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The *International Rice Commission* (IRC), which works within the framework of FAO, was established on 4 January 1949 with the object of promoting national and international action in respect of production, conservation, distribution and consumption of rice. Matters relating to trade are outside the purview of the Commission.

Membership of the Commission is open to all FAO Member Nations and Associate Members who accept the constitution of the IRC. The present membership of the Commission is 60 and represents all the rice-growing regions of the world.

The Commission keeps under review the scientific, technical and economic problems relating to rice, encourages and coordinates research, organizes (where necessary) cooperative projects and reports to the member countries and the Director-General of FAO on appropriate action to be taken in furthering its objectives.

La *Commission internationale du riz* (CIR), qui opère dans le cadre de la FAO, a été créée le 4 janvier 1949 afin de promouvoir des actions nationales et internationales en matière de production, de conservation, de distribution et de consommation du riz. Les questions de commerce ne sont pas de son ressort. La Commission est ouverte à tous les États Membres et Membres associés de la FAO qui acceptent son acte constitutif. Elle compte actuellement 60 membres représentant toutes les régions rizicoles du monde. La Commission traite des problèmes scientifiques, techniques et économiques relatifs au riz; elle encourage et coordonne les recherches, organise le cas échéant des projets coopératifs et fait rapport aux États Membres ainsi qu'au Directeur général de la FAO sur les mesures à prendre pour réaliser ses objectifs.

La *Comisión Internacional del Arroz* (CIA) se creó, dentro del marco de la FAO, el 4 de enero de 1949. Su objeto es promover la actividad nacional e internacional en el campo de la producción, la conservación, la distribución y el consumo de arroz. Las cuestiones de comercio quedan fuera de su ámbito de acción.

Pueden ser miembros de ella todos los Estados Miembros y Miembros Asociados de la FAO que acepten la constitución de la Comisión. En la actualidad cuenta 60 miembros, que representan todas las regiones arroceras del mundo.

La Comisión sigue de cerca todos los problemas científicos, técnicos y económicos relativos al arroz, fomenta y coordina las investigaciones, organiza en caso necesario proyectos cooperativos, e informa a los Estados Miembros y al Director General de la FAO sobre las medidas que son necesarias para facilitar el logro de sus objetivos.

Articles are in English, French or Spanish with summaries in English, French and Spanish.

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WORLD RICE SITUATION
SITUATION MONDIALE DU RIZ
SITUACIÓN MUNDIAL DEL ARROZ

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Medium-term projections for the world rice economy: major issues at stake

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INTRODUCTION

Rice production, consumption and trade are of critical importance to the developing countries. Despite a marked increase in the volume of rice traded since 1995, by 2000 international trade accounted for only 6 percent of output, a much smaller proportion than for wheat or maize. The relatively small size of the international rice market compared to markets for other commodities and its segmentation into different rice qualities contributes to the volatility of international rice prices. This has prompted countries exporting and importing rice to implement trade restrictions to protect producers and consumers from external price fluctuations. Such restrictions started to be relaxed with the implementation of the 1995 World Trade Organization (WTO) Agreement on Agriculture. The Agreement also imposed limits on the volume of rice that could be exported at subsidized prices and on the level of assistance that could be granted to domestic producers. Nevertheless, support to the rice sector, especially in the developed countries, has remained particularly high and domestic markets remain among the most protected.

PRODUCTION

Global rice production is projected to rise at less than 1 percent per year in the current decade, down from 1.7 percent in the 1990s. As a result, by 2010 world production could reach 440 million tonnes (milled equivalent), up from 394 million tonnes in 1997-99. It is expected that this expansion will mostly stem from intensified production, with little increase in plantings anticipated. At the same time, the loss of yield momentum observed during the previous two decades is expected to persist in the medium term. With more modest gains projected, average yields could reach 2.8 tonnes of milled rice per hectare (ha) by 2010 (about 4.3 tonnes of paddy/ha), a little above the 2.6 tonnes achieved in the base period.

