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## Unsustainable Policies for Sustainable Development: A Case of Food Security in South Asia

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### Abstract

South Asia sustains 24 percent of global population on a 3.4 percent of global surface area. Due to many factors like dwindling investment in agriculture, neglect of research and development, lack of necessary infrastructure, market and financial support-the food security has emerged as a major challenge in South Asia. This paper seeks to analyze the viability of public policies in South Asia with respect to food security and sustainable agriculture.

**Keywords:** Development Paradox; Sustainable Agriculture; Nutritional Security; Public Investment; Climate Change.

Food security has been in the agenda of international community since 1970s, when the World Food Conference was convened in 1974, followed by World Food Summits in 1996, 2002 and 2009. The World Food Conference declared that, *'every man, women and child has the inalienable right to be free from hunger and malnutrition'*. The issue of food security remains high on the agenda of G-20, a group of 19 largest economies plus European Union. The Millennium Development Goals (MDGs) adopted by the UN General Assembly in 2000 included eradicating extreme poverty and hunger as the first goal under the seven MDGs. The world body adopted seventeen Sustainable development Goals (SDGs) in 2015, which incorporated 'Zero Hunger' as the second goal. The SDGs are to be realized by the global community by the year 2030. These efforts resulted in partial success. Unfortunately, at present, extreme hunger and malnutrition remains a huge barrier to development to many countries. As in 2104, 795 million people in the world are chronically undernourished; over 90 million children of under-five age are under-weight; and nearly 25 percent

people in Africa go hungry every day. While 13 percent people in the world go hungry, but two-third of this number are in developing countries. The situation in Sub-Saharan Africa and South Asia is still worst as the rate of undernourishment is 23 percent in Sub-Saharan Africa and nearly 20 percent in South Asia (281million). Poor nutrition accounts for 45 percent deaths of under five children in the world and again Africa and South Asian are in the forefront (UNDP: 2017). This illustrates that the national and international efforts have not been successful to address the challenge of food security particularly in Sub-Saharan Africa and South Asia.

Meanwhile, the notion of food security has also undergone change since 1970s. Now it is no more confines to the assured availability of food grain to every person in the world to satisfy his or her hunger. Until the early 70s, adequate availability of food grains at the national level was considered a good measure of food security. Emphasis was placed on food self-sufficiency at the national level, principally through domestic production. The 1974 World Food

Conference added another dimension to food security when it emphasized, apart from the overall availability, stability of food supplies within and over the years. It also laid emphasis on freedom from hunger and malnutrition. Later, and mainly due to the writings of Amartya Sen, the question of 'access' and 'entitlement' gained prominence. An agreed definition of food security suggests that *all households should be able to avail at all times of adequate food for a healthy living* (FAO: 1999). Thus, the notion of food security encompasses four elements: *availability* of food; *stability* in food availability; *access* to food; and reasonably *nutritious* food. These four elements of food security have policy implications. The availability of food is concerned with adequate supply of food grains; stability is concerned with the certainty and durability of this supply; access is concerned with the mechanism of distribution of food grains to ensure its availability to marginalized sections of society also. These elements are to be kept in mind by the national governments, while determining the strategy of food security in any part of the world. In addition, the specific constraints of the food security in South Asia need to be taken into consideration. More recently FAO's August 2008 report defines food security in terms of food availability, access to food, utilization of food and vulnerability to food insecurity due to political, economic or social reasons. Most developing countries fare poorly in terms of each of these four aspects of food security. Ensuring food security therefore requires comprehensive and co-ordinated international effort (Mittal and Shahi: 2009).

In view of the above status of food security in the world and South Asia, this paper is divided into three parts: the **First Part** describes the general features of South Asian landscape and highlights the paradox inherent in South Asian economic growth, which indicates the seriousness of food security situation in South Asia; the **Second Part** analyzes the general and specific factors which influence the food security situation in South Asia; and the **Third Part** deals with elements which need to be incorporated in addressing the grim situation of food security in South Asia. This aspect of food security has both human and economic implications. In food security context, nutrition security refers to the "quality" aspect of food production, consumption and utilization by all individuals in a household. Malnutrition undermines economic growth and economic costs are substantial. Individuals lose more than 10 percent of lifetime earnings because of malnutrition. A country can lose up to percent of GDP per year (World Bank, 2014). While food security may increase the total *quantity* of energy

available for consumption, only nutrition security can guarantee the *quality* and *diversity* of food necessary for protecting and promoting good nutritional status and health (SAFANSI: 2017).

