



Addressing long-term challenges to food security and rural livelihoods in South Asia

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Agriculture continues to be a very important livelihood option for the vast majority of South Asia's rural population, even though the sector's contribution to the economy is shrinking. Against the backdrop of an increasing divide between farm and non-farm income levels, urban migration, and alarmingly high levels of malnutrition, this paper examines the potential long-term challenges that further aggravate the food insecurity in the region.

A woman in Savar on the outskirts of Dhaka, Bangladesh, separates rice from husks using a traditional sieve. With some cereal crop yields falling in South Asia and increasing scarcity of land and water, investment in agriculture is a priority for governments in the region.

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Key messages

Investment in agriculture and rural livelihoods must be a priority for South Asia in the coming years, in order to meet the challenges of food insecurity. Particular attention should be paid to:

- Financial investment in agricultural research and development, with a special focus on improving the nutritional value of rice crops.
- Enabling small-scale producers to participate in markets: allowing them to manage risk more effectively by taking advantage of index-based insurance, and investing in Information and Communication Technology (ICT) to support knowledge of, and access to, markets.

- Empowering women to be confident farmers, increase their income and develop a stable rural livelihood.
- Improving regional cooperation, including establishing a regional food reserve as a buffer against food price volatility.

New challenges continue to emerge that further threaten the food security situation. The paper poses and addresses the following critical questions:

- What are the emerging stresses on South Asian food security from the agricultural perspective?
- What are the priority policy options specific to South Asia for addressing some of the important long-term challenges to food security?

This briefing paper is one of the 10-part Global Development Network (GDN) Agriculture Policy Series for its project, 'Supporting Policy Research to Inform Agricultural Policy in Sub-Saharan Africa and South Asia'. It is based on a longer synthesis paper, *Addressing long-term challenges to food security and rural livelihoods in South Asia*, which draws on extensive published and unpublished research. The full paper can be downloaded at: www.agripolicyoutreach.org

It will be of value to policymakers, experts and civil society working to improve agriculture in South Asia.

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The number of malnourished children and adults remains alarmingly high in South Asia despite the region experiencing impressive economic growth. For many urban and rural dwellers, food insecurity is a daily reality. The agricultural sector is making a declining contribution to the economy, although most of the rural population is still dependent on it for their livelihood. Yields are falling in certain cereal crops, agricultural investment is generally decreasing and arable land is becoming more scarce. Some parts of South Asia have been more successful than others in improving agricultural conditions, but even so, the gap between rural and urban prosperity – and farm and non-farm incomes – is growing.

