

# **THE WORLD RICE ECONOMY**

## **RECENT DEVELOPMENT AND NEW CHALLENGES AHEAD**

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### **ABSTRACT**

#### **Current Situation of the Rice Market and Medium Term Outlook**

Agricultural commodity markets have been under close scrutiny since the 2008 price surge episode. One positive effect of that event, is that the international community's attention has turned back to agriculture after many years of neglect.

The 2008 price crisis mirrored a number of underlying factors, related to the market own supply and demand fundamentals but also to external developments, including the prices of competing commodities and the price of crude oil, exchange rates movements, the world economic downturn, and policies implemented by major rice players. While the high volatility of rice prices manifested in 2008 largely subsided, international rice prices have yet to return to the pre-crisis levels. Whether they can do it in the short term or in the medium term is a fundamental question many would like to have the answer.

Over in the next decade, more fundamentals questions will arise that may affect the rice economy and the ability of the world to feed its population. Among the various challenges that will need to be addressed stand climate changes, resource constraints, technological progress and dissemination, demographics, changes in diets and, last but not least government policies.

#### **Market Situation and Short Term Outlook**

What are the prospects for the international rice economy in the short term? In spite of severe flooding undermining crop prospects across Asia again this year, especially in Thailand, expectations of bumper crops in the five major producing nations are forecast to boost world rice production in 2011 to a new record. If confirmed, world rice output this season will be up by 3.0 percent and more than sufficient to meet consumption needs, even allowing an accrual of world rice reserves for the eighth consecutive year.

Major production gains are expected in Asia, in particular in China and India, which together account for more than 80 percent of production. Bangladesh and Viet Nam, the fourth and fifth world rice producers, are also heading towards record harvests. Indonesia, which ranks third among producers, had until recently also announced a record 2011 output, but it recently downgraded its forecast, on 1 November. According to the latest figures, the country faces a 1 percent contraction in production from 2010. Although well below target, it would still be the second highest on record.

Stronger import demand by countries in Asia and Africa has sustained the expansion of international trade to a new high in 2011. As for next year, prospects for good crops in some key importing countries may translate into a small decline in trade volume. However, recent policy changes by two of the key market players, Thailand and India, have heightened market uncertainty. In the case of Thailand, the recently elected Pheu Party already promised higher prices to rice farmers when running its campaign. Being elected, it already started implement

Global rice utilization is predicted to increase by 2.1 percent in 2012, driven by larger food demand. On a per capita basis, this is expected to rise slightly to 56.8 kilos per year, in spite of prevailing high, or even rising, retail prices in many countries, which have triggered a series of government responses to keep food inflation in check. Damage to rice held in storage caused by floods in several Asian countries since August also boosted post-harvest losses and hence, rice uses other than for food or feed.

International rice prices have resumed an upward trend since June 2011, reflecting first a tightening of the market and, subsequently, the announcement of a new high price policy by Thailand, plus concerns about the effects of the South East Asia floods on export availabilities and shipping logistics. India's relaxation of its export ban on regular rice contributed to dampening the upward pressure on world prices in October, but also caused much uncertainty on their future direction.

## **KEYWORDS**

Rice supply and demand outlook





## Current Situation and Medium Term Outlook of the International Rice Market

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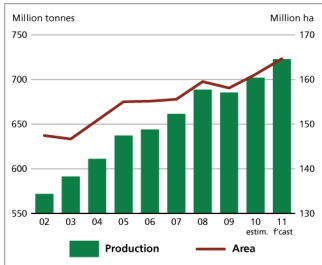
## Rice market situation and prospects in a nutshell

- Global paddy production to rise by 3.0 % to 721 Mt (481 Mt, milled) in 2011, after growing by 2.4% in 2010
- World rice utilization in 2011 up 9.6 Mt; per caput food levels stable around 56.8 kg per year
- Global rice inventories to be built up by 4 Mt, to 149 Mt in 2012, the highest since 2001.
- Rice trade to reach a record 34.3 Mt in 2011. A small decline to 33.8 Mt foreseen in 2012.
- International prices remain high compared with 2010, although much less volatile than in 2008


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## Global paddy production and area




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## Production in 2011 to fall in several major producing countries

PADDY RICE	2009	2010	2011 F
	Million tonnes, paddy basis		
<b>World</b>	<b>683.4</b>	<b>700.0</b>	<b>720.7</b>
<b>China</b>	<b>196.7</b>	<b>197.2</b>	<b>203.0</b>
<b>India</b>	<b>133.6</b>	<b>143.0</b>	<b>154.5</b>
<b>Indonesia</b>	<b>64.4</b>	<b>66.5</b>	<b>65.4</b>
<b>Bangladesh</b>	<b>48.4</b>	<b>50.3</b>	<b>51.9</b>
<b>Viet Nam</b>	<b>39.0</b>	<b>40.0</b>	<b>42.0</b>
<b>Thailand</b>	<b>32.0</b>	<b>34.5</b>	<b>32.0</b>
<b>Myanmar</b>	<b>31.0</b>	<b>30.8</b>	<b>30.0</b>
<b>Philippines</b>	<b>15.5</b>	<b>16.7</b>	<b>16.4</b>
<b>Brazil</b>	<b>12.6</b>	<b>11.7</b>	<b>13.6</b>
<b>Japan</b>	<b>10.6</b>	<b>10.6</b>	<b>10.3</b>
<b>USA</b>	<b>10.0</b>	<b>11.0</b>	<b>8.5</b>
<b>Pakistan</b>	<b>10.3</b>	<b>7.2</b>	<b>9.7</b>

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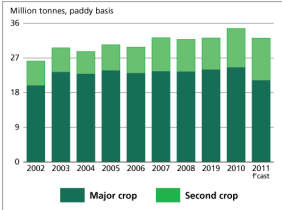


## Thailand

➤ Severe flooding since August affected rice crops in Thailand. Out of the 1.6 m ha of crop damage, 1.3 m ha gauged as rice.

