
Never an Empty Bowl: Sustaining Food Security in Asia

Asia Society and International Rice Research Institute
Task Force Report

Executive Summary

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Asia's ability to feed itself is of fundamental importance not only to the people living in the region, but also to the world. One of the bright spots over the past half-century has been Asia's capacity to lift many of its citizens out of poverty and ensure that they have plentiful, inexpensive supplies of food, including rice, the region's main staple. But Asia still accounts for about 65% of the world's hungry population, and the historical gains from the Green Revolution are increasingly at risk. Declining trends in agricultural research and rural investment may lead to long-term food supply shortages and increased vulnerability to the famines that used to plague the region.

Food insecurity in Asia is full of contradictions, acute in some places and banished in others. The region is home to the world's two biggest rice exporters—Thailand and Vietnam—but also the biggest importer—the Philippines (and, historically, Indonesia)—and the two giants of global food production and consumption—China and India. A number of interrelated factors contribute to food insecurity in Asia. Foremost among them is poverty. The sheer magnitude of poverty and hunger in Asia is often masked by the dynamic macro economies in the region. Beneath that dynamism, however, lie stagnant, even declining levels of welfare for many households. Nearly two-thirds of the world's 1.4 billion poor live in Asia, and they spend on average about half of their income on food. For those making less than US\$1.25 a day, access to adequate food from the market is often too costly. Asia's rural poor, most of whom do not have enough land to be surplus producers of rice, are especially vulnerable.

Nearly 560 million people living on less than \$1.25 (in purchasing power parity, or PPP) per day are in rice-producing areas, far more than for any other crop (*see Appendix I*). Asia, where about 90% of rice is grown, has more than 200 million rice farms, most of which are smaller than 1 hectare. Rice is the staple food for most of the poor in Asia, where poverty remains staggering, particularly in South Asia. For the extreme poor who survive on less than \$1.25 per day, rice, on average, accounts for nearly half of their food expenditures and one-fifth of total household expenditures. This group alone annually spends the equivalent of \$62 billion (PPP) for rice.

The problems of hunger and malnutrition extend well beyond the availability of rice, although inadequate access to this basic source of food energy remains a problem for millions of households. Especially in South Asia, the nutritional status of mothers and children is not improving even as fast as the slow rate of poverty reduction. Sustainable improvements in food security in Asia must incorporate specific nutritional initiatives into the program designs, some of which might be mediated by rice with improved nutritional qualities, such as for iron or zinc. Although this report has a special focus on the role of rice in Asia's food security, it also attempts to incorporate the full range of food security concerns—availability, access, and utilization—into the analysis and recommendations.

Another factor contributing to food insecurity is increasing demand from Asia's large

and growing population. At current consumption levels per capita, rice production would need to grow by roughly 4 million metric tons (mmt) each year because of population growth.¹ Additional cereal demand comes from the shift to more protein-rich diets (which are much more nutritious than diets that derive the majority of their calories from rice, but which can be cereal-intensive because of utilization of cereal crops as livestock feed). Rapid economic growth in China and India has diversified food demand and improved the quality of diets, while also creating opportunities for changes in rice-based systems to include higher-value crops and livestock. But one consequence is the reduced amount of land available for rice. The rice-related tensions that developing countries face are growing more complex as their economies grow: between poor rice farmers and poor consumers, between small-scale and large-scale rice-based farms, between rice and more lucrative cash crops, between edible crops and biofuels, between crops and other land uses, and between crops and other water uses.

Also as a consequence of economic growth, current rice cultivation areas are likely to be lost to urban expansion and land conversion to biofuels. Accordingly, sufficient production to meet future demand will have to come from smaller and smaller areas, particularly if diversification is to be possible while keeping rice prices affordable to poor consumers. In turn, this trend adds urgency to the need to improve productivity.

The rising costs of energy, human-induced environment and land degradation, water scarcity, and climate change all present challenges, some of which have been on the agenda for decades, others of which are new. As Asia's population continues to grow and to urbanize at unprecedented rates, food insecurity in the region could worsen unless action is taken now. Asia must grow more food using less land, water, and labor, while overcoming new challenges from climate change.

Task Force Recommendations

The Asia Society/IRRI Task Force recognizes the enormous amount of effort from earlier studies that has gone into understanding and improving food security at the global, regional, national, and local levels. Without duplicating those efforts, this report outlines a series of actions that are needed to secure Asia's food security going forward, each of which falls into four main areas:

Recommendation 1: Raise and sustain the productivity of rice farmers in ways that conserve water, land, and energy-intensive inputs while also building resilience to the expected impacts of climate change.