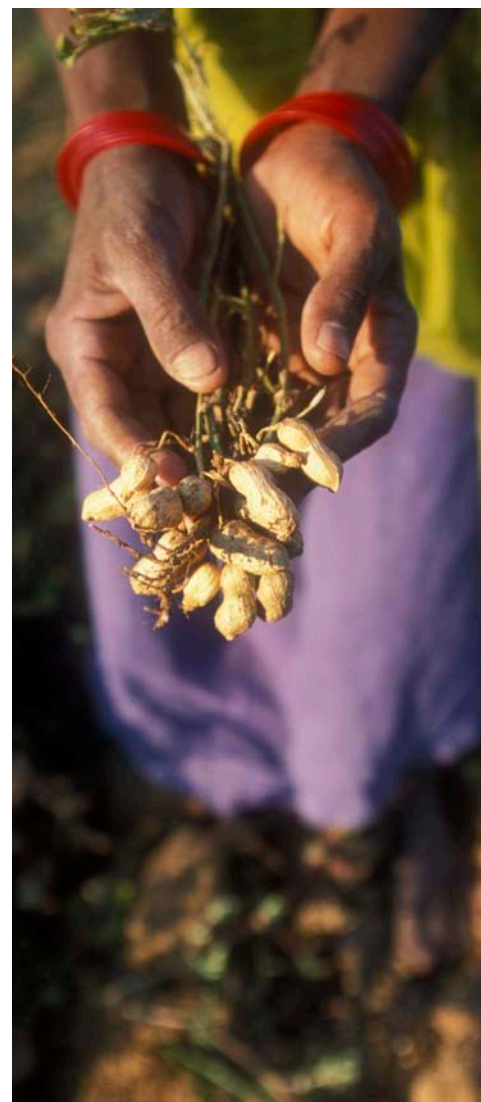
Background to the research

The analysis presented in this briefing is based on two main sources – a systematic review of literature and interaction with various stakeholders. The literature review covered a variety of sources including journal articles, books, research reports, working papers and policy briefs. Greater emphasis has been given to the views of South Asian authors and think tanks in order to capture a regional perspective.

The focus of the analysis is on agriculture and its connections with food security and rural livelihoods, rather than looking at all aspects of food security (namely, food availability, access to food, utilization of food and food vulnerability). However, the briefing acknowledges that to be effective, public policy on food security must incorporate responses to these issues.

The emphasis has been on identifying the emerging challenges to food security in South Asia and prioritizing the policy responses. Detailed interviews were conducted with experts representing various national and international research organizations, government departments and non-governmental organizations.

There are other long-term challenges to food security from demographic changes, climate change, increasing scarcity of land and water, and food price volatility. Policies needed to respond in the short and long term and combat the issue of food insecurity include: more research into rice varieties, support for smallholders to manage risk and have better access to information, improving agricultural and rural investment levels, land reforms, empowerment of women, and regional cooperation to create a food reserve to serve as a buffer against food price volatility.



India, Chittoor district, Andhra Pradesh. A woman holds groundnuts (peanuts), one of the staple crops in drought-prone Andhra Pradesh. Climate change affects crop yields, food prices, food use and vulnerability of households. It is a long-term challenge to South Asia and the agriculture sector.

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Almost half of South Asian children are malnourished

Although South Asia fares better than Sub-Saharan Africa in terms of levels of poverty, per capita income and per capita dietary energy supply, it has a higher level of malnutrition. Almost half South Asian children under five years old are underweight compared with 31 per cent of the same age children in Sub-Saharan Africa, and there are four times more underweight women in South Asia. Every country in the South Asia region has a wasting rate of 10 per cent or more, which indicates a serious problem.

Food production in South Asia has benefited from the green revolution, growing from 157.6kg per person in 1971–73 to 176.3kg per person in 1988–90. Levels of food consumption per person showed a corresponding increase, yet even with per capita income showing significant growth in recent years, the level of food consumption has stagnated.

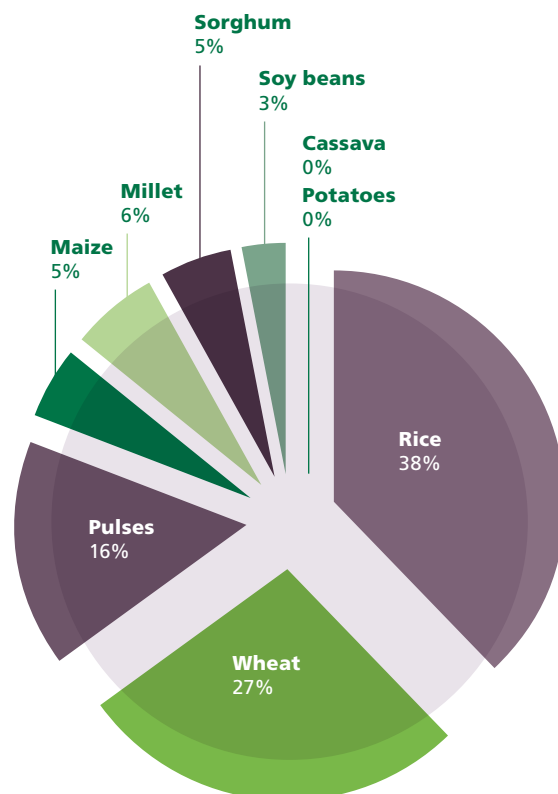
All the South Asian countries are highly dependent on agriculture and this sector continues to be an important source of livelihood for millions, even though the proportion of GDP contributed by agriculture today is less than it was in 1990. If food security issues are to be addressed then the agriculture sector should be a key part of any strategy. Evidence also shows that for many developing countries, a greater focus on agriculture will provide the fastest and surest way out of poverty for millions of people. Since household food insecurity often arises because of the inability of families to buy food or have access to food, overcoming this barrier is paramount. Many South Asian countries have initiated income-based or employment generating programs, as well as price control and distributive measures.