➤ The July production forecast of 35 Mt (25.1 Mt - main crop, and 10 Mt - second crop) revised down to 32 Mt (21.0 Mt main crop, 11 Mt second crop)


➤ Overall, paddy production to fall from 34.5 Mt in 2010 to 32.0 Mt this year. This assumes that part of the losses will be recouped over the second crop, now at planting stage.



Thailand - Rice Paddy Production by Crop (thousand tonnes)						
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12 Fcast
	million tonnes					
<b>Main Crop</b>	<b>22840</b>	<b>23308</b>	<b>23236</b>	<b>23772</b>	<b>24344</b>	<b>21000</b>
<b>Second Crop</b>	<b>6802</b>	<b>8791</b>	<b>8415</b>	<b>8255</b>	<b>10142</b>	<b>11000</b>
<b>Total</b>	<b>29642</b>	<b>32099</b>	<b>31651</b>	<b>32027</b>	<b>34485</b>	<b>32000</b>
	Change: 2011/12 over 2010/11					
	%					

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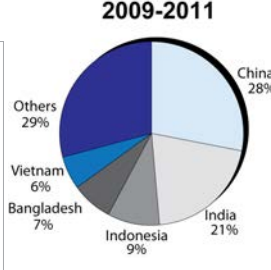
Source: Office of Agricultural Economics (Thailand).



## Rice Market Situation

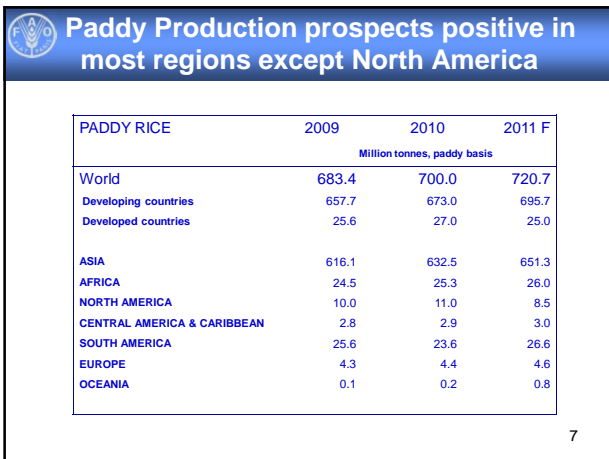
### Rice Paddy Production: Leading producers (2010 and 2011)

Country *	2010 estm.	2011 Fcast	Change: 2011 over 2010
	million tonnes		
	%		
China	197.2	203.0	2.9
India	143.0	155.0	8.4
Indonesia	66.5	65.4	-1.7
Bangladesh	50.3	51.9	3.2
Viet Nam	40.0	42.0	5.0
Thailand	34.5	32.0	-7.2
Myanmar	30.8	30.0	-2.6
Philippines	16.7	16.4	-1.8
Brazil	11.7	13.6	16.2
Japan	10.6	10.3	-2.8
United States of America	11.0	8.5	-22.7
Pakistan	7.2	9.7	34.7
Cambodia	8.2	8.2	-0.6
Korea Republic of	5.8	5.7	-1.7
Egypt	5.2	5.8	11.5
Other countries	62.8	65.2	3.8
<b>World</b>	<b>700.0</b>	<b>720.7</b>	<b>3.0</b>



\* Countries listed according to their position in global production (average 2009-2011)