The Task Force urges increased investments to revitalize research and development efforts to raise the yield potential of rice, and more systematic inclusion of grain quality into rice breeding for specific target markets. The private sector's involvement in rice research and extension services that bring new techniques and technologies out into the field is

¹ All rice consumption figures cited in this report refer to milled, or white, rice.

needed to raise productivity growth. While public sector rice breeding and biotechnology research probably still has far more resources, private sector rice research has grown very rapidly from a small base in the last two decades. Larger and longer-term commitments to support research by the private sector on grand challenges and international public goods, as well as increased support of public sector research aimed at advancing high aggregate potential benefits, are crucial, especially given the lack of immediate commercial potential. Basic research is need in such areas as engineering of advanced photosynthesis mechanisms into rice, biological nitrogen fixation in rice, insect-virus interactions, and sustainability indicators for key ecosystem services.

On the basis of IRRI estimates, the Task Force recommends increased funding for the following six areas of research, which will cost approximately \$60 million additional funding in 2010, rising to about \$100 million additional funding per year by 2015:

- Strengthen and upgrade the rice breeding and research pipelines (including a nutrition focus);
- Accelerate research on the world's thousands of rice varieties;
- Develop a new generation of rice scientists and researchers for the public and private sectors;
- Bring about an agronomic revolution in Asian rice growing;
- Design new systems to integrate high-yield rice and production of other crops; and
- Improve postharvest technologies for rice

The Task Force strongly encourages public-private partnerships to carry out this research. To fund this research, the Task Force recommends an innovative new arrangement with similarities to a very successful funding mechanism developed in Brazil. There, the entire rice research and extension system in the state of Rio Grande do Sul is paid for by farmers, through a check-off system (20 cents per bag of rice produced = about \$30 million per year). Rice yields have increased in the past 6-7 years at rates 4-5 times the world average, on over 1 million hectares of irrigated land. The system has three main advantages: research is focused on what farmers want, research funding benefits from increasing yields, and research funding (and the research itself) is independent from political fluctuations.

An alternative to the farmer check-off system, but with a similar philosophy, could work in Asia, where farm size tends to be very small. National commitments to fund rice research on the basis of the value of domestic rice production would certainly be a step forward, and public funding would signal a recognition that consumers benefit at least as much as farmers from gains in rice productivity. This approach would need to allocate a small percentage of such a fund to the international institutions that carry out rice research, such as through the Consultative Group on International Agricultural Research (CGIAR). It is important that Asia participate significantly more in the funding of research on its basic food crops,

especially rice. A production-based system would focus the incentives where they are most effective—long-run research on raising productivity in a sustainable fashion.

As a rough example of the possible sums involved, consider a base production of rice in Asia of about 400 million metric tons, worth about \$300 per metric ton, for a total production value of \$120 billion per year. A levy of 0.5% on the value of rice production would thus yield about \$600 million per year to be allocated to rice research. Perhaps 10% of this should be devoted to the international centers conducting rice research, thus guaranteeing them about \$60 million per year in regular funding (and leaving \$540 million per year for in-country rice research programs). This would be considered “core” funding—unrestricted funding to be used for long-run research, provision of modern facilities, and regional training programs.

Recommendation 2: Improve the environment for rural development, including farm and non-farm activities at local, national, and regional levels, with renewed attention to how to stabilize domestic food economies.

The Task Force recognizes that stimulating rural development in a way that includes the landless and smallholder farmers is a huge task that is at the core of overall development strategies. It is also a task that in the past has often overlooked female farmers and workers. This report does not make specific recommendations on how any particular country should go about this task, but it does urge the global donor community to continue to put agricultural development back on its funding agenda. Higher agricultural productivity is the essential foundation for broader gains in the rural economy and from there to overall economic development. Specific recommendations on stabilizing food prices and establishing a more open trade regime for rice are presented because so little attention has been paid to these topics in the past two decades. The Task Force calls for the following measures:

- Invest in agricultural infrastructure and information systems;
- Reform the policy environment for food markets;
- Stabilize food prices;
- Build capacity of both male and female smallholder farmers to access markets;
- Connect macro policy to micro decision makers;
- Link agricultural development strategies to the rural poor; and
- Strengthen the rural non-farm economy.

Not only is rice risky to grow, it is risky to sell and trade. One way to lower risks is to increase the level of rice reserves, especially in the large Asian countries that have a deep interest in more stable rice prices. Larger reserves will be expensive to build and

maintain, but the goal is not to use increased reserves to provide for growing demand for rice, but to cushion price shocks and help country policy makers have more confidence in using the world rice market—imports and exports—as a routine source of supply and demand.

An alternative proposal would be to establish a robust futures market for rice, perhaps in Singapore. Under normal circumstances, a robust and deep rice futures market should add substantial stability and transparency to formation of rice prices, which would help build confidence in the reliability of the world rice market. However, the successful development of a commodity futures market depends heavily on the legal structure of the contracts (and their perceived enforceability) and on access to modern financial markets to provide the underlying liquidity that makes a futures market useful to traders. Singapore seems a logical place for a rice futures market because it can satisfy these criteria.