Nevertheless, malnutrition is still high, and in a context of several significant emerging stresses, it is vital to tackle the issue of food insecurity and rural livelihoods in South Asia now.

Number of poor and dominant crop in South Asia

The chart connects the proportion of poor (estimated as those below the US\$1.25 per day poverty line expressed as a percentage of total poor people) to the dominant crop grown in the areas where they live. A dominant crop is defined as a crop covering more than 10 per cent of the area. Since some areas have more than one dominant crop, there are overlaps in the analysis.

Source: United States Department of Agriculture (2012)



Emerging challenges to food security that have been identified include demographic changes, climate change, constraints on availability of land and water, and food price volatility.

Demographic changes

■ Through changing lifestyles and consumption patterns

Urban populations in South Asia are now demanding high-value products, which may require smallholder farmers to diversify, yet with low level skills this is hard to do. Projections up to 2025 indicate that consumption of meat, eggs, fish, fruit and vegetables will almost double, while cereal consumption across countries will stay more or less the same.

■ Through rural to urban migration

The livelihood opportunities in agriculture are drying up, leading to a steady stream of migration to urban areas in the South Asia region. This has been referred to as 'distress' migration because it is not migration through choice but because other sectors are unable to offer low-skilled employment, and does not augur well for food security. Rural to urban migration in the medium to long-term future (see chart on page 5) will lead to tightening of rural labor markets and facilitate mechanization of agriculture in South Asia. Paradoxically, in the short term, welfare schemes (such as the National Rural Employment Guarantee Scheme in India) are contributing to agriculture labor supply shortages as they encourage laborers to give up work.

Climate change

This is a long-term challenge to South Asia and the agriculture sector, affecting all four dimensions of food security: crop yields, food prices, food utilization and vulnerability of households.

Evidence suggests that yields of rice could decline by 14 per cent, wheat by 44 to 49 per cent and maize by between 9 and 19 per cent. Flowing from this, global food prices will become more volatile, affecting access to affordable food for poor households. Short-term decisions made by South Asian governments for political gain will not help to contain the volatility – they need to lead with strategic, long-term policies.

Climate change will have a significant impact on the spread of disease, leading to differences in household food utilization. Households' vulnerability to food insecurity generally will increase with the likely increased frequency of extreme weather events such as floods, droughts and cyclones.

Setting it in stark terms, climate change is projected to increase the number of malnourished children in South Asia by about 14 per cent by 2050, eroding the progress made on this in the region.



Climate smart villages

The Consultative Group on International Agricultural Research (CGIAR) research program on climate change, agriculture and food security, in collaboration with its local partners, has established strong relationships with six villages in the Indian states of Punjab and Bihar, and three villages in Nepal, in an effort to develop 'climate smart villages'.

Farmers in climate smart villages will be able to use weather forecasts and climate information more effectively and utilize agro-advisory services appropriately as information will be disseminated through ICTs and mobile phones in vernacular languages. They will be: water smart, with emphasis on water conservation and water use efficiency; carbon smart, with focus on low tillage, residual management and agro-forestry; and knowledge smart through effective sharing of information on best management practices.