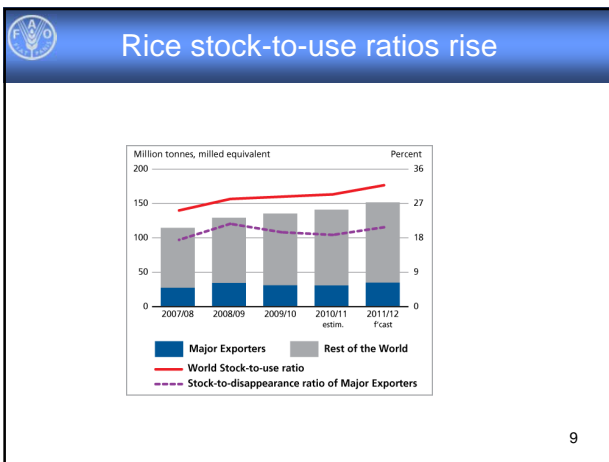
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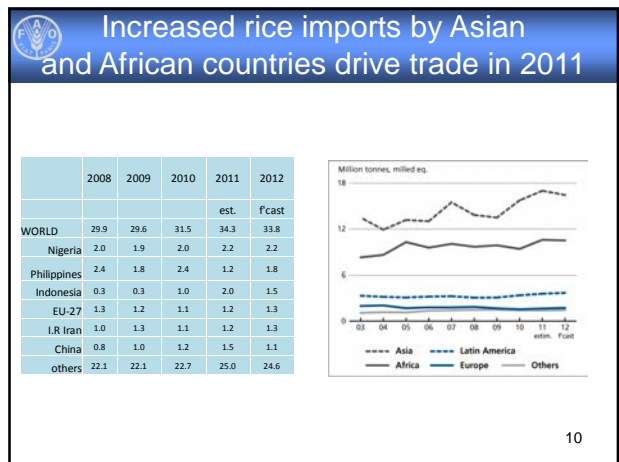
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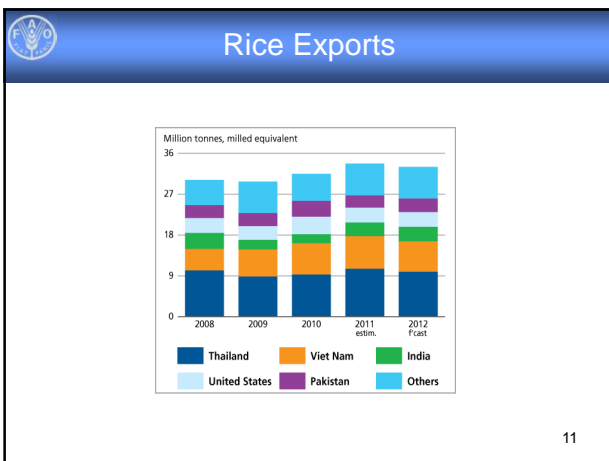
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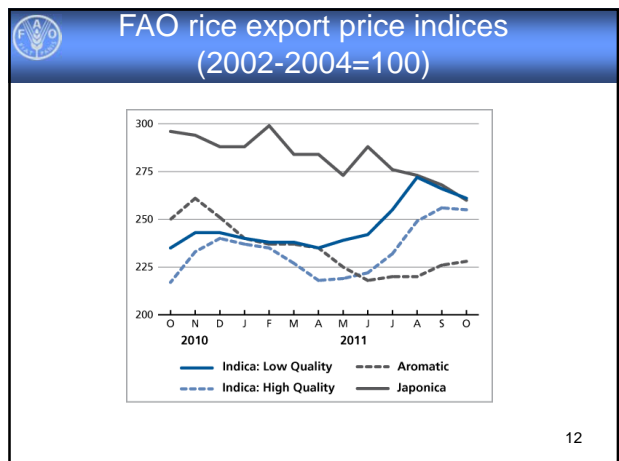
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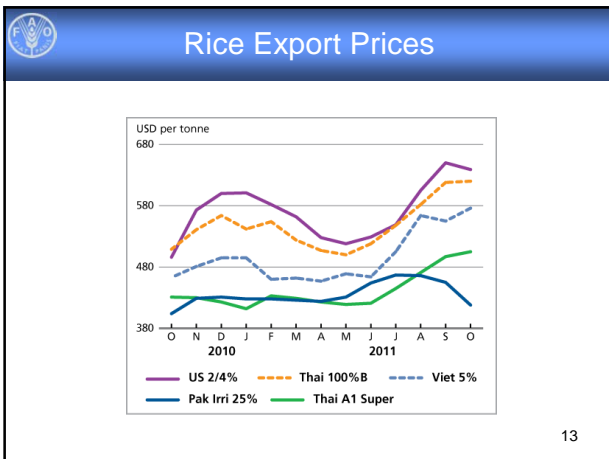
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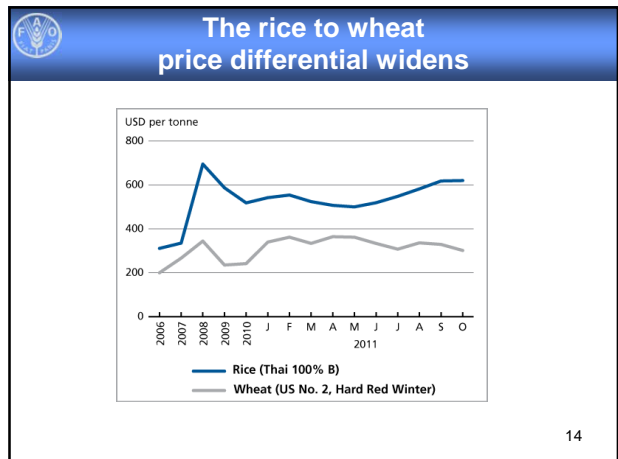
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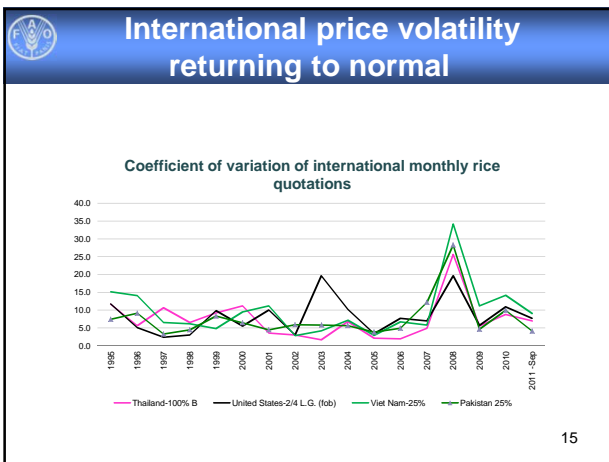
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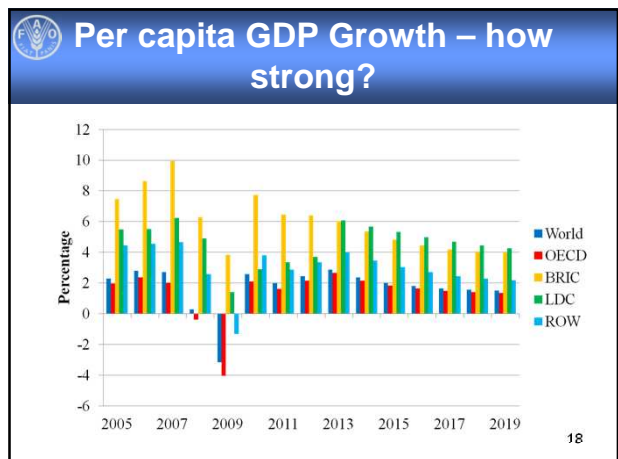
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- ### Uncertainties and challenges
- **Weather pattern** – a new la Niña predicted to influence weather until first few months in 2012
  - **Policies, esp. India and Thailand, but also of Indonesia or the Philippines.**
  - **Macro economic environment and other key factors (GDP, employment, exchange rates, freights, oil prices, etc.)**
  - **Wheat market** – Can rice prices remain high if wheat prices keep falling?

