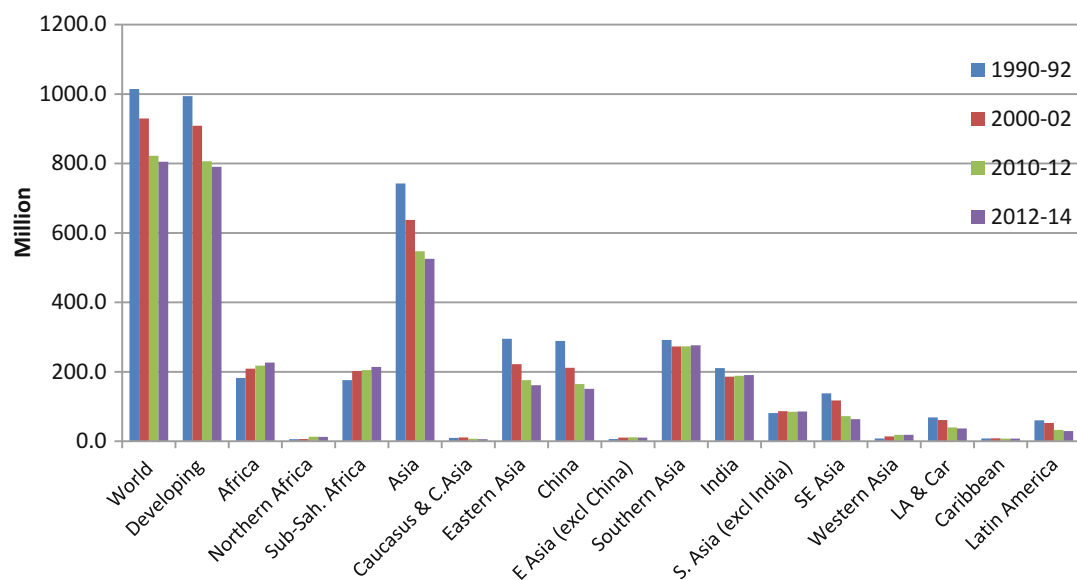
Notwithstanding the good progress made in this direction, differences are apparent across the regions. Nearly one fourth of people are chronically undernourished in sub-Saharan Africa, while Asia (the world's most populous region) is home to the majority of hungry people (526 million—about two thirds of the total hungry people in the world). The persons not getting enough food has increased in the sub-Saharan African region by 21 %. Although the prevalence of hunger is consistently low in northern Africa (less than 5 %), the number of people not getting enough food to eat is estimated to be doubled (from 6 million in 1990–1992 to 12.6 million in 2012–2014). Similarly, in western Asia the number of chronically undernourished people has increased by 131 % (Table 2.2). Fast reduction in the prevalence of undernourishment has been achieved in East and Southeast Asia, whereas progress was slow and insufficient in South Asia. The main concern here is that the share of South Asia in the total number of undernourished people has increased from 28.8 % in 1990–1992 to 34.3 % in 2012–2014. Similarly sub-Saharan Africa accounts for about 26.6 % of the hungry people in the world, increasing from 17.3 %.

The highest progress in hunger reduction was achieved in Latin America and the Caribbean region, where the prevalence of hunger falls nearly by two thirds since 1990–1992 and the region is close to five percent hunger prevalence.

