

Food Security and Human Development: A Conceptual Framework

The evolving concept of food security

The term food security originated in the mid-1970s and attracted much global attention during the World Food Conference of 1974. Since then there has been considerable debate on the subject and several revisions to operational definitions of the term.¹ Developments in the discourse on the subject reflect both a greater understanding of the multi-dimensional challenges to food security, as well as changing perceptions on the importance of food security as a means to an end rather than a goal in and of itself over the years.

The definition of food security coined in the 1970s was primarily concerned with food supplies, as according to the Food and Agriculture Organization of the United Nations (FAO), it was the 'Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices.' The food crisis of 1973–75, which had come about through a series of bad weather events around the world and rapid increases in the price of petroleum, had given rise to the problems of food insecurity, famine, and hunger.² It thus led to deep interest in ensuring the stable availability of adequate food supplies, together with relatively steady prices at the national and global levels.

In 1983, the FAO revised this definition to incorporate the demand side of the issue, highlighting access to food at household and individual levels in addition to national and global levels, 'Ensuring that all people at all times have both physical and economic access to the basic food that they need.' The realization that availability alone could not ensure the adequate consumption of food had

dawned. There was an increasing interest in the link between poverty reduction and food security. A number of factors contributed to the dialogue in this period, including the era of structural adjustment in the 1980s, where poverty reduction and basic needs often took a backseat to debt management and macroeconomic stability, and the fact that the Green Revolution had not led to rapid improvements in poverty and malnutrition levels everywhere. Here, Amartya Sen's theory of famine highlighted the impact of personal entitlements to food access.³ A few years later in 1986, the World Bank also highlighted the temporal dynamics of food security by introducing the distinction between chronic and transitory food insecurity.⁴ The former is associated with factors such as low incomes and structural poverty, while the latter is often caused by events such as economic crises, conflicts, or natural disasters.

The 1990s saw further deliberations on the concept of food security and its widespread acceptance of the issue as a socio-political construct, as well as a moral and humanitarian matter. The importance of essential micronutrients, food composition, safe water, hygiene, sanitation, intra-household allocations, and effective livelihood strategies to reduce vulnerabilities and manage risks, was highlighted. Food security became a context specific concept that had to include people's food preferences. It also changed from an end in itself to a group of intermediating actions that could help promote a healthy and active way of life. The World Food Summit in 1996 defined it as, 'Food security, at the individual, household, national, regional and global levels is achieved 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

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active and healthy life.’ In 2001, the FAO report, *The State of Food Insecurity 2001* refined this definition further, ‘Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.’⁵ Food insecurity refers to a situation where people have inadequate physical, social or economic access to food as defined above.⁶ For the purpose of this report, the term food security will refer to the 2001 definition, which comprises four dimensions: availability, access, utilization and stability.

The importance of food security is reflected in the many global commitments made towards improving it. In 1996, leaders from 186 countries met at the World Food Summit and made a commitment to halve the number of undernourished people from about 800 to 400 million by 2015. At the United Nations (UN) Millennium Summit in the year 2000, the international community also made the commitment to halve the proportion of undernourished between 1990 and 2015 (under Goal 1, target 1C). However, progress towards these goals remains unsatisfactory. While the number of undernourished declined during the 1970s and 1980s, it has been increasing since the mid-1990s.⁷ The food, fuel and economic crises of 2006–09 have worsened the situation. The FAO estimated that there were 1.02 billion people undernourished in 2009, and this number only declined to 925 million in 2010. This is not only higher than the number of undernourished people before the crises but also higher than that which existed at the time that hunger reduction targets were set at the World Food Summit in 1996. The proportion of undernourished did decline between 1990–92 and 2010 from 20 to 16 per cent but the decline has been too slow to meet the target set under the Millennium Development Goals (MDGs).⁸

In South Asia, the present day obstacles to achieving food security arise from a

complex interplay of the domestic and global economy, political situation, social norms, natural environment, and household characteristics. Food availability is dependent on domestic production, imports, stocks, and aid. Access is constrained by incomes, purchasing power, distribution of assets, demographic factors, transport, market infrastructure, social security entitlements, and distribution programmes. The absorption and utilization of food suffers from inadequate health and sanitation facilities, as well as poor child feeding practices, eating habits and nutritional knowledge. Fluctuating prices, conflicts, and variations in the weather hurt the stability of food production, access, and utilization. The impact of food insecurity can be seen in the form of rising economic insecurities, deteriorating health outcomes, poor cognitive development, and conflicts and unrest.

The following sections of this chapter define the concepts of food availability, access, utilization, and stability, analyse the factors that cause food insecurity in South Asia and then discuss the impact of food insecurity on human development. Understanding these challenges and outcomes is essential as a first step towards designing effective interventions to improve individual food security in the region.