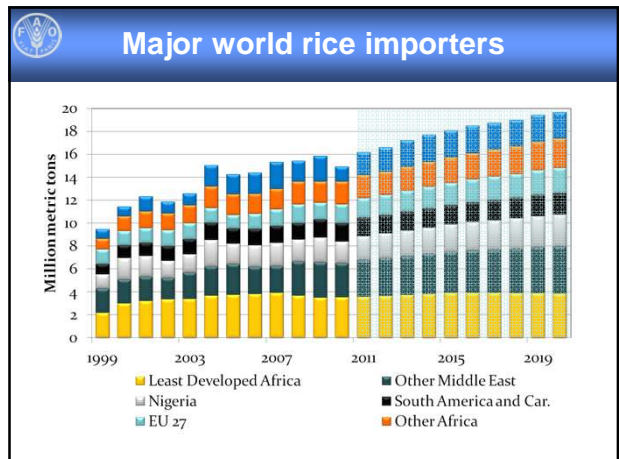
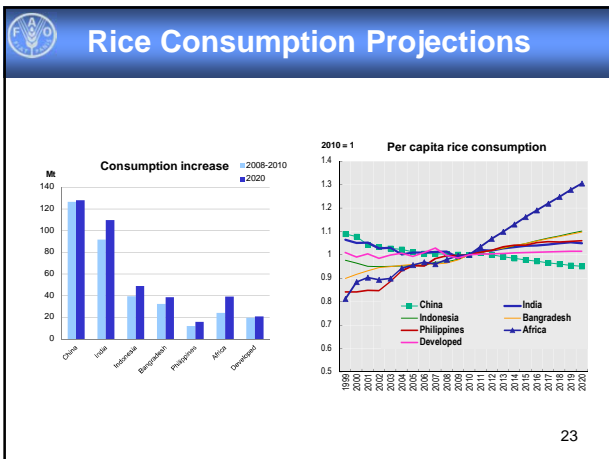
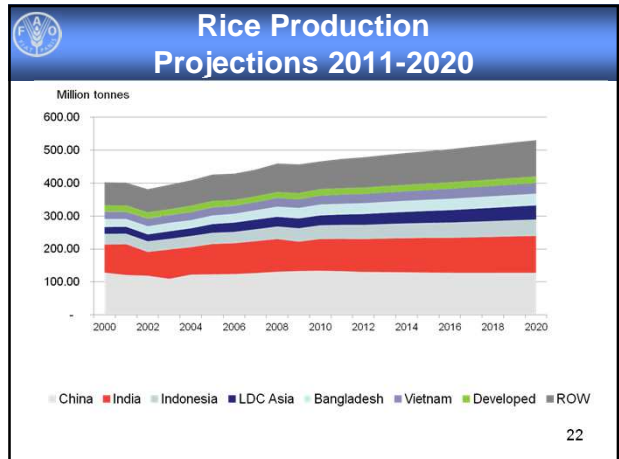
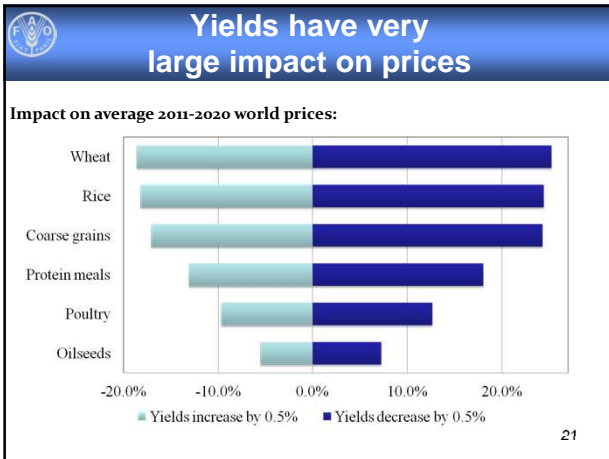
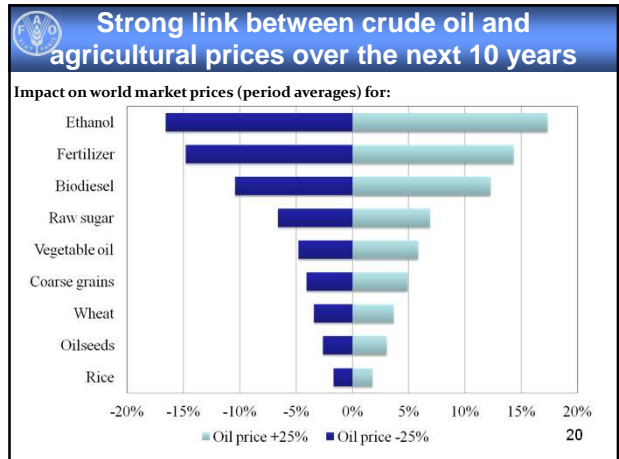
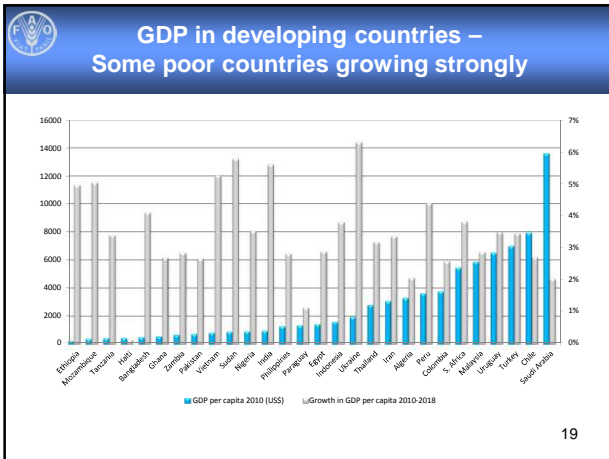
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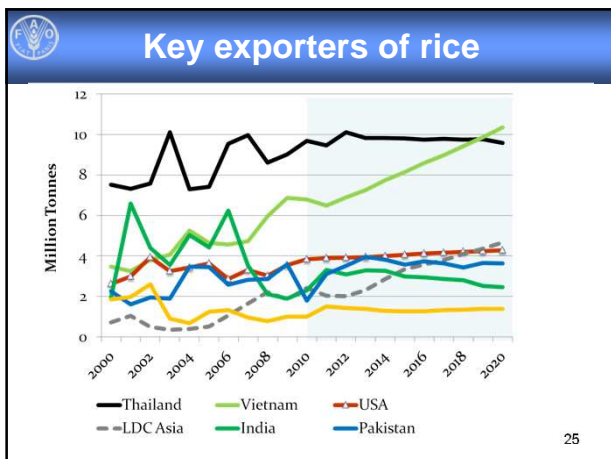
- ### Medium term outlook – 2020
- MAJOR ASSUMPTIONS**
- ❖ **Exogenous variables**
    - Macroeconomic variables
    - Population
    - Crude oil price
    - Technology parameters and elasticities
  - ❖ **Projection conventions**
    - Normal climatic conditions
    - Trended yield development
    - Policies according to current legislation