## Part-I

South Asia is sitting on a potential food insecurity time bomb, waiting to explode anytime in future. It has been a debatable point as to what constitutes the 'South Asia as a geographical region. Without going into this debate, for this study, South Asia consists of eight members of South Asian Association for Regional Cooperation (SAARC) namely, Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. The region of South Asia, with a total population of 1.74 billion and land area of 5.1 million Sq kms (2015) represents 23 percent of the total global population and 3.4 percent of the total world land area. Out of the 10 most populous countries of the world three are in South Asia: India, Bangladesh and Pakistan. However, the South Asia does not have a homogeneous regional identity. It has great diversity among nations in terms of size, population, level of economic growth, geographical conditions, political conditions and ability.

On the one hand, we have large nation like India, but on the other we have tiny nations like Maldives and Bhutan. On the one hand, we have large economy like India, but on the other we have three Least Developed Countries in South Asia- namely Bangladesh, Nepal and Afghanistan. In spite of this diversity, all of them are faced with a common challenge of food security. The challenges of population growth, malnutrition and poverty are common to all. Due to prevalent poverty, malnutrition, and lack of skill development, this rising population, instead of being human resources, has become a food security challenge in South Asia. The growing population, along with rampant poverty, has outpaced the agriculture development over the decades. Nearly, 44 percent of the global poor are concentrated in South Asia. As poverty and malnutrition are not under control, the agriculture production displays the signs of stagnancy, neglect by policy makers and uncertainty in view of the rising non-conventional threats like climate change and natural disasters.

### South Asia's Paradox

The development patterns in South Asia suffer from many paradoxes and all adding the crisis of

food security in the region. A Report of the Asian Development Bank (ADB: 2015) illustrate the inherent *development paradox* in South Asia- rising economic growth rate with declining share of agriculture in total GDP. It means the growth in agriculture production is not proportionate to general economic growth. The average growth rate of 7.4 percent in South Asia in last two decades went unnoticed in agriculture sector. Across South Asia, food insecurity remains a major policy challenge. South Asian countries have seen high annual economic growth rate, but relatively low growth rates in agriculture during the period 1993-2006. The annual average growth rates for the period of 1993-2006 for South Asian economies has been 5.2%, 6.6%, 6.6%, 8.2%, 4.3%, 4.2% and 5.0% for Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka respectively whereas their agricultural sector grew with 3.5, 2.7, 2.6, (Maldives' missing), 3.5, 3.3 and 1.3 percent. The gap was either met through imported food, alternative food or remained unbridged (Haque: 2014).

It further means that it results in rising level of poverty, malnutrition and rising level of food insecurity, because a significant portion of population is still dependent on agriculture for their livelihood in South Asia. With the rise in economic growth the demand for agricultural products has also gone up.

Since agriculture production is not increasing commensurate with increasing demand, the region's agriculture import bill has soared from \$5 billion in 1999 to 24 billion in 2010. The report sums up the urgency of the problem, 'This growing demand for agricultural products during 2000-2010 has been accompanied by a reduction in agricultural growth and in its share of the GDP of almost all countries in the region. Given the rise in global and regional demand for agricultural products and the slowing down of agricultural growth in the region, it becomes

critical not only to reverse the current trend but also to accelerate the growth of agriculture in the interests of food security and growth sustainability in South Asia.' The report pleads for *increasing* intra-regional trade in agriculture to address the problem of food security in South Asia. This strategy may not prove viable in the short run as South Asia continues to be the least integrated region in the world (World Bank: 2006). The intra-state tensions and other constraints like lack of infrastructure and connectivity may also undermine this strategy.

Yet, South Asia suffers from another paradox underlying the food security challenge in the region. The people of South Asia have the lowest (Except Sub-Saharan Africa) food grain consumption, measured in terms of kilo calories per capita per day compared with other regions of the world. For example, in 2015, the per capita per day kilo calories consumption in South Asia was 2700 in comparison to 2940 in the world and 3440 in the developed countries.

Again, more worrisome is the fact that the absolute number of undernourished people in South Asia has come down from 291 million in 190-91 to 281 million in 2015, but the share of South Asian in the total undernourished people in the world has gone up from 28.8 percent to 35.4 percent during the same period (FAO: 2016, and Table: 1). But, even at this reduced rate of food grain consumption, the requirement of food grains projected for the year 2025 is also second highest in the world after Sub-Saharan Africa (Kush: 2001, Table 2).