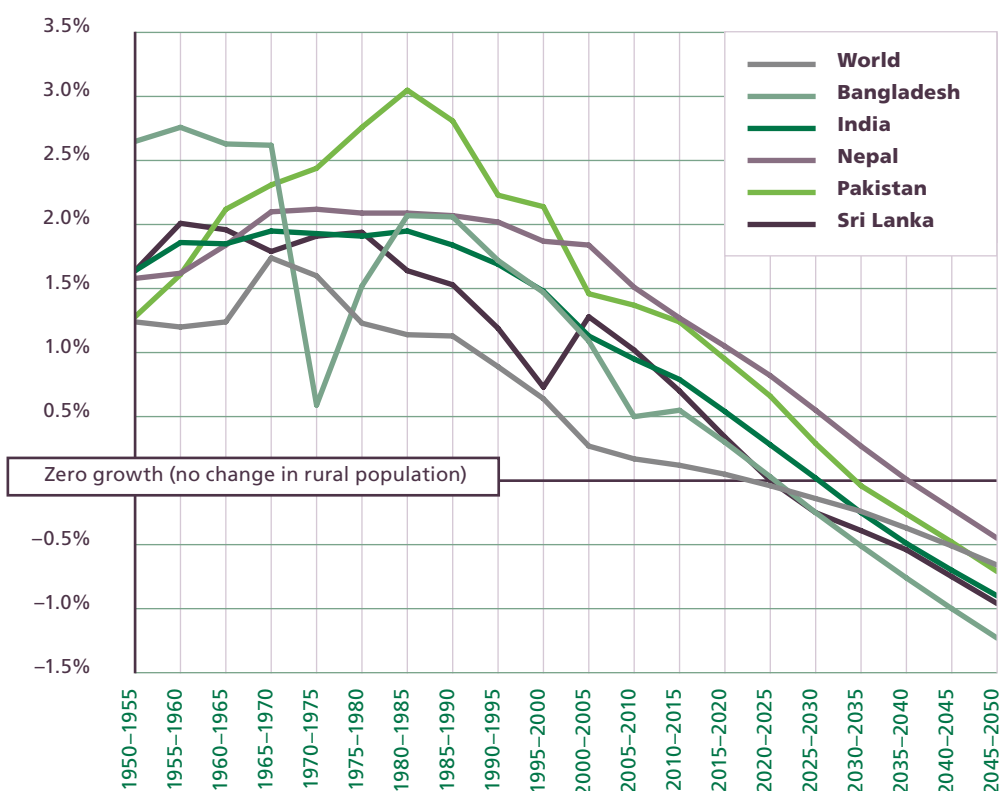
These interventions are region-specific and cater to the challenges of the area or region. The focus in Punjab, for example, is on water management, while in Bihar and Nepal it is on drought and flood risk management. The concept of climate smart villages is now being expanded to parts of southern India and coastal Sri Lanka.

The climate smart villages enable farmers to increase their incomes, adapt to climate variability and climate change, and reduce their carbon footprint.

Annual growth of rural population in the world and South Asia: 1950 to 2050 (per cent per year)

The chart shows the estimated year-to-year growth rate in the rural population for several South Asian countries, along with that for the world. With a small increase up to 1980, the growth rate of rural populations has been steadily declining since then in South Asia. Over time, a declining rural population will lead to more land available per person. It will also lead to tightening of rural labor markets and facilitate the mechanization of agriculture. The negative growth in rural population however is expected to set in only by 2030–35. Until then, farmers in South Asia will have to ensure a higher output per hectare to avoid a decline in output per worker and to maintain food security.

Source: Computed from United Nations, Department of Economic and Social Affairs, Population Division, World Urbanization Prospects, the 2011 Revision. New York, March



Resource constraints

Land and water resources are threatened by changes in land use and overexploitation of ground and surface water. Estimates suggest that the region needs an additional 1 per cent increase in non-biofuel crop yields in order to compensate for the competition from biofuel cropping and maintain the current level of food security.

