

The rice crisis: What needs to be done?

IRRI's 9-point action plan

The rice crisis is now a major concern that is highlighted daily on the front pages of newspapers and on prime-time television. This summary explains the reasons behind the rapid increase in rice prices and what must be done to achieve reliable, plentiful supplies of affordable rice.

What is happening?

The poorest of the world's poor are the 1.1 billion people with income of less than a dollar a day. Around 700 million—almost two-thirds—of these people live in rice-growing countries of Asia. Rice, the dominant staple in Asia, accounts for more than 40% of the calorie consumption of most Asians. Poor people spend as much as 30–40% of their income on rice alone.

The world price of Thai rice, 5%-broken—a popular export grade—in December 2007 was \$362 per ton but almost tripled to around \$1,000 per ton in April this year.

Major exporting countries such as Vietnam and India have announced export restrictions to protect their domestic consumers. These restrictions have further contributed to the recent increase in rice price as the rice supply in the world market has dwindled. In several countries, food riots have occurred and soldiers are guarding food trucks to prevent looting.

What are the underlying reasons for the rice crisis?

We are consuming more than we are producing

Many factors, both long- and short-term, have contributed to the rice crisis. At a fundamental level, the sustained rise in the price over the past 7–8 years indicates that we have been consuming more than we have been producing. Rice stocks are being rapidly depleted, with current stocks at their lowest since the 1970s.

Annual growth in yield is slowing

A major reason for the imbalance between the long-term demand and supply is the slowing growth in yield, which has decreased substantially over the past 10–15 years in most countries. Globally, yields have risen by less than 1% per year in recent years—slower than population growth and down from well over 2% during the Green Revolution period of 1970–90.

Reduced public investment in agricultural research, development, and infrastructure

An important factor accounting for the slowdown in yield growth is the reduced public investment in agricultural research and development—the very engine that drove productivity growth to begin with. Investments in irrigation, which peaked during the Green Revolution period, have decreased substantially. Existing irrigation infrastructure has deteriorated considerably because of inadequate maintenance.

The steady decline in rice prices through the 1990s led many governments to believe there was a perpetual supply of plentiful food. Lower prices were taken for granted, leading to complacency in agricultural research and development.

Little room for expansion of rice area

The possibility of increasing the rice area is almost exhausted in most Asian countries. In many areas, highly productive rice land has been lost to housing and industrial development.

Demand growth

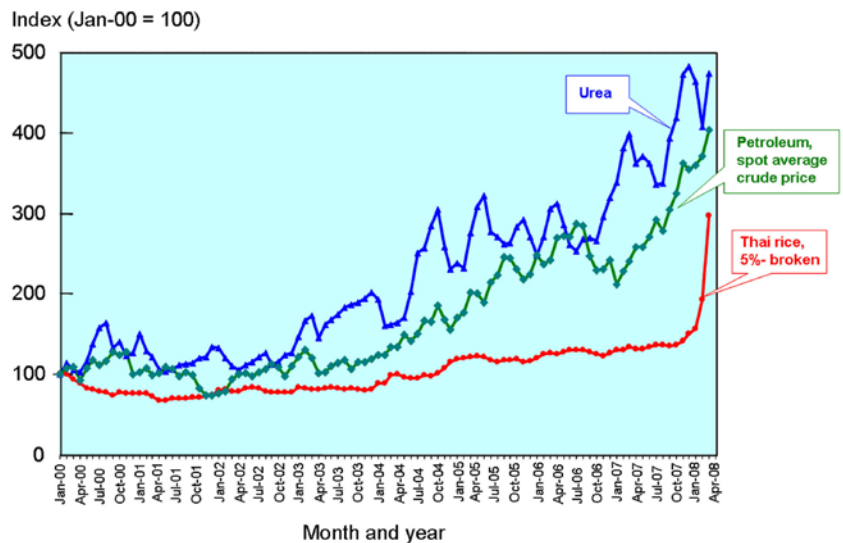
Three key factors have contributed to steady growth in demand for rice, which is increasing globally by around 5 million tons each year.

First, population growth, which continues across the rice-consuming world, is outstripping production growth, and this is projected to get worse.

Second, rapid economic growth in large countries such as India and China has increased demand for cereals, both for consumption and for livestock production. This income-driven growth in demand has pushed up the price of cereals in general.

Third, rice is an increasingly popular food in Africa, with imports into Africa accounting for almost one-third of the total world trade. It is expected that demand from Africa will continue to grow.

Rising world prices of rice, urea, and diesel fuel, 2000–08



Source: Pinksheet, The World Bank, various issues

Oil prices

The price of oil has increased rapidly during the past year. In addition to contributing to general inflationary pressure, this has pushed up freight costs for countries that import rice. The world price of fertilizers—which are essential for rice production—has increased sharply, with the price of urea almost doubling over the past four years (see figure above).