If present pattern of agriculture production persists, South Asia may be the target of increased requirement of food grains in future. The increasing dependence of South Asia food grain supply on external imports may not prove viable in the long run, in view of the scarcity of resources needed for investment and economic growth.

**Table 1:** Global and Regional Per Capita Food Consumption (kcal per capita per day)

Region	1964 - 1966	1974 - 1976	1984 - 1986	1997 1999	2015	2030
World	2358	2435	2655	2803	2940	3050
Developing countries	2054	2152	2450	2681	2850	2980
Near East and North Africa	2290	2591	2953	3006	3090	3170
Sub-Saharan Africa	2058	2079	2057	2195	2360	2540
Latin America and the Caribbean	2393	2546	2689	2824	2980	3140
East Asia	1957	2105	2559	2921	3060	3190
South Asia	2017	1986	2205	2403	2700	2900
Industrialized countries	2947	3065	3206	3380	3440	3500
Transition countries	3222	3385	3379	2906	3060	3180

**Source:** FAO (2016) Global and regional food consumption patterns and trends, FAO Corporate Documents Repository. Available At: <http://www.fao.org/docrep/005/ac911e/ac911e05.htm>

**Table 2:** Population Growth and food grains Requirements

Regions	Population		Projected per capita Consumption of Cereals Kgs		Food grains requirement tones Million		Percentage increase 2000 to 2025
	2000	2025	2000	2025	2000	2025	
East Asia	1.48	1.70	284	332	420	564	34
South-Central Asia.	1.50	2.10	167	187	250	392	57
South-East Asia	0.52	0.69	210	242	109	167	53
West Asia and North Africa	0.36	0.55	405	469	146	258	77
Sub-Saharan Africa	0.65	1.20	1.38	156	90	187	108
Latin America	0.52	0.69	273	301	142	208	46
Developing Countries	4.90	6.82	258	280	1265	1910	51
Developed Countries	1.19	1.22	626	680	745	830	11

**Source:** Kush S Gurudev and Mahbub Hossain Technologies for Increasing Food Production (International Rice Research Institute, Manila in Our Fragile World: Challenges and Opportunities for Sustainable Development (Forerunner to the Encyclopedia of Life Support System Vol 1 edited by M. K. Tolba (2001) Eolss Publishers ZCo Ltd, Oxford London, pp601

**Table 3:** Incidence of Hunger and Under-nutrition in South Asian Countries and the World

Countries/Regions	Country Dietary Energy Consumption(kCal/person/ day)		Prevalence of Undernourishment in Total Population (%)		Number of Undernourished Persons (million)	
	1990-1992	2006-2008	1990-1992	2006-2008	1990-1992	2006-2008
Bangladesh	1,960	2,270	38	26	44.4	41.4
India	2290	2360	20	19	177	224
Nepal	2190	2340	21	17	4.2	4.7
Pakistan	2210	2280	25	25	29.5	42.5
Sri Lanka	2170	2370	28	20	4.8	3.9
South Asia	2270	2360	22	20	267.5	330.1
Developing World	2440	2640	20	15	833.2	839.4
Total world	2610	2790	16	13	848.4	850.0

**Source:** FAO. Various years. State of Food Insecurity in the World. Rome: Food and Agriculture Organization of the United Nations. Adopted from Wickramasinghe

Another interesting fact is that nearly fifty percent calories requirement of South Asian population is met by the cereals and food grains, thus making them more dependent on increasing availability of food grains. This situation gives rise to the rising incidence of malnutrition in South Asia in comparison to other regions of the world. In the year 2008, 20 percent population of South Asia suffered from undernourishment compared to 15 percent in all developing countries and only 13 percent in developed countries. Dietary energy intake in all South Asian countries has remained lower than the world average as well as the average in developing countries. Further, this gap in dietary intake of energy has increased during 1990-1992 and 2006-2008. Dietary energy intake among the South Asian countries shows a very narrow variation, between 2270 to 2370 k Cal per person per day. The latest data provided by the FAO shows that the prevalence of undernourishment based on dietary energy intake remains highest in South Asia. (Wickramasinghe 2014, Table 3). While under-five child stunting rate is an indicator of long term under-nutrition, the rate