The vulnerable food security situation, decline in investment in the agriculture sector and lack of alternative livelihoods for rural populations in the South Asia region all need to be addressed through strategic policy decisions. The most important point to stress is that none of these policy areas should be seen in isolation, but should be viewed as elements of an integrated approach to combating food insecurity and changing food utilization in South Asia.

Women plant rice in a field in South India. Empowering women and enabling them to become independent food producers is a crucial component in combating food insecurity.

MARK HENLEY | PANOS PICTURES



Empowering women – the case of Sangha Krishi in Kerala, India

The lack of attention to 'food justice' globally in the mainstream notion of food security could prove detrimental in the long term. But efforts to create a 'just' food economy are taking shape through the collective struggle of almost a quarter of a million women who are farming nearly 10 million acres of land in Kerala, a state in the South of India.

A government of Kerala initiative called Kudumbashree is supporting the development of networks for these women, with the aim of reducing poverty. In 2007 it started a pilot project to enable women to move from their traditional role as plantation and agricultural laborers to become independent food producers. The project is having a palpably positive effect. Kudumbashree has worked closely with the National Rural Employment Guarantee Scheme (NREGS) from the start of the project.

To make the project sustainable in the long term, the issues of land ownership and access to credit must be addressed – along with the provision of risk insurance to allow women producers to develop their businesses. The project should be emulated elsewhere to address food security as it also reconnects food security to livelihoods, as any effective food policy must do.



■ **New rice varieties**

Rice is the principal crop of the region for poor people (see chart on page 3) and emphasis needs to be focused on developing new rice varieties with higher tolerance to stresses such as temperature and precipitation (abiotic stresses), greater resistance to insects and disease, and improved nutrient content. Given the potential of rice for addressing food security concerns in South Asia, improving the mineral and vitamin make up of rice should be a priority.

■ **Improving the regulatory environment**

The private sector has an important role to play in research into varieties of hybrid rice and biotechnology, largely because this research is expensive and takes place over long time periods. Regulation is required, however, so that the research findings are not confined to a few big private companies but shared with other public and non-governmental organizations for the benefit of small-scale producers.

■ **South–South cooperation**

Knowledge about good practice in field management and the most effective collection of genetic resources (germplasm) needed to cope with different agro-ecological conditions could, and should, be shared between southern countries for everyone's benefit. Governments need to support the necessary structures and networks for this to happen.

■ **'Zero till' agriculture**

Policies to support this kind of farming – a way of planting seeds from one year to another without disturbing the soil structure – must be a priority. Zero or low-till farming is an effective response to some of the environmental costs of agriculture. Other important responses include farming organically and labor-intensive farming practices to lower costs and absorb surplus laborers.

■ **Support for small-scale farmers**

As in Sub-Saharan Africa and other regions, index-based insurance will enable small-scale producers to manage the risks associated with climate change and take greater risk in order to develop and upscale their business. They will also be helped to participate more equally in markets by having better access to relevant information, through investment in information and communication technologies. Both of these areas should be a policy focus.

■ **Creation of food reserve**

A regional food reserve with limited size will serve as a buffer in years of food grain shortfall and promote cross-regional cooperation.

■ **Development of 'climate smart villages'**

The climate smart villages (see page 5) being developed by the CGIAR network could enable the farming systems in South Asia to address current, as well as future, climate challenges.

■ **Empowering women**

The Sangha Krishi experiment in Kerala in India demonstrates that if women are given greater support to become independent food producers, they can play a significant role in combating food insecurity, providing there is also policy support to acquire land ownership and manage risk through the provision of index-based insurance.

■ **Investment in agriculture, rural economies and land reform**

Prioritizing these areas of policy development will assist in boosting the agriculture sector and, in turn, the sector's contribution to addressing food insecurity.



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The full paper *Addressing long-term challenges to food security and rural livelihoods* is available for download at www.agripolicyoutreach.org

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