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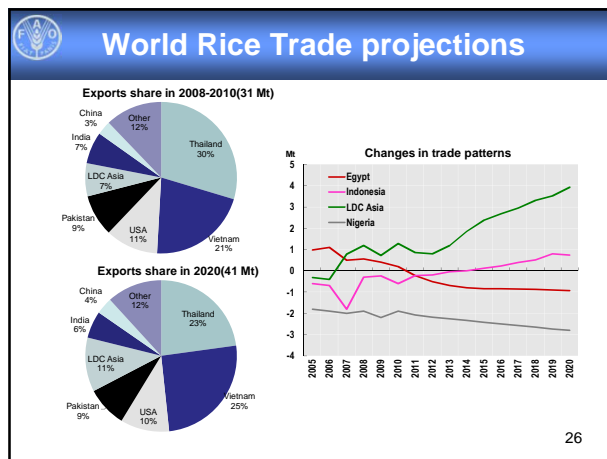


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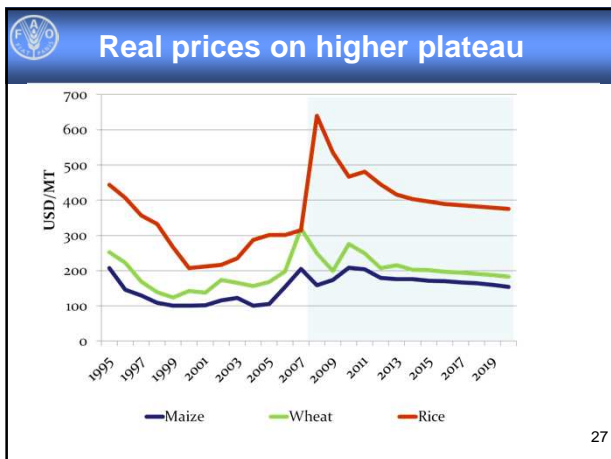