of under-five child wasting indicates an acute under-nutrition. A report by the South Asian Food and Nutrition Security Initiative (SAFANSI) paints a grim picture of South Asia on these indicators in 1990s but slight improvement in the following decade. The report remarks, 'South Asia has widely been viewed as a negative outlier in global progress in reducing under-nutrition. The relatively high, persistent level of under-nutrition in the past led to the phenomenon being coined the "Asian enigma" in the 1990s. The story is however a varied one across countries in the region. In addition, the story over the 2000s appears to break from this history (World Bank: 2016). Thus, the stunting rates for under-five children are highest in Afghanistan (41% in 2014) and Pakistan (45% in 2012) and that of Maldives (20 % in 2009) and Sri Lanka (15 % in 2012) are lowest in the region. Other countries of the region are placed in between these two ends. Similarly, child wasting rates also vary across countries: Afghanistan 14 percent (2011); Bangladesh 14 percent (2014); Bhutan 6 percent (2010); India 15 percent (2014); Maldives 11 percent (2009); Nepal 11 percent (2011); Pakistan 11 percent

(2012); and Sri Lanka 13 percent (2007). India has the highest child wasting rate and Bhutan has the lowest rate.

In nutshell, the south Asian paradox is that it sustains 24 percent of global population with only 3.4 percent of land area, it has displayed impressive economic growth in last decade, performance of agriculture remained poor; majority of population continues to be dependent but the share of agriculture is decreasing in total GDP (Gross Domestic Product); nearly 44 percent of people suffer from poverty and malnutrition amidst pockets of affluence. This situation calls for a viable strategy for improvement in both agriculture production and distribution. However, such strategy and its policy framework should carefully consider the factors which influence the South Asia's *food security vulnerabilities*.

## Part-II

In South Asia, food security continues to pose a potential challenge both in terms of quantity as well as quality of food grains available for consumption. All the four elements of food security namely availability, stability, access and nutrition are contingent on many specific conditions of south Asia. In spite of country-wise variations in the level of vulnerability to food security, there are factors common to all countries. Yet there are specific conditions in each country which influence the food security, which are also to be identified.

### Dismal performance of Agriculture Production

The sustained growth of agriculture production, which keeps with the rising demands of food grains due to population growth, is a very important element influencing the status of food security. The south Asian nations, particularly India switched to modern agricultural practices under the green revolution in 1960s, which helped in food self-sufficiency. But later, the agriculture production stagnated with modest growth of 2-3 percent in following decades, where population pressure continued. For example, food grains production in the India, the largest country of the region, marginally increased from 210 million tones in 2005-06 to 250 million tones in 2012-13. (India: 2015) A large section of people remained dependent on the agriculture (In India 55 percent), but the share of agriculture declined in the total GDP (In India from 40 percent in 1960 to 14 percent in 2015), which resulted in the problem of economic inequalities among rural and urban areas and

problems of poverty and malnutrition. Pulses are considered to be the cheap source of protean but the production of pulses has recorded a marginal increase in many countries of South Asia. For example, the production of pulses in India was 13 million tones in 2005-06, which marginally increased to 18 million tones in 2012-13 (India: 2015). India has to import pulses from other countries to meet her requirement.

The dismal prospects for the growth of agriculture are compounded by many inhibiting factors like stagnant pattern of investment in agriculture sector over the years, increasing population pressure on land, lack of sustainable technological breakthroughs, little attention on research and development in agriculture sector and finally the increasing trends of unpredictable climate conditions due to looming threat of climate change.

### Adverse Geographical Conditions and Rising Threat of Climate Change

South Asia has huge geographical diversity not only among nations but also within nations. For example, The northern part of Bangladesh is geographically different from its coastal areas; India is divided in 15 distinct agro-ecological zones; Nepal has three demarcated zones of Mountains, Hills and Terai; Pakistan's Indus plains are in sharp contrast to the arid regions of Sindh or hilly and semi-arid areas of north-west; Sri Lanka's landscape is clearly defined by its dry and wet zones. These regional variations have to be taken into account when designing a meaningful programme for food security as the regions within the countries are distinct, and are subject to varying degrees of vulnerability (FAO:1999).

Disaster proneness of South Asian nations is equally important. Bangladesh and coastal parts of India are threatened quite frequently by cyclones and floods. Recurring droughts are a common feature in the arid and semi-arid parts of India (Rajasthan and Gujarat provinces) and Pakistan. Nepal and some part of hilly areas of India are prone to natural disasters like earthquake. In April, 2015, Nepal suffered an earthquake of 7.9 magnitude and droughts and floods are recurring features in South Asian countries. Their vulnerability to food security is further enhanced due to rising threat of climate change, leading to change in weather conditions and adversely affecting food production. It is to be underlined that majority of the farmers practice rain-fed agriculture. In India 65 percent of agriculture land area is dependent on the vagaries of monsoon (Seasonal rainfall). About the impact of climate

change on farmers, Monika Datta writes, 'With more than half the world's people and high levels of inequality, Asia lies at the centre of the global food-security challenge of the twenty-first century. Meanwhile, the smallholder farmers who supply 80 percent of the continent's food confront continued poverty, as they struggle to raise output in the face of creeping environmental degradation, looming water shortages and the unpredictable effects of climate change (Datta: 2013).