**Table 2.2** Prevalence of undernourishment around the world

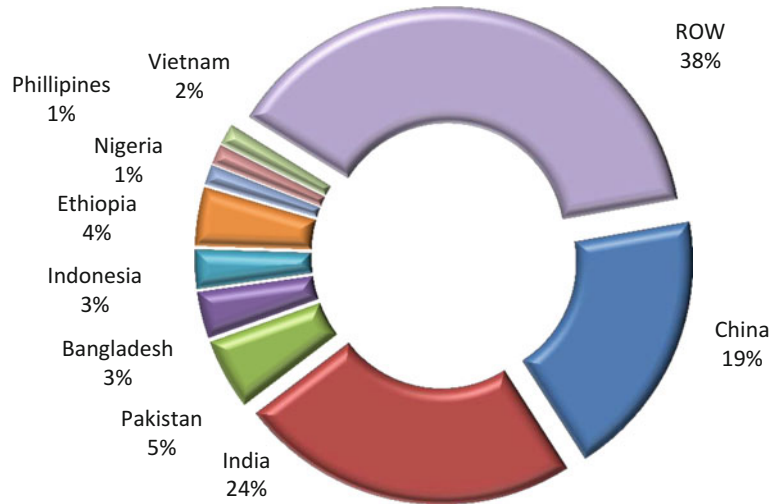
Regions	Number of undernourished ( <i>millions</i> ) and prevalence (%) of undernourishment						
	1990–1992		2000–2002		2012–2014 <sup>a</sup>		% Change in number
	Number	%	Number	%	Number	%	
Developed regions	20.4	<5	21.1	<5	14.6	<5	–28.4
Developing regions	994.1	23.4	908.7	18.2	790.7	13.5	–20.5
Africa	182.1	27.7	209.0	25.2	226.7	20.5	24.5
Northern Africa	6.0	<5	6.5	<5	12.6	6.0	110.0
Sub-Saharan Africa	176.0	33.3	202.5	29.8	214.1	23.8	21.6
Asia	742.6	23.7	637.5	17.4	525.6	12.7	–29.2
Caucasus and Central Asia	9.6	14.1	10.9	15.3	6.0	7.4	–37.5
East Asia	295.2	23.2	222.2	16.0	161.2	10.8	–45.4
East Asia excluding China	6.4	9.7	10.4	14.5	10.4	13.5	62.6
China	288.9	23.9	211.7	16.1	150.8	10.6	–47.8
Southeast Asia	138.0	30.7	117.7	22.3	63.5	10.3	–54.0
South Asia	291.7	24.0	272.9	18.5	276.4	15.8	–5.2
South Asia excluding India	81.0	24.5	86.7	21.0	85.8	17.3	5.9
India	210.8	23.8	186.2	17.6	190.7	15.2	–9.5
Western Asia	8.0	6.3	13.8	8.6	18.5	8.7	131.3
Latin America and the Caribbean	68.5	15.3	61.0	11.5	37.0	6.1	–46.0
Caribbean	8.1	27.0	8.2	24.4	7.5	20.1	–7.4
Latin America	60.3	14.4	52.7	10.7	29.5	5.1	–51.1
Oceania	1.0	15.7	1.3	16.5	1.4	14.0	40.0
World	1,014.5	18.7	929.9	14.9	805.3	11.3	–20.6

Source: FAO, IFAD, and WFP (2014)

<sup>a</sup>Estimates**Fig. 2.3** Number of undernourished people across regions of the world



**Fig. 2.4** Top countries with higher numbers of undernourished people



Concerted efforts of the national governments in the region and political commitment paved the way to this achievement. The Oceania region has the lowest number of undernourished people presently. But despite the low burden of hunger in the region, the number of hungry people has increased by 40 % over the period. Furthermore, the rising undernourishment is accompanied by an increasing burden of overweight and obesity, exposing the region to the double burden of malnutrition (FAO, IFAD, and WFP 2014).

Overnutrition and undernutrition coexist in most countries (Gillespie and Haddad 2001). The double burden of malnutrition is growing over the globe, as about 17 % of preschool children are underweight, one third suffer from iodine deficiency, 40 % of women of reproductive age are anemic (UNSCN 2010), and about one fourth of the global population is overweight (Finucane et al. 2011). India is the home of about 24 % of critically undernourished people globally (Fig. 2.4), followed by China (19 %), Pakistan (5 %), Ethiopia (4 %), and Bangladesh (3 %).