Dimensions of food security

Food security comprises four equally important dimensions: availability, access, utilization, and stability. Food security and the objective of ensuring healthy and active lifestyles cannot be realized if performance and achievements are poor along any of these dimensions.

Availability

Food availability refers to the supply side of food security and the availability of an adequate amount of food of suitable quality for consumption. Aggregate food availability is a function of domestic food

production, net food imports (imports minus exports), food aid, and built-up stocks of food (excluding any losses due to storage and handling). Domestic production is dependent upon agricultural conditions such as irrigation, climate, soil quality, availability of water and the length of the growing period, as well as government policies such as agricultural support prices.⁹ However, not every country can grow all the food it requires and many import a significant proportion of food-stuffs, the extent of which is limited by total foreign exchange earnings.

Per capita availability of food has increased in most South Asian countries over time. As shown in table 1.1, per capita dietary energy supply (DES) exceeds the minimum dietary energy requirement (MDER) across the region.¹⁰ However, per capita DES remains much lower in South Asia than in many other developing countries, including neighbours Iran and China, where DES was 3,040 and 2,970 kcal/person/day, against an MDER of 1,830 and 1,900 kcal/person/day, respectively, in 2005–07.¹¹

Access

Access to food is dependent on economic, legal, political and social structures that allow control over resources which can be used to acquire foods for a nutritious diet.¹² Income and employment levels, the prevailing market price of food products and control over land and other inputs needed to grow food affect the diversity of food eaten and the frequency of consumption. Well-developed market infrastructure, distribution systems, and transport facilities are also essential. The absence of such facilities prevents the food that is available from reaching various segments of the population, such as urban populations dependent on food supplies from rural areas, people living in remote areas, etc. On the other hand, panic buying and/or the hoarding of food by traders (for example, because of expectations that food prices will rise due to shortages in international markets, conflicts or disasters

expected in the future) reduce access to food.

Social safety nets and food distribution programmes, including government-sponsored and privately-supported subsidies for food, low cost rations, food aid packages, and other schemes, are essential to ensure access to food for the poor. Finally, cultural mores such as gender norms and power relations also affect access. For example, in most parts of South Asia, men are given preferential treatment and access to family resources over women. Thus, in the event of food shortages, it is usually women who suffer the most, as they curtail their consumption to first feed the men and children in their families. They are also often unregistered, without the requisite identification papers required to qualify for public subsidies.

Access to adequate supplies of food is arguably a bigger problem in South Asia than the availability of food. This is reflected in the alarming proportion and number of people who remain undernourished despite increases in the per capita availability of food in the region and dietary energy supplies greater than the MDER (table 1.1).¹³ While some countries such as Sri Lanka and Bangladesh have made progress in terms of reducing the proportion of the population that is

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Table 1.1 Food needs and supply, 1990–2007

Country	Time period	Minimum dietary energy requirement (MDER) (kcal/person/day)	Dietary energy supply (DES) (kcal/person/day)
Bangladesh	1990–92	1,690	1,960
	2005–07	1,760	2,250
India	1990–92	1,740	2,300
	2005–07	1,780	2,300
Maldives	1990–92	1,660	2,400
	2005–07	1,790	2,680
Nepal	1990–92	1,690	2,190
	2005–07	1,720	2,350
Pakistan	1990–92	1,690	2,210
	2005–07	1,730	2,250
Sri Lanka	1990–92	1,770	2,170
	2005–07	1,810	2,390

Source: FAO 2011b.

In South Asia, food utilization remains a tremendous challenge because of the under provision of key services

Table 1.2 Food Deprivation Indicators, 1990–2007

Country	Time period	Proportion undernourished (%)	Number undernourished (millions)	Food deficit of undernourished population (kcal/person/day)
India	1990–92	20	172.4	290
	2005–07	21	237.7	260
Pakistan	1990–92	25	29.6	270
	2005–07	26	43.4	280
Bangladesh	1990–92	38	44.4	310
	2005–07	27	41.7	290
Nepal	1990–92	21	4.2	240
	2005–07	16	4.5	190
Sri Lanka	1990–92	28	4.8	260
	2005–07	19	3.8	250
Maldives	1990–92	9	0.0191	170
	2005–07	7	0.0198	80

Source: FAO 2011b.

undernourished since 1990–92, others have seen a deterioration of the same (table 1.2). In Pakistan, for example, between 1990–92 and 2005–07, the proportion of undernourished increased from 25 to 26 per cent, while the number of undernourished increased from 29.6 to 43.4 million. India saw an increase in the number of undernourished from 172.4 to 237.7 million in the same period.