### **High Proportion of Small and Landless Households**

In South Asia there is significantly high portion of small landholdings (less than one hectare). This comes to 55 percent in South Asia except Pakistan, which account for 17 percent small landholdings. The share of small farms in total cultivated land is also substantial: nearly 20 percent in Sri Lanka and Bangladesh, and 15 and 17 percent in India and Nepal respectively. An exception to this common feature is Pakistan where 2 percent of agricultural lands are marginal holdings. A small size of land holding is not suitable for mechanized farming and large investment. As families grow, the land is further subdivided and the new land cannot be created. In addition to this there are a large number of landless households, accounting for 20 percent of all rural households in Bangladesh, 30 percent in India, 18 percent in Nepal, 30 percent in Pakistan, and 22 percent in Sri Lanka (FAO:1999). Agriculture is characterized by intensive cultivation. The scope for further expansion of agricultural land is virtually exhausted in most of the countries in South Asia.

### **Poor Human Development Index (HDI) the Region**

The countries of South Asia also display poor performance in HDI count. A poor HDI accompanied by poverty is disastrous for food security. In fact, low HDI, Poverty and food insecurity form a vicious circle, reinforcing each other in the long run. Poverty leads to low HDI and both enhance the vulnerability to food insecurity and vice-versa. The low HDI is closely associated with the fourth aspect of the food security- Nutritional security and both form a vicious circle. If HDI is low it, will reinforce nutritional food insecurity and the vice-versa. Food security exists 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. In South Asia, national food security has largely been achieved, but nutrition

security below the national level down to the household level has not, contributing to larger problems. At present, 23 percent of the people who are routinely hungry – 336 million people – live in the South Asia. These are amongst the highest rates of hunger in the world and new threats are emerging to intensify the situation. These figures, however, underestimate the true extent of food insecurity, which includes hidden hunger: micronutrient deficiencies that, beyond calories, limit potential for active and healthy lives (SAFANSI: 2017).

### **Stagnant Investment in Agriculture**

If we review the economic growth pattern of South Asia, we find that the agriculture has received the least preference in the new investment both domestic and foreign. In the era of globalization high investment priority is accorded to manufacturing and services sector. While public investment has not improved, the private investment was not forthcoming in agriculture because of uncertain and unsuitable conditions in rural areas and low returns. With respect to India, Ramesh Chand (2004) writes that during the decade of 1990s declining trend in public investment in agriculture that set in during 1979-80 continued for most part of the decade. The economic reforms focused mainly on price factors and ignored infrastructural and institutional changes through public investment, which had negative impact on agricultural productivity and growth. For example, the public investment in agriculture was Rs 69.9 billion in 1980-81, which declined to Rs 38.7 billion in 1999-2000. This affected the growth rate of agriculture in the post-liberalization period. For example, during 190-91 to 2001-2002 period, the growth rate of non-agriculture sector was 7.29 percent, whereas the growth rate of agriculture was merely 2.9 percent in the same period. Somsekhar (2013: 87) finds that the growth rate of employment in agriculture has declined from 1.54 percent in pre-reform period to -3.74 percent in the post reform period. Similarly, the plan outlay for agriculture has declined from 14.9 percent of total outlay in the First Five Year plan to just 5.2 percent in the 10th Five Year Plan. This trend has to be reversed if agriculture has to be brought back to the growth track. A study by Bhalla and Singh (2009) of the performance of the agriculture at the state level in India during the post-reform period (1990-93 to 2003-06) and the immediate pre-reform period (1980-83 to 1990-93) concludes that the post-reform period has been characterized by deceleration in the growth rate of crop yield as well as total agriculture output in most states. The economic reforms could not

improve the terms of agricultural trade to promote growth. Similar condition prevailed in other south Asian economies. The gravity of the current food crisis is the result of 20 years of under-investment in agriculture and neglect of the sector. Directly or indirectly, agriculture provides the livelihood for 70 percent of the world's poor (FAO: 2017).