Rising oil prices and concerns about climate change have also spurred rapid investments—particularly in developed countries—in biofuels such as ethanol produced from maize grain or biodiesel produced from oilseeds. This has increased pressure on international trade of grains and livestock feed, as

well as on agricultural land in some countries. Until now, the direct impact of biofuels on rice production and rice trade has likely been small. However, if the industry continues to grow, rice production and prices may be affected more seriously.

Extreme weather

Natural disasters, such as flooding, drought, and typhoons, have contributed to recent production shortfalls. The steady rise in global temperatures because of increasing greenhouse gas concentrations in the atmosphere is expected to hurt rice production. Further, human-induced climate change is expected to increase the severity and frequency of extreme weather events.

Reoccurring pest outbreaks

Many pests that caused major problems for rice intensification programs in the 1970s and 1980s have returned as major threats to production, primarily due to breakdowns in crop resistance and the excessive use of broad-spectrum, long-residual insecticides that disrupt natural pest control mechanisms.

How do price rises affect poor rice consumers?

Although more expensive rice may help farmers who produce more than they consume, a rise in the price of rice is equivalent to a drop in real income for the majority of the poor who are net consumers of rice, and who can spend almost half their income on rice alone. Such a drop in income both increases the number of poor people and pushes people deeper into poverty and hunger, forcing them to sacrifice essentials such as more nutritious food, health care, and children's education—thus condemning future generations to a vicious poverty cycle. The rise in food prices also affects the poor indirectly as international relief agencies are forced to provide less food.

Productivity growth through the development and dissemination of improved technologies is the only long-term viable solution for bringing prices down, preventing future increases in price, and ensuring that affordable rice is available to poor rice consumers.

How do we prevent shortages and price rises?

Even once the current situation settles, rice prices are not expected to fall to anywhere near their historic lows. The reasons for this include the expected long-term high price of oil (and therefore fertilizer), the time required to construct additional irrigation infrastructure, the possibility of more frequent extreme weather events, the rise of biofuels, and continued demand growth. Further, without the buffer of high stock levels, there is an increased risk of additional sharp price rises.

The best strategy for keeping the price of rice low is to ensure that production increases faster than demand. Rice production can be increased by expanding the area planted to rice, by increasing the yield per unit area, or by a combination of the two. With limited opportunity for increasing Asia's rice area, the main source of additional production will need to be yield growth.

To achieve this, a second Green Revolution is needed now as much as the first was needed to avoid famine and mass starvation. Increased research investment together with policy reforms that make rice markets more efficient will help bring rice prices down to a level affordable to the poor and, ultimately, reduce poverty.

What needs to be done?

Recent advances in science and technology offer unprecedented opportunities to not only solve current problems but also

develop agricultural systems that can help millions of rural poor lift themselves out of poverty. In the near term, urgent actions from national governments and international agencies are needed on two fronts: rapidly exploiting existing technological opportunities for increasing rice yields and policy reforms to improve poor people's food entitlements. Rice production can be revitalized, but there are no silver bullets. The world community must invest now and for a long time to come.

Some of the following actions deal with the immediate crisis while others provide long-term solutions to prevent future crises.

- 1. Bring about an agronomic revolution in Asian rice production to reduce existing gaps between achieved and potential yield**

Yield improvements of 1–2 tons per hectare can be achieved through the use of better crop management practices, particularly in irrigated environments.
- 2. Accelerate the delivery of new postharvest technologies to reduce losses**

Postharvest includes the storing, drying, and processing of rice. New and existing technologies can substantially reduce the considerable postharvest losses—in terms of both quantity and quality—suffered by most Asian farmers.
- 3. Accelerate the introduction and adoption of higher yielding rice varieties**
- 4. Strengthen and upgrade the rice breeding and research pipelines**

Funding for the development of new rice varieties has steadily declined over the past decade or more. This must be reversed in order to develop the new rice varieties and crop and resource management systems that will be required for sustained productivity growth.
- 5. Accelerate research on the world's thousands of rice varieties so scientists can tap the vast reservoir of untapped knowledge they contain**

IRRI's International Rice Genebank holds more than 100,000 types of rice, some of which hold the genetic keys that will help researchers develop better varieties.
- 6. Develop a new generation of rice scientists and researchers for the public and private sectors**

Asia urgently needs to train a new generation of rice scientists and researchers—before the present generation retires—if the region's rice industry is to successfully capitalize on advances in modern science.
- 7. Increase public investment in agricultural infrastructure**

Adequate investments in agricultural infrastructure such as roads, irrigation systems, and market systems are critically important for raising and sustaining productivity growth in rice.
- 8. Reform policy to improve the efficiency of marketing systems for both inputs and outputs**

In developing countries, higher consumer prices are not always reflected in higher farm-gate prices that would give farmers incentive to increase production. Policies are needed that improve market systems and allow the private sector to function smoothly.
- 9. Strengthen food safety nets for the poor**

Both urban and rural poor people need backups such as food or income transfers and nutrition programs focusing on early childhood.