Utilization

Food utilization attracted much attention as an essential component of food security in the 1990s. Earlier discussions had focused on the quantity of food consumed, revolving around the need for an adequate intake of calories and protein.¹⁴ However, later there was the recognition that food security could not be ensured without essential micronutrients such as vitamin A, iron and iodine, as well as access to non-food inputs such as education, clean water, environmental hygiene, sanitation facilities and healthcare.

These inputs allow people to meet their physiological needs by making the most of the food they eat through the effective absorption of various nutrients. They are crucial for good physical and mental health, as well as cognitive achievement.

For example, poor education, especially the poor education of primary caretakers (usually women), can lead to lack of information on healthy eating practices, culinary habits and food selection and preparation. Inadequate access to clean drinking water, environmental hygiene, sanitation facilities and healthcare can lead to the widespread prevalence of diseases such as diarrhoea and typhoid, which prevent the absorption of food eaten into the body.

In South Asia, food utilization remains a tremendous challenge because of the under provision of key services and infrastructure. As illustrated in table 1.3, less than a third of the populations of

Table 1.3 Percentage of population with access to safe water and sanitation in South Asia, 2008

	Access to safe water	Access to adequate sanitation
India	88	31
Pakistan	90	45
Bangladesh	80	53
Nepal	88	31
Sri Lanka	90	91
Bhutan	92	65
Maldives	91	98

Source: World Bank 2011d.

Nepal and India have access to adequate sanitation.

Stability

This aspect is reflected in the definition of food security by the phrase, ‘. . . at all times. . . .’ It refers to the continuous stability of the other three dimensions over time. To be food secure, individuals and households must be free from the risk of running out of food through challenges to availability and access. They must also live in conditions that allow for the effective absorption and utilization of the food they consume at all times.

Stability can be threatened by cyclical events that cause seasonal food insecurity, such as changes in the climate, cropping patterns, the demand and supply of work opportunities, the prevalence of specific diseases during certain times of the year, etc.¹⁵ Food security can also be disrupted by unexpected domestic, regional or global political, climatic or economic events. For example, in the past few years, civil war in various parts of Sri Lanka and Nepal, the recent floods in Pakistan and the global food, fuel and financial crises have hurt the food security of millions of people across South Asia. The exposure of people to the risks posed by cyclical and unexpected events must be minimized to ensure their food security.

Causes of food insecurity

Food security is affected by a range of factors, economic, political, natural, and man-made in nature. The following include some of the most important determinants of food insecurity in South Asia.

Economic conditions

Economic indicators such as income, employment and prices are often the greatest determinants of food security through their influence on access to food. This influence is even greater when government sponsored safety nets are

weak. In 2008, gross national income per capita (at purchasing power parity) across South Asia was a low US\$2,695.¹⁶ As a region, this was the second lowest in the world, higher only than Sub-Saharan Africa. Consequently, as illustrated in table 1.4, food expenditures comprise a large proportion of the total basket of household expenditures. For poor and rural families, this proportion can be as high as over 60 per cent.

During the food crisis of 2007–08, prices peaked in mid-2008, and fell thereafter, but the FAO cereal index in February 2010 was still 60 per cent higher than in 2005.¹⁷ Given the high proportion of expenditure on food in South Asia, not surprisingly, such increases in prices are devastating for food security. Food prices had risen because of a combination of demand and supply factors. On the demand side, higher incomes, particularly in Asia, had led to rise in the demand for foodstuffs, especially meat, which in turn led to high demand for cereal as animal feed. Population growth, the demand for biofuels, and speculation, also led to increases in demand. On the supply side, a series of weather related shocks, low stocks, falling investment in agriculture, declining agricultural productivity, rising energy prices, and export restrictions combined to reduce supplies. Later, the financial crisis led to falling employment, a slowdown in investment, credit and aid, and falling or stagnant remittances throughout the world.¹⁸ As a combined effect of these crises, almost one in six people across the globe were undernourished in 2009.

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Table 1.4 Share of food expenditure to total household expenditure
(%)

		National	Rural	Urban
India	2004	49.50	54.00	41.60
Pakistan	2004	47.60	53.60	39.60
Bangladesh	2005	53.81	58.50	45.20
Nepal	2003	59.00	62.90	39.10
Sri Lanka	2002	44.50	46.20	35.90
Bhutan	2007	39.20	44.80	32.50
Maldives	2003	29.90

Source: FAO 2011b.