The result of low public investment undermined not only undermined the growth of food production but also heavy debt trap to farmers, leading to incidences of farmer suicides. Murlidhar and others (2011), while investigating the impact of globalization on Indian agriculture with special reference to Andhra Pradesh, write, 'the biggest problem Indian agriculture faces today and the number one cause for farmers committing suicide is debt. Forcing farmers into debt trap is soaring input costs, the plummeting price of produce and lack of proper credit facilities, which make the farmer turn to private moneylenders who charge exorbitant rate of interest.' The debt trap led to the farmers committing suicides in various states of southern and central India. P. Sainath (2011), the noted journalist and activist has recorded that more than two lakh farmers have committed suicides in the post-reform period in different parts of the country. Navjit Singh (2011) quotes the figures of the National Crime Record Bureau and writes that during 1997-2005, 156562 farmers committed suicides in India. Nearly 60 percent suicides took place in four progressive states- Maharashtra, Andhra Pradesh, Karnataka and Madhya Pradesh. In other nations of South Asia, the farmers' suicide may not be a major problem, but in view of the declining public support, agriculture is no more an attractive profession for the farmers.

### External Factors

As food production in South Asia is not keeping pace with the rising demands of agriculture products, nations are resorting to import from other countries. This has resulted in not only soaring food import bill but also adverse impact on food production. The food production in South becomes non-competitive due to subsidized import of food grains from other countries. The issue of subsidy has generated controversy in international trade negotiations as the developed countries are not willing to part with the indirect financial support given to their farmers, whereas they are insisting on developing countries to do away with the farm subsidy.

Again the import of food grains from the international markets is also subject to volatility of food grain prices. A study of ADB (2013) notes that

the international prices of rice, wheat and corn began rising in the early 2000s, with the increase accelerating sharply after 2006. Prices spiked twice. The first peak was in mid-2008, led mainly by rice. This was followed by a decline, and then corn and wheat prices peaked again in mid-2012, also followed by a modest decline. Globally, rice, wheat, and corn directly contribute 50 percent or more of the food energy in the diets of the poor. Sharply higher and more volatile food prices threaten hundreds of millions of vulnerable people who spend a large share of their income on food. The food price spikes occurred along with a major global economic downturn, so the poor were hit simultaneously from the sides of their incomes (due to loss of employment) and the affordability of their staple foods. The spikes also came at a time of increasing recognition of agriculture's vulnerability to climate change (ADB: 2013).

### Part-III

The gravity of food security in Asia in general and South Asia in particular, has invited the attention of many institutions and individuals. Multinational agencies like ADB (2013, 2015); FAO (1999, 2015) and UNDP (2017a) have commissioned special reports to analyze the issues involved the challenge of food security and suggest policy measures to overcome this challenge. Any policy framework or strategy addressing the food security challenge in South Asia needs to take into account the following factors.

**First,** In spite of the much talk of the globalization and fading of state sovereignty, the states continue to be the major players in policy formulation and delivery. Thus, policy framework should be addressed to the states. The basis of all regional and global efforts rests on the performance of the states.

**Second,** South Asia's specific geographical, demographical and economic conditions make it more vulnerable to the challenges of food security. The growing population, low HDI index, proneness to natural disasters and looming threat of climate change, limited possibility for regional integration, neglect of agriculture in the post-liberalization phase, growing dependency of regional states on the import of food grains, persisting poverty, large proportion of small farm holding, acute problem of malnutrition, particularly among under-five children and so on. If a policy framework fails to address these specificities of South Asia, it may not prove viable in the long run.

**Third**, the proposed policy framework should take into account all aspects of food security: availability of food grains; stability of food grain supply mechanism; access of food grains to all sections of society; and finally the nutritional security. In view of the increasing integration of agriculture markets of the regional states with global economy, the level of external food dependency, the amount of food bill, and fluctuations in the prices of food grains in the international markets have also emerged as important factors influencing the food security policies in the region. Nutritional security in South Asia is in precarious conditions as all countries of the region are dependent on external supply for pulses which are considered cheap source of protein. In 2011, the import of pulses as the percentage of their requirement was: Bangladesh 62% India 16%, Nepal 18%, Pakistan 43% and Sri Lanka 96%. Sri Lanka, Bangladesh, and Nepal are also dependent on external sources for meeting their requirement of cereals.

**Fourth**, the best policies fail to deliver if poorly implemented. The administrative, political and socio-economic issues involved in the policies may undermine its effective implementation. For example, in India, the public distribution system of food grain is designed for improving the access of food grains to the marginalized sections. But rampant corruption in the delivery and selection of beneficiaries has undermined the full success of this mechanism.