Recommendation 3: Provide safety nets and more nutritious foods to the rural and urban poor so that they can lead productive lives even in the face of significant risks and vulnerabilities.

A rich portfolio of experiments to provide efficient and effective food safety nets has been underway for the past several decades, although only a few countries have managed to operate them at national scale. Conditional cash transfers seem to be evolving as best practice in this area, although in poor and remote regions without smoothly functioning food markets, there clearly remains a role for programs that physically deliver food to needy families.

The Task Force recommends that more of these ongoing experiments be brought to scale, but we recognize the extent to which unique circumstances, and funding opportunities, condition this recommendation. Still, if our goal is to make economic growth “pro-poor,” we see a similar opportunity to make safety net activities “pro-growth.” To do this, investments are needed in human capital in the form of better health and nutrition, as well as formal education. The returns to such investments, especially for the rural poor, are very high. They may not pay off directly in cash flow to the sponsors of the safety net programs themselves, but they clearly pay off to the society in the form of faster, and more equitable, economic growth. The Task Force calls for the following measures related to investments in health and nutrition:

- Design and implement cost-effective safety nets for food assistance for the rural and urban poor;
- Implement programs to prevent and treat undernutrition in emergency and development contexts; and
- Design programs that incorporate the special role of women in food security in Asia.

Recommendation 4: Provide regional public goods for sustainable food security in Asia.

To ensure that activities to provide the public goods needed in the three crucial recommendations above are widely communicated and, to the extent possible, effectively coordinated, the Task Force recommends that a Center for the Coordination of Food Security Activities in Asia be established within an already existing Asia-based institution—the Regional Office for Asia and the Pacific of FAO and the Asian Development Bank are obvious possibilities. The first step towards establishing this Center would be to assess existing food security-related efforts being led by regional and sub-regional groups, examine how these services are being provided, and identify the constraints and gaps in their efforts. As part of this assessment, regional policy makers should initiate discussion forums with private sector leaders, non-governmental organizations, and other key stakeholders on the effective provisioning of regional public goods for food security.

Following this assessment, the Center should be equipped with the resources to access timely information on food production, trade and prices, and consumption (and would make this information widely and freely available); monitor policy and program initiatives at the country and regional level (and issue regular policy briefs and updates); and conduct its own evaluations of the impact and cost effectiveness of food security strategies in the region. A specific part of its mandate would be to document the systemic nature of long-run food security challenges in Asia and to identify appropriate systemic approaches to these challenges to strengthen or complement existing efforts in the region. The Center would need high-level links to research centers in the region that are engaged in analysis of food security issues. These links could be mediated via regular exchanges of analysts and scholars, which could also be used to support regional training programs in food security.

Financial Dimensions

New money is going to be needed every year to achieve sustainable food security in Asia. The United Nations estimates that an additional \$40 billion dollars per year would be needed—on top of the \$80 billion currently being spent on agricultural development, poverty reduction, and food security—to eliminate hunger and poverty in Asia by 2050. An additional \$12 billion per year will be needed to scale up programs to eliminate malnutrition. At a more focused level, IRRI estimates that an annual investment of \$120 million between 2010 and 2030 could increase rice productivity by 8.5% (above “business as usual” trends) over the next 25 years, which could lower the poverty rate in Asia by 15% and the hunger rate by 20%. There are no other visible investments with that kind of impact on hunger and poverty.

Where will this money come from? The world food crisis of 2007-08 has clearly put food security back on the agenda of the broader donor community. Major commitments of new funding have been made, but no careful analysis has yet been done of when the committed funding is likely to be available, on what terms, and for what purposes. Recent “food security investment forums” at the country level have begun to specify in considerable detail the likely resources needed, but only Bangladesh has so far managed to produce a

detailed plan of action and begun to raise the resources needed to fund it. On the basis of this plan, Bangladesh was the first country in Asia to qualify for funding from the new Global Agriculture and Food Security Program (GASFP). Finding ways to make the GASFP process flexible, efficient, and accessible should be a high priority.

Developing strong partnerships with the private sector will bring about better understanding of this important sector's investment plans in areas that affect food security, from input technologies to development of modern supply chains, to food technologies that change the range of products available to consumers. In aggregate, the entire agribusiness system that provisions the global food economy is the largest industry in the world. Virtually all of the funding for this system comes, of course, from food consumers. Other funding sources—foundations, international financial institutions, philanthropic individuals—will be crucial for moving forward the food security agenda, but it is important to realize where this funding fits in the larger global food economy.

Finally, it is worth re-emphasizing the crucial need for individual countries to raise enough revenues domestically to fund their own rice research activities, with modest contributions to global agricultural research as a public good. Country-based funding will also provide the great majority of support for safety nets, school feeding programs, and initiatives to bring women into a more prominent role in providing food security at the household, village, national, and global levels.

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