Government policies have a large role to play in ensuring or worsening food security

Agricultural productivity

Beginning in the late 1960s, the Green Revolution brought unprecedented growth in agricultural productivity in South Asia through a combination of breeding and agronomic practices. This growth did not come without its set of drawbacks. The Green Revolution is largely responsible for a loss of biodiversity and over reliance on a few varieties of crops. It was heavily dependent on large supplies of water and thus exacerbated inequality between heavy rainfall and irrigated lands versus non-irrigated, low rainfall areas. It also led to falling levels of groundwater as more water was pumped for irrigation than was replenished every year. Irrigation practices also led to building up of salt in water. Moreover, the excessive use of pesticides and fertilizers polluted waterways and killed useful insects, fauna and wildlife.

Nevertheless, between 1970 and 1995, per capita calorie availability increased by 30 per cent in Asia, despite a 60 per cent increase in the population.¹⁹ However, growth rates of productivity have slowed down over time. In India, for example, agricultural growth rates declined from 3.5 per cent between 1981–82 and 1996–97 to around 2.0 per cent between 1997–98 and 2004–05.

Today, South Asia requires a second Green Revolution, one that not only ensures food security but also creates sustainable livelihoods for the poor and takes into account environmental impacts. The challenges in increasing agricultural productivity are much higher now than they were 40 years ago. The new Green Revolution will have to focus on dryland areas, cope with the risks of global trading systems and associated price volatility, climate change, declining soil fertility, waterlogging and smaller farm sizes. Special efforts will be needed to overcome the deficits in credit, infrastructure, research and extension services, education and skills, and well-functioning markets.²⁰ Better land management practices are needed and can be promoted by a number of policies, including the promotion of

phosphate and potassium and discouragement of nitrogen fertilizers in countries such as India and Pakistan, where the use of nitrogen is well over optimal levels.²¹ Water conservation, storage and management also need to be made a top priority. Investments in these areas can help enhance agricultural productivity over the next few decades.

Government policies

Government policies have a large role to play in ensuring or worsening food security across a country through their impact on production, access, distribution and stability of food supplies. Examples of the above are abundant in South Asia. In Pakistan, for example, wheat shortages were experienced in the western parts of the country in 2008 and the early months of 2009 because of a ban on the movement of wheat from surplus to deficit areas.²² The ban was responsible for huge differentials in prices among different regions.

In India, a Public Distribution System (PDS) was initiated in the aftermath of the food shortages of the 1960s and was replaced by a Targeted Public Distribution System (TPDS) in June 1997, to ensure access to adequate food for families below the poverty line. However, the TPDS has been fraught with problems, including high exclusion errors, leakages, and the non-viability of fair price shops.²³ In Sri Lanka, the government bound tariffs on agricultural goods at 50 per cent as of 1 January 1995, and then removed quantitative restrictions on all agricultural products other than wheat and wheat flour. After 1990, the government's monopoly on rice imports was also eliminated and private traders were allowed to import rice.²⁴ The government has also initiated welfare programmes, such as mid-day meals for over 1.5 million school children, to reduce malnutrition and improve access to food.²⁵

Over the years, other policies have also had significant impacts on food security in South Asia. These include the maintenance

of buffer stocks, support prices, land reforms, monitoring and management of the food produce supply chain, promotion of urban and industrial growth at the expense of rural and agricultural development through exchange rate maintenance and import/export duties and exemptions, etc. The country case studies in chapters 2, 3, and 4 discuss several of these policies in more detail.

Global trading system and international agreements

Apart from national policies, global trading regimes and international agreements signed by domestic governments also have a significant impact on individual food security. Trade policies affect food security through their effect on incomes, expenditures, employment and government revenues. Agricultural liberalization has been associated with increased volatility in both prices and production at the national level.

In the past few decades, several South Asian countries have shifted from a strategy of self-sufficiency, where enough food is produced domestically to meet domestic consumption requirements, to self-reliance, where food sources can be determined by international trade patterns. The results of this shift have often been mixed. A prime example is provided by the case of Bangladesh.²⁶

Gradual liberalization of the rice trade and agricultural input markets helped Bangladesh reduce volatility of supplies and increase domestic production of cereals between 1978 and 1990. Consequently, broader liberalization in the 1990s allowed private imports of wheat and rice, which helped stabilize wheat and rice prices, eliminated the need for large government stocks and allowed the closure of major ration channels. By the end of the decade, price floors and ceilings were no longer defended by public purchases and sales and over 85 per cent of public sector distribution was targeted towards poor households. Private imports would increase in years where domestic production fell

and would decrease when domestic surpluses would lead to prices below international levels. The benefits of these policies were made strongly evident in 1998, when floods destroyed over 20 per cent of the monsoon rice crop. Following the floods, Bangladesh adopted a trade-oriented stabilization strategy, where moderate purchases were made by the government to supply public distribution channels, but zero tariffs and other measures were adopted to encourage private sector imports. The opening up of private food grain exports from India in 1994 also worked in Bangladesh's favour as it could substitute rice imports from Thailand with cheaper imports from India (because of low transport costs and faster delivery).