TABLE 1

World rice production and growth (milled equivalent)

	Area (<i>'000 ha</i>)	Yield (<i>tonnes/ha</i>)	Production (<i>'000 tonnes</i>)
1991	147.6	2.38	350.9
1998	153.1	2.57	393.6
2010	154.2	2.85	439.5
	<i>Growth (% per year)</i>		
1991-98	0.52	1.13	1.65
1998-2010	0.06	0.86	0.92

Such a pattern of growth is expected to dominate in Asia, where pressure on land and water resources from other growth sectors will limit the scope to expand rice cultivation. In a number of countries it is possible that environmental concerns might even prompt the removal of marginal areas from paddy cultivation. Yields in the region are expected to rise, albeit more modestly than in the previous decade. Within the region, strong growth in output is expected in Bangladesh, Cambodia, Lao People's Democratic Republic, Myanmar and Pakistan, while rising production costs may slow down the sector growth in China, Thailand and Viet Nam.

In South America, reduced government support, which is of fundamental importance to the economic viability of rainfed rice production, is expected to limit the expansion in plantings in the next decade. At the same time, modernization of the rice sector should lead to increased yields in the region.

In Africa, production growth is expected to rely on increases in both planted area and yields. With the exception of Egypt, which has the highest rice productivity in the world, yields elsewhere in the region are projected to remain low by international standards.

Little change in production is projected for the developed countries. In Japan, ageing of the farming population and pressure to limit excess supply will lead to a further reduction of cultivation and a limited fall in output. By contrast, strong productivity growth is projected to boost production in Australia.

Under the prevailing European Community (EC) policy,¹ the area under rice production should change little, but a rise in yields will continue to sustain production growth. In the United States, the area under rice production is projected to shrink, but expected productivity gains should enable total output to be maintained. An increase in plantings and yields in the economies in transition should boost production growth over the next decade, though not enough to sustain a full recovery to the levels of the early 1990s.

CONSUMPTION

Although the use of rice for animal feed increased in recent years, rice remains essentially a grain for human consumption and a staple food for about half of the world's population. Worldwide, per capita rice consumption is projected to fall from 59.9 kg in 1997-99 to 59.3 kg in 2010. This would reflect changes in dietary patterns in Southeast Asia, where rising incomes are expected to encourage a shift from cereals to livestock products. In addition, countries such as the Republic of Korea, Thailand and Viet Nam are expected to witness some substitution of wheat for rice. In contrast, per capita consumption might rise in Africa, Latin American and Caribbean (LAC) countries, South Asia and the Near East, but at a slower rate than in the 1990s. In the developed countries, per capita rice consumption is projected to stagnate, with a fall expected in Japan but increases in Western Europe, North America and Oceania. Per capita rice consumption is projected to recover in the economies in transition.

Global demand for rice in the next decade is expected to expand at slightly less than 1 percent per

year, down from 1.7 percent in the 1990s. By 2010, total rice utilization in the developing countries is projected to reach 421 million tonnes, 46 million tonnes more than in 1997-99, while the overall increase is not expected to exceed 1.5 million tonnes for the developed countries and the economies in transition. For the developed and developing country groupings, population growth will be the determining factor underpinning rice demand in the next decade. In contrast, a rise in per capita demand will account for the increase in the countries in transition.

INTERNATIONAL TRADE

Global rice trade is projected to expand by about 1.5 percent per year to 29.3 million tonnes in 2010, substantially below the vigorous 9 percent recorded in the 1990s. Asian countries are expected to remain the main destination, absorbing half of the projected volume. In particular, Indonesia is forecast to raise its imports to 4.4 million tonnes, thereby remaining the world's largest rice buyer. China, Malaysia, Nepal and the Republic of Korea are also expected to increase their imports. In contrast, the Philippines may reduce its imports, while no shipments to Bangladesh are anticipated, as the country is projected to move from being a major importer to an exporter. Imports to the Near East are expected to soar, as the expected 2 million tonne increase in consumption should be fully sourced on the international market. In Africa, assuming no changes in trade policy occur, imports are projected to rise by 1.7 million tonnes to 6.2 million tonnes. Larger shipments to Nigeria would account for half of this expected increase.

Little overall increase in LAC imports is envisaged,

TABLE 2
Rice consumption

	Per capita food (kg/year)	Total food ('000 tonnes)	Total use ('000 tonnes)
World			
1998	59.9	353.0	392.4
2010	59.1	399.0	439.3
Developing			
1998	73.3	337.1	374.7
2010	70.3	382.2	420.1

¹ The current set of projections does not embody the effects of the EC Commission's proposal for a reform of the rice policy regime. The effects of the "Everything but arms" proposal have not been considered.

