



Articles & Commentaries



p-Guru



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Will Rice Be Life?

Rationale for the International Year of Rice

If there is a single crop that can truly define the life and culture of Asian nations it is rice. Rice has been cultivated for centuries in the region and has played a central role not only in supplying the staple food but also in shaping the social life and economic progress of those nations. Thus, for millions of people in the region, life without rice is simply unthinkable. It is in this simple sense that "Rice Is Life," which is the theme chosen for the observance of the United Nations International Year of Rice (IYR) in 2004.

The dedication of an entire UN year to a single crop is unprecedented in the history of the organization, but it rightly recognizes the importance of rice as the primary source of food for many countries. It is estimated by the UN Food and Agriculture Organization (FAO), for example, that one of two people in the world depends on rice as the staple food. More than two billion people in Asia alone obtain 60% to 70% of their caloric intake from rice and its products.

Aside from being the principal source of food for millions of people in Asia, however, rice farming also has nonfood functions. Those functions include contributing to sustainable livelihoods; maintaining rural amenities; preserving the natural environment by contributing to water resource management, soil conservation, and biological diversity; achieving rural viability; and preserving traditional culture. This concept of multifunctionality has been promoted by a number of countries for consideration, particularly in trade-related forums, in recent years.

Rice in numbers

- Rice is cultivated in 113 countries and is the staple food for over half the world's population.
- Rice provides 27% of dietary energy supply and 20% of dietary protein intake in the developing world.
- Rice cultivation is the principal activity and source of income for about 100 million households in Asia and Africa.
- Of the 840 million people suffering from chronic hunger, over 50% live in areas dependent on rice production for food, income, and employment.
- About four-fifths of the world's rice is produced by small-scale farmers and is consumed locally.

(FAO News Stories, 12 February 2004)

Rice productivity trends

The increase in rice productivity in the 1960s to 1980s was influenced to a large extent by the introduction of Green Revolution technologies which resulted in annual rice output increases of more than 3% (based on FAO estimates) during the period. This growth has dropped to around 1.25% since 1990, with productivity increases declining notably in a number of favorable rice-growing areas. The decline has been attributed in part to the long-term degradation of rice paddies. Many experts believe that simply maintaining the current levels of productivity will not be sufficient to meet the food needs of Asia's burgeoning population. Accordingly, given the growing pressures on land and water availability, the sensible strategy would be to intensify production. Recent R&D efforts have therefore focused on the introduction of hybrid rice and what is called the "new plant-type" or "super rice." Hybrid rice yields are estimated to be up to 20% higher than those of conventional high-yield varieties. Widely adopted in China, hybrid rice is now spreading to other parts of Asia through both government and private-sector efforts. Meanwhile, super rice, which is being developed at the International Rice Research Institute, has the potential to increase yields to up to 15 tons/ha, with the seed being endowed with improved disease and insect pest resistance.

Rice policy

Since rice plays an important role in ensuring food security it has been the subject of much government intervention. In developing countries, support to farmers has come mainly in the form of irrigation investments, credit, R&D, and the supply of improved seed. Public-sector involvement in rice has generally been reduced in recent years. A few countries, however, are still involved directly in rice distribution and marketing. Trade measures have also been widely used to protect domestic rice markets. Thus, while there has been considerable liberalization of the rice market in recent years, largely due to initiatives under the World Trade Organization regime, governments are still often unwilling to relax their control over the rice sector. This is because for many developing countries, particularly in Asia, rice still plays a critical role in terms of food security, generating income in rural areas, and maintaining political stability, among others.

Issues and measures

One of the important issues facing the rice sector is the continuing decline in the amount of resources available for rice production, particularly land and water, due to population growth and unsustainable farming practices. To address this problem, governments need to promote better cropping techniques and higher-yielding varieties and plant types that use less water to obtain more benefit from the present irrigated fields. In addition to hybrid rice and super rice, plants developed through biotechnology have provided a potentially formidable option for raising the productivity of the rice sector. Specifically, the production of transgenic plants, with resistance to major pests and diseases, and gene transfers to rice from wild and unrelated species should significantly increase the yield ceilings in the long run and thereby help stabilize production. For most developing countries, biotechnology also affords them the opportunity to enhance the nutritional value of food such as rice (i.e., in terms of higher protein, mineral, and vitamin content) and therefore improve the health of many people in low-income communities.

Another critical issue for many developing countries is the excessive use of pesticides and other agrochemicals in rice farming, which has polluted water and created health hazards. One important strategy to counter this is the promotion of more sustainable agricultural systems such as those based on integrated pest management. Biotechnology-derived solutions can also help reduce the use of agrochemicals and water, promoting sustainable production. Thus, biotechnology, in particular genetically modified (GM) crops, represents a promising tool not only for addressing food security issues but also environmental problems. However, to be able to derive the maximum benefits from the technology, there is an urgent need to deal with a number of concerns, foremost of which is the perception among consumers that GM products pose potential risks to human health and environmental safety in the long term. Another is whether GM crops will really benefit the farmers. The answers to these will depend heavily on the extent to which individual countries are able to involve farmers in the genetic modification process.

A third issue is the declining profit margins in rice farming which have compelled some farmers to shift their production to other higher-value crops. Some factors contributing to this declining profit trend include the transfer of labor from agriculture to nonagricultural sectors, the diversion of land from rice farming to other agricultural and nonagricultural activities, increased competition for water, and withdrawal of input subsidies, all of which have pushed up production costs. As a way around these problems, it has been suggested that the productivity of rice-based systems could be enhanced through appropriate investments in infrastructure, science and technology, and institutional and human resources capacities. The resultant increase in productivity would then release resources that farmers could use to diversify their economy. By investing in off-farm/nonfarm business activities, for example, the farmers could augment their income from rice farming.

Future challenges

The apparent decline in the importance of rice as a major source of dietary energy supply and other nutrients may become more pronounced, particularly in East Asia and wealthier countries in Southeast Asia, as improved incomes lead to changes in people's dietary habits. Decreasing per capita consumption of rice has been noted in those countries as a result of consumers' substitution of rice for other cereals and other foodstuffs, notably livestock products. Other factors that will influence demand are the widening choice of available foods due to the development of the food industry, especially the processing sector; increasing exposure to various dietary patterns from abroad; and continuing urbanization and changing lifestyles, which are putting a premium on fast food and food that requires less time to prepare or is easily consumed. Another development is changing production methods resulting from the application of modern technologies (e.g., Green Revolution technologies) that are not in any way related to or rooted in local culture. This is cited as the cause of the gradual disappearance of variation in farming techniques which previously characterized the broad spectrum of rice culture in the region. Some social scientists have expressed concerns about the long-term impact of this trend.

The continuing decline of profit margins in rice farming which has affected the livelihoods of millions of small farmers in the region needs to be checked. As asserted by some experts, the more daunting challenge in the rice sector is the eradication of poverty and hunger. Thus, appropriate incentives to rice farmers must be maintained to improve their living conditions as well as to enhance

each country's ability to produce rice to meet future national requirements.

Without doubt, rice is still life in much of Asia since it continues to be the primary source of food in the region. The concern for the future for some countries, however, is whether the role of rice in the life and culture of their people will continue to be the same considering the future challenges outlined above. Thus, at the recent APO Seminar entitled "Rice Is Life: Various Aspects of Rice-based Agricultural Systems," one of the programs that was held in Tokyo in October in observance of the IYR, the unanswered question left at the end was: Will rice be life?

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