International agreements often have serious implications for the food security of developing countries. One such agreement is the Trade-Related Aspects of Intellectual Property Rights (TRIPS), which came into effect with the establishment of the World Trade Organization (WTO) in 1995. Developing countries were given until January 2000 to become TRIPS compliant. The Agreement was created to protect intellectual property rights through patents, copyrights, etc., most of which usually last for a period of 20 years.

Article 27.3(b) of TRIPS allows the patenting of life forms and requires WTO members to protect new plant varieties (plants that have been improved by breeding to make them stable, distinct, and uniform) through patents, plant breeders' rights, etc. Prior to this Agreement, life forms and their components were not considered patentable. While the Agreement allows farmers some privileges, such as reusing their own crop for seed purposes, it does not allow them to exchange or sell such seeds. This can be disastrous for countries such as India, where 70 per cent of seed supply comes from farmers' sales of reproduced seeds.²⁷ Furthermore, transnational corporations (TNCs) have engaged in a race to patent plant varieties and genes that are tolerant

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to extreme climatic conditions and could be essential for adapting to climate change.

Social factors

Social factors such as education levels and gender inequalities play a significant role in creating food insecurity. Research suggests that higher education levels lead to better health and nutrition outcomes by increasing farm and non-farm productivity and improving food utilization. A study by the World Bank estimates that farmers with primary education were on average, nine per cent more productive than those with no education. Mothers' education is particularly important, as for each year of formal schooling received by a mother, the odds of her child being stunted decrease by 4 to 5 per cent.²⁸

Women are also important as food producers and constitute a significant part of the agricultural workforce in South Asia, comprising about 30 per cent of the total in India and Pakistan and over 50 per cent in Bangladesh. However, differential access to essential inputs and credit account for significant differences in agricultural productivity between men and women. Estimates suggest that the yield gap between male and female farmers is about 20 to 30 per cent and most of this difference is because of differences in resource use, such as fertilizers, improved seeds, mechanical tools, etc. If this yield gap were eliminated, agricultural productivity in developing countries would increase by 2.5 to 4.0 per cent and the number of undernourished people worldwide would decline by 12 to 17 per cent.²⁹

Conflicts

Conflicts have both immediate and long-lasting impact on food security. It hurts the availability of food supplies as it restricts access to land and other essential inputs required for farming and leads to outmigration and internal displacement of farmers and landowners. When conflicts occur in prime agricultural lands, they can

lead to escalating food insecurity beyond the conflict zone to the entire country. Conflicts also witness the erosion of food supplies through theft, seizure and confiscation of stocks by militants. Access to food is impeded as food imports into markets and distribution of food supplies by government, non-governmental agencies, and other actors are interrupted.³⁰ Furthermore, the destruction of community infrastructure such as sewage and sanitation facilities, and the spread of diseases during wars hurt the effective absorption of what little food is available and consumed. Landmines and environmental damages during conflicts can also render valuable lands unfit for future agricultural production.

Various parts of South Asia have witnessed repeated periods of food insecurity due to conflicts. In Pakistan, the militancy in Khyber Pakhtunkhwa has led to food shortages, rising food prices and deteriorating incomes, all of which contributes to a marked increase in individual food insecurity in the region. In Nepal, the Maoist insurgency was responsible for deteriorating food insecurity across several parts of the country. In the districts of Mugu and Jajarkot, the World Food Programme had to cease its 'work for food' programme after Maoists looted stores, affecting some 15,000 people who worked on a road in exchange for food. In other parts of the country, transportation blockades restricted access to fertilizers and seeds, and Maoists seized village food supplies.³¹ The food insecurity wrought by such conflicts can lead to long-term impacts on the lives of those affected.

Climate change

South Asia is a part of the world that has historically contributed little to climate change but is likely to suffer greatly from the phenomenon. According to the fourth Assessment Report of the Intergovernmental Panel on Climate Change, by the middle of the twenty-first century, crop yields in the region could decrease by as much as 30 per cent due to climate

change,³² with maize and wheat yields likely to decrease by 6 to 23 per cent and 40 to 45 per cent, respectively.³³ Between 2000 and 2050, it is expected that the number of children suffering from malnutrition will steadily fall from 76 to 52 million. However, the figure is likely to decrease to only 59 million by 2050 in the presence of climate change.³⁴

The threats to food security from climate change will come from a variety of sources. Faster than average glacier melt in the Himalayas will threaten the long-term availability of water supplies and lead to more frequent and extreme flooding. Rising temperatures and changing precipitation patterns will increase the probability of droughts, hurt pastures, rangelands, livestock, forests, and crops, and increase the frequency of old and new weed and pest infestations. Rainfed agricultural areas are likely to suffer even more than irrigated areas as there are few coping mechanisms for increased variability in natural precipitation. Finally, sea level rise, storm surges and cyclones can lead to the salinization of freshwaters, hurting fisheries and reducing drinking water supplies. South Asia will require massive investments in its rural areas, particularly in more efficient water usage and storage, and in drought, flood, and pest resistant crop varieties, to cope with the changing climate of the region.