In view of these general parameters, it is instructive to review the food security policy frameworks suggested by some of the leading multinational agencies. The Asian Development Bank (ADB: 2013) has identified four key challenges for policymakers and the development community on food security in Asia. **First**, there is an urgent need to revitalize growth in agricultural productivity and, at the same time, address the increasingly tangible impacts of climate change on agriculture. **Second** is the need to ensure that Asia's 350 million small farmers, typically those working less than 2 hectares, have the opportunity to compete and thrive in modern, food value chains. The **third** challenge is the persistent problem of malnutrition in preschool children, which has long-run impacts on human capital. And, **fourth**, the food price crisis revealed the need to give greater attention to the political dimensions of food security.

The UNDP (2017) argues that agriculture provides livelihood to 40 percent of global population; and 500 million small farmers meet the 80 percent of the food grain needs of the world, it is sensible to increase investment in small farming sector to increase food security and nutrition for the poorest, as well as food

production for local and global markets. Since the 1900s, some 75 per cent of crop diversity has been lost from farmers' fields. Better use of agricultural biodiversity can contribute to more nutritious diets, enhanced livelihoods for farming communities and more resilient and sustainable farming systems. The UNDP argues that if women farmers had the same access to resources as men, the number of hungry in the world could be reduced by up to 150 million. The rural areas in the world still lack basic infrastructure, which inhibit the growth of agriculture production. At present, 1.4 billion people have no access to electricity worldwide – most of whom live in rural areas of the developing world. Energy poverty in many regions is a fundamental barrier to reducing hunger and ensuring that the world can produce enough food to meet future demand.

The FAO (1999) suggests some policy measures to address the situation of food security in South Asia: increased food productivity to achieve self-sufficiency in food particularly in medium and large economies; improving delivery mechanisms; focus of pricing policies on transferring income to poor people; increasing public investment in agriculture; strengthening rural development programmes and adding nutritional dimension to the food security programmes.

Another study by the UN ESCAPE (Wickramasinghe: 2014) analyzes the policy approaches of South Asian nations to address the food security challenge and suggests some policy measures like-focusing on improving productivity and production; promoting research and development in knowledge sharing in agriculture sector; managing food security risks and vulnerability; and developing safety nets for poor.

A study by Haque (2014) has identified some challenges to eradicate food insecurity in South Asia: reducing poverty, increasing food security without further degrading natural resources, and coping with population growth. In order to reduce the incidence of food insecurity the study suggests macro policy interventions aimed at de-bureaucratization, careful sequencing of reforms and concern for price stability; stabilizing population growth; enhancing agricultural growth and food production; launching poverty alleviation programmes; effective implementation of public distribution measures; and creating awareness among people about food security. The three policy implications of this study are:

**First**, South Asian countries will have to aim for a steady, sustained rise in production through the development or acquisition of new technology, the adoption of an integrated strategy that include



measures to increase domestic production and expand social safety net program while simultaneously collaborating on various fronts, including the trade front.

**Second**, the Governments should focus on improving farm productivity to ensure greater global competitiveness and creating non-farm employment opportunities.

**Third**, Regional initiatives to end the endemic conflicts in the region and taking special care of the regions prone to natural disasters.

The crux of above studies is that any policy framework addressing food security should focus on *four basic elements: improving food availability primarily through increasing food production; ensuring effective distribution mechanism and safety nets for the poor; and taking special measures for vulnerable regions or groups in view of rising threat of climate change.* A detailed elaboration of these components is required.

**First**, Increasing food grain production the clue to the dealing with the challenge of food security in South Asia lies in increasing the production of food grains by increasing public investment in the agriculture, technology transfer, improving the supply of inputs and encouraging small farmers with suitable prize mechanism and subsidy. The decreasing investment in agriculture in real terms has concerns in various quarters. In the food production mix of south Asia, the pulses and oilseeds need to be given priority as they are not only the cheap source of nutrients, but also help in reducing external dependency.