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### GM rice in the commercial, regulatory and advanced R&D pipeline

Developer	Product name	Event name/genes	Trait	Unique identifier
<b>Rice events authorised in at least one country but not yet commercialised anywhere</b>				
Bayer CropScience	LibertyLink	LLRICE62 *	Herbicide tolerance (to glufosinate)	ACS-OS002-5
<b>Rice events in the regulatory pipeline in at least one country</b>				
n/a (China)	n/a	B63 * #	Insect resistance	n/a
n/a (China)	n/a	KM11 * #	Insect resistance	n/a
n/a (China)	n/a	Xa21 * #	Disease resistance (against leaf blight)	n/a
n/a (Iran)	n/a	BB27 * #	Insect resistance	n/a
<b>Rice events at advanced stages of R&amp;D</b>				
IRRI (Philippines)	Golden Rice 1	n/a	Crop composition (beta-carotene cont.)	2011
Bayer CropScience	n/a	n/a	Herbicide tolerance	2011-13
Bayer CropScience	n/a	n/a	Insect resistance	2011-13
n/a (China)	n/a	BaIR8-1	Herbicide tolerance (to glufosinate)	2012
IRRI (Philippines)	Golden Rice 2	n/a	Crop composition (beta-carotene cont.)	2012
n/a (India)	n/a	CP-IGRF-IV	Virus resistance	2012
n/a (India)	n/a	RTBV-OD2	Virus resistance (to tungro bacilliform)	2012
n/a (India)	n/a	ch11 sp	Disease resistance	2013
n/a (India)	n/a	cry1Ac	Insect resistance	2013-15
n/a (India)	n/a	cry1Ab, cry1C & bar	Insect resistance	2013-15
n/a (India)	n/a	Glabrioxin I and II	Abiotic stress tolerance (to salinity)	2015+
n/a (Indonesia)	n/a	Damton	Abiotic stress tolerance (to drought)	2015+
n/a (Pakistan)	n/a	Bacillus thuringiensis **	Insect resistance	2015+
n/a (Pakistan)	n/a	Bacillus thuringiensis **	Insect resistance	2015+

Source: Alexander J. Stein and Emilio Rodriguez-Cerezo. *The global pipeline of new GM crops - Implications of asynchronous approval for international trade*. European Commission: Joint Research Centre. Institute for Prospective Technological Studies. 28



**Trade and Markets Division**  
Information, Analyses and Forecasts

### Thank you

**FAO Rice Group**

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## Concepcion Calpe

Good afternoon. It is a pleasure for me to be here for JIRCAS to give an overview of the latest prospects of the rice economy.

My presentation is divided into two major sections. First, a review of the current situation and short-term outlook of the rice market, highlighting the situation of supply, demand, and price over 2011 and prospect for 2012. If there is time, I would also like to present briefly the results of the medium-term outlook and the projection exercise that FAO conducts jointly with the OECD on an annual basis.

Starting with the current situation, in a **nutshell**, the main developments in the rice market fundamentals are as follows:

- ✓ the current 2011 season is already well advanced and, although several countries in the northern hemisphere still have to grow their secondary paddy crops, the bulk of production for 2011 paddy season has already been harvested or is in the process of being harvested. Based mainly on the first crop results, production this season is set to expand by over 14 million tons on a milled rice basis, to a 480 million ton record, driven by very good results in all regions except North America.
- ✓ Rice utilization, which in the case of rice is overwhelmingly for food, is forecast to rise virtually in line with population, with only a marginal increase expected in average per capita consumption.
- ✓ Based on these preliminary forecasts, global rice production looks set to exceed utilization, fostering an accumulation of stocks for the seventh consecutive year.
- ✓ International trade in rice is forecast to expand by almost 9% or 2.8 million ton to a new record of 34.3 million tons in 2011. Although still preliminary, the volume traded next year is forecast to be slightly smaller at 33.8 million tons largely reflecting a weakening of import demand in traditional markets, in particular Bangladesh, Indonesia and the Philippines.
- ✓ International rice prices have remained firm in 2011, lower than in 2008 during the price surge, but above those of last year, influenced by developments in other cereal markets, especially wheat, but also by floods in Asia and by new policies that have been implemented by some major rice exporting countries.

At the current forecast of 480 million tons, **world milled rice production** in 2011 would be 3% larger than in 2010, setting a new record. This is despite a series of setbacks affecting important producers in Southeast Asia like consecutive storms in the Philippines and severe inundations in Cambodia, Laos, Myanmar and Thailand. The 3% production rise would reflect a 2.2% expansion of the area harvested to 165 million hectares and a modest 0.8% gain in yields to 4.38 tons per hectare. However, it is necessary to warn that, although many countries are already harvesting their main crops, a substantial part of the final output in the 2011 season will come from the secondary crops, many of which are only approaching planting stage. This means that, although the season is well advanced, there may be still important revisions to the current forecast for production in 2011 depending on the outcomes of these secondary crops.