Demographic trends

While population growth rates in South Asia have declined over the past few decades, the region is still home to one of the most rapidly growing populations in the world. Average annual population growth rates between 1990 and 2008 in Pakistan, Nepal, and Bangladesh were 2.4, 2.3 and 1.8 per cent, respectively, far higher than the global average of 1.3 per cent.³⁵ As shown in table 1.5, the population of South Asia will continue to expand rapidly over the next two decades.

This increase in population is of tremendous significance for continued food insecurity. During the past two

Table 1.5 Population projections in South Asia, 2010–30

	2010	2020	2030
India	1,214,464	1,367,225	1,484,598
Pakistan	184,753	226,187	265,690
Bangladesh	164,425	185,552	203,214
Nepal	29,853	35,269	40,646
Sri Lanka	20,410	21,713	22,194
Bhutan	708	820	902
Maldives	314	362	403

Note: These projections are under the 'medium variant'.

Source: UNPD 2011.

decades, technological progress and investments in agriculture have helped alleviate Malthusian concerns that population growth rates will exceed growth in food production. However, not only have agricultural production growth rates slowed down from their earlier rates but more and more farmers, particularly poorer farmers, have been forced to cultivate smaller landholdings and marginal lands.³⁶ The risks associated with, and inputs required to tend to these marginal landholdings, especially in the face of a changing climate, are quite high. Furthermore, the government is quite likely to find it very challenging to expand food-based welfare programmes and food imports at the current population growth rates. Consequently, it is quite probable that demographic pressures will create serious challenges to ensuring the adequate availability of and access to food supplies in South Asia.

Impact of food insecurity

Food insecurity hurts economic growth, educational achievement, health security, and societal stability. It has a particularly debilitating impact on marginalized groups such as the poor and women, and if left unchecked, can slow down, halt and even reverse years of progress on human development.

Economic insecurity

Poverty and economic well-being are closely linked to food insecurity,

Food insecurity has a particularly debilitating impact on marginalized groups such as the poor and women

In the short and medium run, rising food prices have the potential to push millions of South Asians into poverty

particularly when the latter is the consequence of rising food prices (box 1.1). A recent study by the World Bank estimates that poverty increased by an average of 3 percentage points and approximately 73 to 105 million people across the world became poor as the result of rising food prices between 2005 and 2007.³⁷

Even though spending on food as a proportion of total expenditure has declined over the years, food purchases still account for a significant proportion of the overall basket of expenditures in South Asia (table 1.4). For low-income families, this number is often higher than 60 per cent of total expenses. Rising food prices diminish the potential for these families to meet their dietary requirements, often leading them to switch from relatively expensive nutrient and protein rich foods, to less nutritious, calorie and energy dense foods and to curtail their expenditures on non-essential social services such as healthcare and education. While higher prices can benefit net sellers of food, net buyers are greater in number in South Asia and comprise of both the urban poor and most of the rural poor, particularly those

who are landless or small landholders. As many farmers sell their produce immediately after the harvest, they may not even reap the benefits of higher prices if prices rise a significant period of time after the post-harvest season.³⁸ Rising input prices and unresponsive government procurement prices also reduce the benefit of higher prices to many farmers.

Consequently, in the short and medium run, rising food prices have the potential to push millions of South Asians into poverty and worsen the conditions of those already below the poverty line. In the long run, food insecurity through inadequate or interrupted availability, access or utilization, often leads to inter-generational cycles of economic deprivation. For example, malnourished children often start school later than healthier ones, have reduced cognitive abilities, and thus, lower lifetime earnings.

Furthermore, at the national level, escalating food insecurity often leads to undesirable macroeconomic consequences, particularly for countries dependent on food imports. Rising food prices lead to high inflation, a deterioration of the current account, worsening terms of trade and a fall in foreign exchange reserves. If monetary policy is tightened to reduce inflation, it can lead to a contraction in demand, slowdown in employment and economic growth rates, and a fall in the tax to gross domestic product (GDP) ratio.³⁹ Together, these outcomes limit the government's ability to spend on social services such as social protection schemes, health, sanitation, and education, further hurting the economic well-being of the poor.