Increasing investment in agriculture sector is prerequisite for increasing food grain production in South Asia. The FAO (2017) states, 'Poor countries need the development, economic and policy tools required to boost their agricultural production and productivity. Investment in agriculture must be increased because for the majority of poor countries a healthy agricultural sector is essential to overcome hunger and poverty and is a pre-requisite for overall economic growth'. In the context of developing countries, Jayati Ghosh (2005) remarks that the real problem for farmers has been not only that they are being forced to compete with highly subsidized farmers in the North, but also that developing country governments have reduced or withdrawn a range of other policies and measures that are crucial for agricultural development. These include public investment in rural infrastructure, ensuring adequate and timely institutional credit for cultivators, and provision of agricultural extension services that

provide information about cropping practices and techniques as well as material inputs, and so on. Steady investment in technology development, irrigation infrastructure, emphasis on modern agricultural practices and provision for agriculture credit and subsidies are the major factors contributing to agricultural growth (IBEF: 2014).

The more investment, if effectively utilized, may lead to better agriculture infrastructure like roads, power and marketing networks; better provision for inputs and research and development to boost the food production. Thus, agriculture in South Asia needs to be given highest priority in the overall framework of development. Also the investment should be targeted at small and marginal farmers, which are the backbone of food production in South Asia. Because of continues apathy and poor returns an uncertainty of income the agriculture in South Asian in no more attractive activity. One of the major issues that many South Asian countries need to tackle is the tendency to move away from the cultivation of staples towards the cultivation of other high value crops. This could prove a particularly tricky issue to handle since it involves a trade-off between raising farm incomes and meeting rising domestic demand for staples. An integrated strategy that includes productivity enhancing measures and appropriate pricing policies to create an incentive structure that balances the two objectives of raising farm incomes and meeting the demand for food will need to be put in place (Mittal And Shahi: 2009).

When domestic production is not adequate to maintain the required level of food availability, countries resort to import from international markets, which suffers from volatility of prices. The other viable option is to improve regional trade in food grains, which has vast potential and more viable in terms of cost and certainty. At the regional level, increased agricultural trade between South Asian countries will play a far more important role in achieving food security than initiatives like the setting up of the SAARC Food Bank which is essentially a mechanism to handle emergency situations. Regional trade between SAARC countries is at present impeded by fairly high tariff and non-tariff barriers. Reducing these barriers while simultaneously ensuring that trade policies do not distort domestic incentive systems would go a long way in promoting regional agricultural trade (Mittal And Shahi: 2009).

**Second**, given the high rate of incidence of poverty and malnourishment in South Asia, the principles of inclusiveness and equity should be inherent in the food security mechanism. This can be achieved

by layered public distribution system, where poor and marginalized get the priority. Extra safety nets and rural development programmes linked to food grain may alleviate the threat of food insecurity. Such mechanism should be flexible enough to deal with the natural calamities like drought and floods. Large tracts of lands in South Asia are prone to drought, which has frequent occurrences in the region. Since nearly 65 percent of agriculture land in South Asia is rain fed, the severity of drought leads to food crisis for the people of lower income groups. Buffer stocks of food grains are required for effective distribution mechanism.

**Third** set of measures are related with population growth and low Human Development Index (HDI) in South Asia. South Asia not only has a high concentration of population but also high rate of growth, which outpaces the growth in agriculture production. The population stabilizing policies and Human development efforts need to be dovetailed with food security mechanism in South Asia. The real challenge in South Asia is to turn burden of human population into human asset. The first step in that direction is the robust system of food and nutritional security.

**Fourth**, many regions of South Asia like hills of Nepal and India; deserts and other such areas are more prone to food grain crisis. The rapid depletion of natural resources, degradation of land, scarcity of water are causing concerns in view of the rising threat of climate change. The food security mechanism should have inbuilt features to ensure sustainable agricultural practices. The better adaptation to changing climatic conditions is immediate required for vulnerable regions and sections of South Asia. The disaster risk reduction and management strategy should include prevention and mitigation measures, early warning systems, and a quick and effective response and recovery mechanism to ensure post-disaster rehabilitation of the people and the farming system. Irrigation greatly reduces weather risks and helps stabilize food availability. When there is limited potential for new or expanded irrigation systems, policy should prioritize improved management and modernization of existing systems to increase water productivity. Water productivity needs to be increased so that more food is produced with less water. According to one estimate, water productivity doubled between 1961 and 2001, but it will need to increase further in the future. In order to accomplish this, it will be essential to adopt knowledge-based green growth (FAO: 2015).

To sum up, South Asia faces grave challenge of food security in coming decades in view of high

population growth, low level of agriculture growth, low HDI, high poverty and undernourishment. The clue is to enhance the availability of food grains from increased domestic production and regional cooperation, improve the access of food and nutrition to all and take special measures to stop the degradation and depletion of natural resources to balance the threat posed by the climate change.

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