In **Asia**, the major rice-producing countries, China and India are both expected to harvest bumper crops in 2011, with large gains also expected in Bangladesh, Vietnam, Brazil, and Pakistan. Until a few days ago, production in Indonesia was also predicted to reach a record but the forecast was revised downwards by the authorities, now pointing to a contraction from last year. Indonesia was for many years the world leading rice importer. Thanks to major progress in boosting production, the country has managed to reduce its reliance on imports, while still remaining an important destination for rice trade. The Philippines, also a significant rice buyer, is expected to incur production losses in 2011. Setbacks have also negatively affected production in several major exporting countries, namely Myanmar, Thailand, and the United States, which may hinder their rice deliveries to the international market next year. Japan is also anticipated to witness a 3% production decline to 10.3 million tons in paddy rice terms, in part reflecting losses to the devastating March earthquake and tsunami. Japan is considering a set of proposals to revitalize the agricultural sector by addressing some of its fundamental constraints, including that of an ageing population and falling rural incomes. Japan's policy recommendations call to expand the average farm size from the current national average of 2 hectares to 20 to 30 hectares in flat lands and to 10 to 20 hectares in hills and mountainous areas, while also encouraging younger segments of the population to engage in farming. In **North America**, rice output declined, because of an expected 23% fall of output in the United States due to a combination of flood and droughts, which mostly affected southern producing states and long grain rice varieties. In **Africa**, Western African countries and Egypt are behind an expected 3% expansion of output. Many countries in the region have embarked in ambitious rice self-sufficiency programs that are slowly showing up in improved production results. In **Latin America and the Caribbean**, where the 2011 crops were mostly gathered in the first quarter of



2011, production reached all time highs, boosted by strong growth in Brazil and Uruguay. In *Europe* and *Oceania*, crop results were also favourable.

With global rice production foreseen to outpace consumption, **world carry-over stocks** at the close of the 2011/2012 seasons are forecast to rise by 4 million tons to 149 million tons in 2012, the highest level since 2002 and the seventh consecutive increase. The rise in world rice inventories is expected to boost the world stock-to-use ratio from 29% to 32%. This ratio is an important indicator of food security. It signals that the world holds sufficient rice in either public or private storehouses to satisfy four months of consumption needs. However, more than 106 million tons, or about 70% of world stocks, are estimated to be held in China and India. Rice inventories held by the five major exporting countries, namely Thailand, Vietnam, Pakistan, India, and the United States, are also expected to rise to 33.8 million tons, bringing the stocks-to-disappearance<sup>1</sup> ratio, another important indicator for food security, up from 19% in 2011 to 21% in 2012. This means basically that the major exporting countries will have enough supply to respond to import demand.

As for **international trade in rice**, a record is likely to be achieved in 2011, with an expected rise of 9% to 34.2 million tonnes. Much of the expected trade growth in 2011 is to be fuelled by brisk **import** demand chiefly in Asia (Bangladesh, China, Indonesia, the Islamic Republic of Iran) and Africa (Cote d'Ivoire, Madagascar, Mali, Nigeria, Senegal). The volume traded in 2012 is currently forecast to fall slightly to 33.8 million tonnes, as Asian countries may need to import less in course of the year after harvesting bumper crops this season. Among the major importers, Nigeria remains heading the list with 2.2 million tons in both 2011 and 2012. Philippines, is expected to step its imports in 2012, while Indonesia may cut theirs.

In 2011 much of the increase in import demand is foreseen to be met by larger **exports** by Thailand, but also by India, which relaxed in September 2011 its 4-year ban on non-basmati rice exports. Abundant supplies have also enabled Argentina, Australia, Brazil, Myanmar, Uruguay, and Vietnam to boost their deliveries, while China, Egypt, Pakistan, and the United States are curbing theirs. In 2012, the expected drop in trade would principally affect Thailand which may see its competitiveness eroded by the high domestic price policy conducted by the government under its rice pledging program. Much of the shortfall in Thailand deliveries is likely to be met by larger shipments from India, following the lifting of export restrictions, but also by Australia, China, Pakistan, and Vietnam. Indeed, policy interventions continue to be frequent and to disrupt the functioning of the international rice markets. However, an interesting development in the world rice economy has been the weaker reliance on only a few of large suppliers, as the past two years have seen Brazil and even the Russian Federation exporting sizeable volumes of rice. The international rice market is also becoming more integrated, with rice from Latin America increasingly reaching markets in Africa, Europe and the middle East and rice from Asia also flowing more regularly to LAC.

Between June and September **international rice prices** manifested strength on most market segments influenced by reports of floods, and especially by the announced high price policy in Thailand. This tendency was reflected in the FAO Rice Price Index, which passed from an average of 251 point in July to 260 in August and September before dropping to 255 in October. The weakening in September non only reflected the arrival of new harvested rice in the market but also the resumption of sales of non-basmati rice by India.