Social and psychological crises

To adjust to rising food insecurity, households are often forced to adopt a number of actions and behaviours that lead to reduced psycho-social well-being through their impact on mortality and morbidity, cognitive abilities and emotional well-being. For example, a survey of over 10,000 households across

Box 1.1 The link between rising food prices and poverty levels

The impact of rising food prices on poverty is not uniform across countries. It depends on a number of factors, including the following:

- The extent to which world market prices are passed on to domestic prices.
- Initial poverty levels and the number of people clustered around the poverty line.
- The number of net buyers and sellers of the commodities in question.
- The share of poor people's budgets devoted to food overall and key staples in particular.
- The ratio of own-consumption to market purchases.
- The effect of food price increases on real wages of poor people.

Source: World Bank 2008.

Table 1.6 Underweight, stunting and wasting in children under-five, 2006–08* (%)

	India	Pakistan**	Bangladesh	Nepal	Sri Lanka	Bhutan***	Maldives**
Underweight	43.5	31.3	41.3	38.8	21.1	14.1	25.7
Wasting	20.0	14.2	17.5	12.7	14.7	2.5	13.4
stunting	47.9	41.5	43.2	49.3	17.3	47.7	31.9

Notes: *: Data refer to recent year available. **: Data refer to 2001. ***: Data refer to 1999.

Source: World Bank 2011d.

Bangladesh between November 2008 and January 2009, found that families who could not cover food and essential non-food expenditures often adopted negative coping mechanisms, such as reducing expenditure on healthcare.⁴⁰ Those who adopted food-based coping strategies also embraced approaches that eventually led to sub-optimal educational and health outcomes, such as reduced portion sizes and relying on cheaper, less preferred food.

Inadequate nutrition is often a consequence of food-based coping strategies and is particularly harmful for child development. Undernutrition is responsible for approximately a third of the 8.8 million child deaths every year globally and leads to high rates of morbidity.⁴¹ Maternal malnutrition and food insecurity during pregnancy hurt the physical and mental growth of the unborn child. Mothers who are underweight tend to give birth to underweight babies, heightening the risk of infant mortality.⁴² Good nutrition continues to be most important in the early years of a child's life, particularly in the first three years of life, when even short

term, transitory food insecurity can lead to long-term consequences. During this phase, children are no longer exclusively breastfed and they have high nutritional requirements because they are growing fast and have immature immune systems that cannot adequately protect them.⁴³

In South Asia, the health impacts of food insecurity manifest themselves in the poor state of child and maternal nutrition. Table 1.6 shows the prevalence of underweight children, including stunting and wasting among children under-five years of age across various countries in the region. Table 1.7 indicates the high prevalence of iodine, vitamin A and iron deficiencies. Iodine deficiency often leads to stillbirths, miscarriages and preventable mental retardation. Vitamin A deficiency is a leading cause of blindness and weakens the immune system's ability to fight childhood diseases such as malaria, diarrhoea and measles. Anaemia is most prevalent in pregnant mothers and children under-five years of age and can lead to fatigue and cognitive deficiencies.⁴⁴ Concentrated efforts to improve nutritional

Inadequate nutrition is often a consequence of food-based coping strategies and is particularly harmful for child development

Table 1.7 Nutrition indicators

	Consumption of iodized salt (% of households)	Vitamin A supplementation (% of children 6–59 months)	Prevalence of Anaemia (2000–06*)	
	2002–08*	2009	(% of children under-five)	(% of pregnant women)
India	51	66	74	50
Pakistan	17	91	51	39
Bangladesh	84	91	47	47
Nepal	63	95	48	42
Sri Lanka	93	64**	30	29
South Asia***	51	72	68	48

Notes: *Data refer to latest year available. **: Data refer to 2005. ***: Data for South Asia is the weighted average of seven countries, India, Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan and Maldives.

Sources: World Bank 2010 and 2011d and MHHDC staff computations.

Food insecurity can aggravate the likelihood of violent conflicts, unrest and instability in society

outcomes among women (particularly in the adolescent stage before they become pregnant, during pregnancy and lactation), and children (especially during their first few years of life), can help mitigate some of the most serious health impacts of malnutrition.

An often overlooked implication of food insecurity is the emotional distress that it can cause. Studies indicate that food insecurity at the household level leads to high stress levels, anxiety, feelings of powerlessness, exclusion and inadequacy, decreased participation in constructive social activities, and erosion of conviviality among households and broader members of society.⁴⁵ Food insecurity is also associated with above average levels of maternal depression.⁴⁶ While the direction of causality is not clear, it seems likely that there is dual causality. Maternal depression also acts as an additional channel through which food insecurity hurts child development as it can diminish parental energy levels, weaken mother-child bonds and interaction and lead to child abuse and neglect. Furthermore, empirical evidence shows that hungry children are more likely to exhibit both external and internal social and behavioural problems than the well-fed ones.⁴⁷ Commonly exhibited external behaviour includes actions such as cheating, lying, bullying, hyper-activism and aggression, while internal behavioural problems include feelings of worthlessness, fear, and being unloved.