IFPRI in its global nutrition report revealed that of the 117 countries for which data for three indicators of malnutrition are available (stunting, wasting, and overweight), 17 countries have all three types of malnutrition problem in children under five years of age (IFPRI 2014b). Only 43 countries have only one type of child growth problem, while 64 countries have multiple types

of under-five malnutrition. Only ten countries do not have these three indicators as a serious issue. The report also highlighted that there is lack of equity in nutrition (Black et al. 2013), and the malnourished children need extra support and finances to be out of this problem which their families are not able to support (Table 2.3).

## 2.4 Role of Agriculture

In spite of overwhelming progress in reducing poverty, hunger, and malnutrition during the recent decades, there are still about 1.01 billion people who are extremely poor, nearly 805 million people do not get enough food to eat regularly, and nearly two billion people suffer from micronutrient deficiency. More than two thirds of the poor live in rural areas; majority of them depends on agriculture for livelihood support. It is evident that agricultural growth has a high poverty-reduction payoff (Cleaver 2012). The rapid agricultural growth is significantly correlated with the reduction in poverty rates and incidence of undernourishment (World Bank 2007) in developing countries. Studies reported that every 1 % increase in per capita agricultural output led to a 1.61 % increase in the incomes of the poorest 20 % of the population (Gallup et al. 1997). A cross-country analysis by Thirtle et al. (2001) concluded that, on average,



**Table 2.3** Countries with overlapping stunting, wasting and overweight in Children under five years of age

Overlap/indicator group	Number of countries	Total population (millions)	Countries
Stunting only	12	212	Democratic People's Republic of Korea, El Salvador, Guatemala, Honduras, Liberia, Nauru, Nicaragua, Solomon Islands, Togo, Uganda, Vietnam, Zimbabwe
Wasting only	6	68	Guyana, Oman, Saudi Arabia, Senegal, Sri Lanka, Suriname
Overweight only	25	603	Algeria, Argentina, Belarus, Belize, Bosnia and Herzegovina, Brazil, Chile, Costa Rica, Dominican Republic, Gabon, Georgia, Kazakhstan, Kuwait, Kyrgyzstan, Mexico, Mongolia, Montenegro, Morocco, Paraguay, Peru, Serbia, The former Yugoslav Republic of Macedonia, Tunisia, Uruguay, Uzbekistan
Stunting and wasting only	38	2,462	Bangladesh, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Eritrea, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Haiti, India, Kenya, Lao People's Democratic Republic, Maldives, Mali, Mauritania, Myanmar, Namibia, Nepal, Niger, Nigeria, Pakistan, Philippines, Somalia, South Sudan, Sudan, Tajikistan, Timor-Leste, United Republic of Tanzania, Vanuatu, Yemen
Stunting and overweight only	7	45	Armenia, Bolivia, Equatorial Guinea, Lesotho, Malawi, Rwanda, Swaziland
Wasting and overweight only	2	70	Republic of Moldova, Thailand
Stunting, wasting, and overweight	17	468	Albania, Azerbaijan, Benin, Bhutan, Botswana, Comoros, Djibouti, Egypt, Indonesia, Iraq, Libya, Mozambique, Papua New Guinea, São Tomé and Príncipe, Sierra Leone, Syrian Arab Republic, Zambia
Below cutoff for all three indicators	10	1,914	China, Colombia, Germany, Jamaica, Jordan, Republic of Korea, Saint Lucia, Tuvalu, United States of America, Venezuela

Source: IFPRI (2014)

every 1 % increase in agricultural yields reduced the number of people living on less than US\$1 a day by 0.83 %.

Since the poor are concentrated in rural areas in many countries, the key to growth and poverty reduction lies in the rapid growth of agriculture and rural development (Wiggins 2005; Dorward et al. 2004). Notwithstanding the role of agricultural development on reduction in poverty and hunger in developing countries, investment in agriculture has declined since the 1980s, both by developing country governments and development institutions. The share of agriculture in total bilateral and multilateral aid decreased from 22.5 % in 1979–1981 to a low 5.4 % in 2003–2005 though improved marginally recently to 6 % (Cleaver 2012; Grewal et al. 2012).