TABLE 3
Rice imports

	1991 (actual)	2010 (projected)	1998 (actual)
	(million tonnes)		
World	13.6	29.3	24.9
Africa	3.4	6.2	4.5
Nigeria	0.3	1.9	0.8
LAC	2.1	3.4	3.1
Brazil	0.7	1.0	1.1
Near East	3.3	6.0	4.0
Iran	0.9	1.5	0.9
Far East	2.1	9.0	9.2
Indonesia	0.3	4.4	3.6
Philippines	0.1	0.8	1.3
Developed	1.6	3.1	2.7

as production gains are forecast to outpace the rise in demand. While imports to Mexico, Cuba and Chile are expected to rise, those to Brazil and Colombia should fall in the wake of strong increases in production. Overall, developed countries and economies in transition are forecast to import about 4.5 million tonnes in 2010, some 800 000 tonnes more than in the base period, reflecting larger shipments to Japan, South Africa and the Russian Federation.

By 2010, Asian countries are projected to supply 75 percent of the international rice market, 1 percent more than in the base period, with Thailand and Viet Nam alone accounting for half of world exports. These two countries are expected to raise their shipments, especially Viet Nam, as are Bangladesh, Cambodia, Myanmar and Pakistan. In contrast, exports from China and India, which sold record volumes in the base period, are forecast to drop substantially by 2010, as a result of increased international competition.

TABLE 4
Rice exports

	1991 (actual)	1998 (actual)	2010 (projected)
<i>(million tonnes)</i>			
World	13.5	24.9	29.3
Africa	0.2	0.5	0.9
Egypt	0.2	0.4	0.8
LAC	0.7	1.7	2.4
Argentina	0.1	0.6	1.1
Asia	9.5	18.4	21.9
India	0.7	2.8	1.3
Pakistan	1.2	1.9	3.2
China	1.0	3.0	1.1
Thailand	4.5	6.3	7.6
Viet Nam	1.6	4.1	7.2
Developed	3.1	4.2	3.9

In the other regions, Egypt is forecast to increase its exports substantially, as are Argentina and Uruguay, but these two countries might have to venture beyond their traditional markets in South America and compete with the United States to gain a larger portion of the Central American and Caribbean markets.

Developed countries' share of the rice market is projected to shrink from 17 percent in the base period to 13 percent in 2010. Reduced shipments are expected from the EC, Japan and the United States, which would more than offset an increase in exports from Australia.

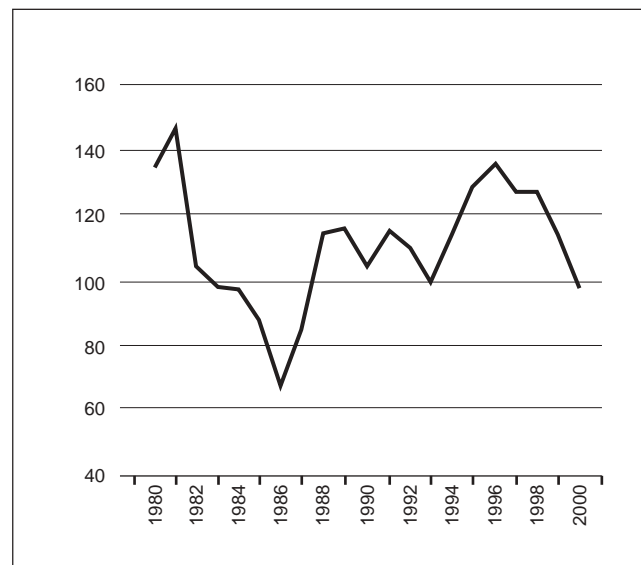


FIGURE 1
Total rice export price index (1982-84=100)

INTERNATIONAL PRICES

By 2010, world real rice prices are projected to remain very close to the 1997-99 average, which would imply substantially higher prices than those observed in 2000.² However, it is likely that the price movements of the different rice types will vary depending on their relative supply and demand and that they will be subject to sharp swings whenever a major producing or consuming country departs even modestly from its normal pattern of production.

DEVELOPMENT ISSUES

According to FAO projections, average per capita rice consumption may already be declining in 2010, as diets shift towards other cereals and, especially, towards livestock products. Population growth, however, will ensure that the global utilization of rice will continue to rise, with the bulk of the increase accruing in the developing countries. Food security will continue to be of primary concern in such countries and, because of the small size of the international rice market, most of them are likely to emphasize improved production to meet their consumption requirements, as rice supplies available in the international market are generally insufficient to meet a surge in import demand arising from a major crop shortfall.