Food insecurity is also an important causal determinate of educational achievement. It has been found to lead to delayed school enrolments, higher absenteeism and lower learning even when children are in school. Moreover, the psychological disturbances brought on by food insecurity lead to further disturbances in learning. There is no doubt that good health and nutrition are essential development goals in and of themselves. However, the benefits of investment in food security far outweigh the immediate outcomes through its instrumental value in terms of its impact on educational achievement.

Conflicts and instability

Food insecurity can aggravate the likelihood of violent conflicts, unrest and instability in society. While such conflicts are rare at the inter-state level, food insecurity has repeatedly been associated with protests, riots, communal and civil conflicts and democratic fragility and failure at the local and intra-state level.⁴⁸ These acts of hostility have repeatedly hurt political, community, and individual security.

Illustrations of the violence associated with food insecurity were seen all over the world in 2007–08, when rising global food prices caused protests and violent rioting in 48 countries.⁴⁹ South Asia was no exception. In Dhaka, the capital city of Bangladesh, police had to open fire and release tear gas to disperse a crowd of thousands of protestors who had turned violent when they were demanding higher wages to cover rising food prices in April 2008.⁵⁰ In Karachi, Pakistan's financial capital and most populated city, 20 women and girls lost their lives in a stampede to collect free bags of food.⁵¹ These incidents are not without precedent. They have periodically occurred all over the world as a result of rising food insecurity. For example, the earlier rise in global food prices during the 1970s and 1980s had led to an escalation in protests and riots across the world. The removal of government subsidies on basic foodstuffs and energy, often mandated as a prerequisite for assistance from international financial institutions, have also caused much popular unrest worldwide.

Empirical evidence suggests that the link between food insecurity and conflicts arises from the impact of the former on economic and social grievances and the perceived costs and benefits of participating in violent action.⁵² Changes in the price of foodstuffs, particularly sudden changes through events such as exchange rate fluctuations and export restrictions, can erode real incomes, lead to high stress levels and increase grievances against the state and others perceived to be relatively

better off. This is particularly true for low- and middle-income families who spend a significant proportion of their incomes on food and have few coping mechanisms. Under such circumstances, the benefits of resorting to violence can supersede the costs.

Natural disasters can also lead to sudden changes in the availability of food and other resources, leaving people with little to lose and thus more inclined to engage in acts of aggression. An example of violent rioting in the aftermath of a natural disaster was seen in the eastern Indian state of Bihar, when angry villagers attacked officials and local politicians while demanding food and shelter after the devastating floods that struck much of South Asia in 2008.⁵³ Hostilities in the face of rising food insecurity are not just limited towards state actors but can also arise among communities that have historically lived at peace. This was witnessed in the Pakistani province of Balochistan, where a five-year spell of drought during 1997 and 2001 led to conflicts between sedentary and migratory pastoral communities over grazing rights to lands that had traditionally been shared by both. The reality of climate change is likely to lead to an increase in such catastrophes and their consequences over the next few decades.

Furthermore, food insecurity can also lead to 'extraordinary' behaviours among individuals. One study conducted in Pakistan links actions such as selling body organs, exchanging children (particularly female children) for food, entering bonded labour, committing suicide, and participating in other anti-social activities to food insecurity.⁵⁴ It further postulates that the chronically food insecure, many

of whom harbour grievances against an establishment perceived to be indifferent to their plight, present easy potential recruits for militants who pose a threat to socio-political stability and domestic and global security.

Given the spectre of violence presented by food insecurity, governments, non-state actors and the international community must put their collective efforts into eradicating the problem of hunger. This is not just a moral and humanitarian imperative but also a mean to ensure individual well-being and promote local, national, and global harmony.

Conclusion

This report comes at a time when South Asia is witnessing soaring food prices, economic and financial crises, stagnant agricultural production, concerns about climate change, liberalization of agricultural trade, protracted conflicts, and a continuously growing population. The report provides a holistic analysis of the state of food security in the region, discusses the impact of food insecurity on people, and provides policy makers with comprehensive policies to ensure the availability of, individual access to, utilization of, and stability of food supplies.

The remainder of the report is structured as follows: chapters 2, 3, and 4 provide country case studies on food security in India, Pakistan, and Bangladesh, respectively; chapter 5 discusses the gender dimension of food security; chapter 6 highlights the threats that climate change presents to food security in South Asia; and chapter 7 concludes the report with an analysis of global commitments to food security.

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