## 2.5 Micronutrient Malnutrition and Biofortification

Although the issue of serious concern is that about one billion people are hungry in the world, the problem of micronutrient malnutrition, or hidden hunger (von Grebmer et al. 2014), has not been given much attention (Kristof 2009; The Economist 2011). Micronutrient deficiency in human diet can pose a serious concern for human health and can result in lack of stamina, impaired physical and cognitive development, morbidity, and blindness (Stein 2015). The estimates indicated that about seven billion people are suffering from either form of malnutrition and nearly five billion people from

micronutrient deficiency; about two billion people worldwide are anemic, many due to iron deficiency (WHO 2015a), two billion people suffer from iodine deficiency (de Benoist et al. 2008), and about 17.3 % of the population is affected by zinc deficiency (Wessells and Brown 2012). It is estimated that 250 million preschool children are vitamin A deficient, and a substantial proportion of pregnant women in at-risk areas are suffering from vitamin A deficiency (WHO 2015b).

Linking agriculture with health and nutrition by appropriate agriculture, health, and nutrition policies in place seems to be a sustainable solution to malnutrition (Rouse and Davis 2004; Graham et al. 2007; Hawkes and Ruel 2006; World Bank 2007a). Growing trend worldwide now is the use of new agricultural technologies like “biofortification” to address micronutrient malnutrition. Biofortification is “the process of adding nutritional value to a crop” (Montagnac et al. 2009). Stein (2015) reported that by far the most frequently named crop is rice, followed by maize and wheat, and then pulses, vegetables and fruits, cassavas, sweet potatoes, sorghums, and model plants. The primary focus is on the conventional breeding to enhance staple food crops with sufficient levels of minerals and vitamins to meet the needs of at-risk populations (Hotz et al. 2007; White and Broadley 2009). Evidence suggests that biofortification is a cost-effective means to provide micronutrients to the most vulnerable people (Bouis 1999; Nestel et al. 2006; Pfeiffer and McClafferty 2007; Qaim et al. 2007).

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## 2.6 Conclusions and the Road Ahead

Eradication of poverty, hunger, and malnutrition requires sustained political commitment at the highest level. It necessitates creating an enabling environment for improving food and nutrition security through policies, adequate investments, legal frameworks, and stakeholder participation. Institutional reforms are also inevitable for

promotion and sustainable progress in this direction (FAO, IFAD, and WFP 2014). An integrated approach is required to reduce the prevalence of hunger, including public and private investments to raise agricultural productivity; better access to inputs, services, technologies, and markets; measures to promote rural development; social protection for the most vulnerable, including strengthening their resilience to conflicts and natural disasters; and specific nutrition programs, especially to address micronutrient deficiencies in mothers and children under five years of age (FAO 2014).

Sub-Saharan Africa poses the utmost food security challenges, where the progress in improving access to food is slow, along with sluggish income growth, high poverty rates, and poor infrastructure. All these hamper physical and distributional access. In South Asia, the home of the largest number of hungry people, food management remains the greatest challenge and calls for reducing the wastages along with efforts to improve productivity of crops and access to food through research support and institutional reforms. Structural economic transformation, social transformation to a low level of inequality, and political transformation are essential elements of long-term poverty reduction (Sumner 2010).

A development of a single sector can't solve the complex problems of poverty, hunger, and malnutrition; a broad-based approach has to be followed to deal with the issues. Renewed interest and actions are required in enhancing productivity of agriculture and allied sectors like fisheries, forestry, rural development, social protection, public works, trade and markets, resilience to shocks, education and health, and other areas. There are newer and high-impact technologies available now (like biotechnology, biofortification, and nanotechnology), which offer further opportunities for boosting agricultural productivity and enhancing food quality and nutritional value. The use of these technologies along with appropriate related policies and institutions can usher in the speed of progress in this direction (von Braun 2010).

## References

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