² The FAO price index averaged 123 points in 1997-99, compared with 98 in 2000.

To achieve the necessary volume, especially in Asia, countries with growing pressures on land availability will have little choice but to intensify rice production, mainly by promoting the use of high-yielding varieties and hybrid rice. With the exception of China, the adoption of hybrid rice has been slow in most countries, even though its yields reportedly exceed those of conventional varieties by 15-20 percent. Reasons for the slow pace of adoption include, among others, the high level of technology required and the high prices of the seeds (five to seven times those of traditional seeds). In addition, the milling rates have often been poor and consumer preferences have remained with the traditional varieties. In recent years, advances in biotechnology have led to the development of new strains of rice, with enhanced nutritional value, resistance to pests and diseases, and tolerance to extreme growing conditions such as soil salinity or acidity. The mapping of the rice genome, early in 2001, might favour further technological breakthroughs. However, given the long period required for new varieties to be tested and adopted by farmers and the uncertainty regarding their consumer acceptability, such breakthroughs are not expected to have a noticeable impact on the world rice economy in the course of the decade. Research into new varieties would also have to address growing concerns about the environment. China and Viet Nam have already embarked on programmes to encourage farmers to take marginal or eroded paddy fields out of paddy cultivation. However, minimizing the effects of wetland rice on global warming may prove more difficult and growing international pressure may lead to a shift towards alternative production systems.

The future of the world rice economy will also depend on developments in government policies. The rice sector has traditionally been very highly protected but the liberalization process gained momentum with the implementation of the Uruguay Round Agreement (URA) in 1995. Since 1999, however, low global prices have encouraged countries to introduce new trade restrictions and to increase their support to producers and exporters, thereby exacerbating the trade imbalance and the downward pressure on prices. The state of the international market might change yet again in the

medium term in favour of a greater openness and reduced distortions. A number of policy proposals (which have not been taken into account in the current set of projections) may also have a significant effect on the world rice economy. First, China is soon to join WTO. According to pre-accession bilateral agreements, the country is to grant preferential access to rice, initially allowing 2.66 million tonnes to be imported, which should rise to 5.3 million tonnes by 2004. Preferential access to rice will also be granted by the Taiwan Province of China, after accession. Another development of importance relates to the EC's "Everything but arms" proposal, which would give free and unrestricted access to products from those 48 countries classified as "least developed". EC borders will be opened for trade in 2006, subject to a three-year transition period. Such initiatives may provide a number of countries with new trading opportunities, but much would depend on the price differential between those countries and the EC. Under the current proposal of a reform of the rice regime in the EC, domestic prices in the EC might fall, which would make that market less attractive.

Although global rice prices are projected to remain fairly close to the base-period level, they are likely to stay volatile since minor changes in production or consumption will continue to result in much wider variations in import demand or export availability. The drift towards a greater reliance on trade combined with reduced autonomy for governments to intervene in market operations, under the URA, will increase the exposure of rice producers and consumers to global price fluctuations. In 2000, for instance, producers in most countries suffered severely from weak prices, even where their governments had intervened to lift the market. Under the prevailing tendency to limit public interference with market operations, the rice sector might benefit from new instruments to soften the impact of price fluctuations on farmers, such as insurance schemes. In their absence, a government's sudden disengagement from paddy procurement and sales could act as a deterrent to small producers to continue producing rice, encouraging a rapid migration of farm labour to cities, with serious social and political implications.

Projections à moyen terme pour l'économie mondiale du riz: principaux aspects en jeu

Les projections de la FAO à l'horizon 2010 indiquent un accroissement annuel modéré de 1 pour cent de la production au cours de la décennie résultant, presque totalement, de gains de productivité. Toutefois, l'Afrique ne devrait pas suivre cette tendance générale. La consommation moyenne de riz par habitant en 2010 devrait reculer quelque peu par rapport aux chiffres de la fin des années 90, principalement en raison d'un changement des habitudes alimentaires en Asie. Cette baisse contribuera à ralentir la croissance de l'utilisation mondiale de riz, qui tombera au-dessous de 1 pour cent par an jusqu'en 2010, contre 1,7 pour cent par an dans les années 90.