Until September, gains were underpinned by rising prices of Aromatic and Indica rice, while medium grain rice prices lost ground on increased supplies from the Russian Federation and Australia. Largely reflecting a continued weakening of prices of the Lower Quality Indica rice, where competition from India was keenest, and of Japonica rice, the price strength subsided in October.

On an annual basis, the international quotations over January-October averaged 13% above their corresponding value in 2010. Prospect for price in the coming months remain highly uncertain, although they will very much be influenced by the unfolding of crops to be harvested in the second quarter of next year. However, policy developments, especially in Thailand and India, will continue to weigh heavily on the market.

One of the characteristics of the 2008 price surge was very strong volatility of export prices. We see that in 2010 and in 2011, this volatility considerably abated. Volatility is one of the major problems that the sector has been facing over the past 2 years, so a return to a more stable pattern of prices is a welcome development.

What are the uncertainties for the very short term? The weather pattern remains very, very important. Especially because a resurfacing of a La Nina weather anomaly in early August has contradicted earlier expectation of a return to normal growing conditions. With current climatic forecasts indicating La Nina prevalence lasting until the first months of 2012, the phenomenon could also impact the development of the secondary crops in the northern

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<sup>1</sup> Disappearance is equal to domestic utilization plus exports

hemisphere countries, and the 2012 first crops in the southern hemisphere. La Nina is a weather anomaly that disrupts rainfall patterns: for instance, la Nina prevalence is usually associated with above normal rainfall in Indonesia and other Southeastern Asian countries, but with drought in Brazil and Argentina. Policies will also remain critical. Of particular importance for the coming year will be the policies conducted by Thailand and India as exporters, and on the import side, by the Philippines and Indonesia. Of longer-term relevance is the current drive towards rice self-sufficiency that many countries have embarked in, especially since 2008. The rice economy will also be influenced by developments in the macroeconomic environment (incomes, interest rates, inflation) and other important variables such as freights and crude oil prices. The situation of the international wheat market will also bear on rice. In this regard, wheat price are sliding, driven largely by bumper crops in Black Sea producing countries such as Russia, Ukraine, and Kazakhstan, and this probably will affect the rice market.

As for the **medium-term outlook**, FAO collaborates with OECD in producing rice projections with a ten-year horizon. Projections are different from forecasts as they rely on a set of assumptions, many of which may not always hold true and have to be changed. The last projection exercise with OECD is the one conducted in 2011, the results of which I am reporting.

The major **exogenous variables** that drive the projections results are the macroeconomics, population, crude oil prices, and technology parameters. There are also projection conventions that climatic conditions are assumed to be “normal” over the projection period and that changes in yields remain on trend, unless there is evidence that productivity growth may accelerate or slow down. Also, the set of parameters reflecting policies remains constant over the 10-year period or changes in line with announced policy plans by the government. One the other major external drivers of projections is the expected GDP growth, normally calculated in constant US\$ terms and per capita. Although of relative small importance for rice, which is overwhelmingly a food commodity, changes in crude oil prices also affect commodity markets, on the production side, by raising production costs, and lately on the demand side, by sustaining the use of agricultural products (mainly maize or sugar) for the production of bio fuel, competing with food and feed demand. Although Japan is also reported to be using rice not only for feed but also for fuel, few countries are currently using rice as feedstock for bio-ethanol.

Reporting very briefly the results of last year projection exercise, milled rice **production** is projected to increase to 530 Mt in 2020, with the growth rate slowing to 1.3 % from 2.2 % in 2001-2010. The main factor of the increase is the yield growth at 1.2 %, while the total area harvested is expected to change little. Significant increase are expected in Asia, by India (15 Mt), Cambodia and Myanmar (13 Mt) and African countries (12 Mt). Among the large producers of rice, China is expected to cut output (by 5 Mt), as the sector responds to declining domestic consumption and strong demand for land conversion. A steady growth of 1.1% is expected in the United States. Rice output in Japan is likely to remain on a declining trend.

**Trade in rice** is set to grow by 2.1% pa in 2011-20, faster than the 1.5% witnessed in the past ten years, rising to 41 Mt by 2020. Much of the trade expansion is to be fuelled by rising **import** demand from countries in Africa, where consumption is projected to outpace production. Countries in the Near East and the EU are also expected to step up their imports. Imports by Japan and the Republic of Korea are foreseen to change little, as they are assumed to depend largely on the WTO minimum quota provisions. As for **exporters**, Thailand is foreseen to cut deliveries abroad and reduce its market share from 31 percent in 2010 to 23 percent in 2020, which would make the country lose its leadership in rice trade. On the other hand, sustained export growth may turn Viet Nam into the world largest exporter. Pakistan is also expected to consolidate its position as an important source of rice trade. Other Asian countries, in particular Myanmar and Cambodia, are expected to make major inroads in the international rice market, with exports growing by 10% per year over 2011-2020. India sales were kept low, under a policy that mainly caters for meeting the domestic needs of its population.

Finally, we expect **international rice prices** to reach a plateau but to remain high, fundamentally because the marginal cost of producing rice is expected to increase tremendously compared to what they were at the beginning of 2000, which heavily influence the prices in the next 10 years. Although prices are not expected to reach the high seen in 2008, they are projected to be well above the levels prevailing in 2006-2007, before the food price crisis.