D'après ces projections, le volume du commerce mondial de riz atteindrait 29,3 millions de tonnes en 2010, soit une augmentation par rapport aux 24,9 millions de tonnes enregistrées en 1997-1999. Cela

impliquerait un taux d'expansion très ralenti – 1,5 pour cent par an seulement – par rapport aux 9 pour cent des années 90. Les politiques d'expansion de la production, menées par les gouvernements des grands pays importateurs d'Extrême-Orient, viennent accentuer ce ralentissement. En revanche, l'accroissement prévu du commerce devrait provenir essentiellement de l'augmentation de la demande d'importation des pays du Proche-Orient et d'Afrique. En ce qui concerne les exportations, la Thaïlande devrait rester le premier fournisseur mondial de riz, mais des pays comme le Bangladesh, le Cambodge, l'Égypte, le Myanmar, le Pakistan et le Viet Nam devraient accroître leur part sur le marché international.

Les projections de la FAO mettent en lumière un certain nombre d'aspects. Par exemple, à moyen terme, le marché du riz devrait

continuer à se caractériser par un degré élevé d'autosuffisance garantissant la sécurité alimentaire, surtout en Asie. Les augmentations de production nécessaires devraient provenir de l'amélioration des rendements, ce qui présuppose l'adoption progressive par les agriculteurs de semences hybrides ou de semences à haut rendement, et l'intensification des investissements dans l'irrigation. Avec l'application de l'Accord du Cycle d'Uruguay, les gouvernements n'auront plus la même latitude pour mener des opérations commerciales ou introduire des restrictions des échanges. Le rythme de la libéralisation du marché du riz, en particulier, sera déterminant car l'instabilité des prix pourrait dissuader les petits producteurs de continuer à cultiver du riz et favoriser une migration rapide de la main-d'œuvre agricole vers les villes, ce qui aurait des conséquences politiques et sociales graves.

Proyecciones a medio plazo para la economía mundial del arroz: principales cuestiones en juego

Las proyecciones de la FAO hasta 2010 apuntan un aumento moderado del 1 por ciento anual de la producción durante el presente decenio, atribuyendo prácticamente toda la expansión a la mayor productividad. Sin embargo, se prevé que África divergirá de esa tendencia general. Se calcula que el consumo medio por habitante de arroz en 2010 va a disminuir con respecto a los últimos años noventa, debido principalmente a un cambio en los hábitos alimentarios de Asia. Esta reducción contribuirá a ralentizar el

crecimiento mundial del consumo de arroz a menos del 1 por ciento anual hasta 2010, inferior al 1,7 por ciento de los años noventa.

Se estima que el comercio internacional de arroz moverá 29,3 millones de toneladas en 2010, por encima de los 24,9 millones de toneladas de 1997-99. Esto supondría un índice de expansión de sólo un 1,5 por ciento al año, frente al 9 por ciento de los años noventa. Detrás de esta desaceleración se encuentran las políticas expansionistas de la producción adoptadas por los

gobiernos de los principales países importadores del Lejano Oriente. En cambio, se calcula que buena parte del aumento previsto del comercio procederá de la creciente demanda de importaciones de los países del Cercano Oriente y África. En cuanto a las exportaciones, se pronostica que Tailandia continuará siendo el principal suministrador mundial de arroz, aunque se prevé que países como Bangladesh, Camboya, Egipto, Myanmar, Pakistán y Viet Nam aumentarán su cuota en el mercado internacional del arroz.

Las proyecciones de la FAO ponen de relieve una serie de cuestiones. Por ejemplo, la confianza en un alto grado de autoabastecimiento de arroz para alcanzar la seguridad alimentaria seguirá siendo una característica básica del mercado de arroz a medio plazo, sobre todo en Asia. Se prevé que el consiguiente aumento de la producción se logrará gracias a los

mejores rendimientos, lo que presupone una adopción progresiva de semillas de gran productividad o híbridas por parte de los agricultores y la intensificación de las inversiones en riegos. Con la aplicación de los Acuerdos de la Ronda Uruguay, los gobiernos dispondrán de un margen menor de libertad para realizar operaciones comerciales o introducir

medidas comerciales restrictivas. En particular, el ritmo de liberalización del mercado del arroz será un factor crítico, puesto que la inestabilidad de los precios podría disuadir a los pequeños agricultores de continuar produciendo arroz y fomentar una emigración rápida de la mano de obra agrícola a las ciudades, con graves consecuencias sociales y políticas.