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Effects of Trade Liberalization in Malaysia

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Institutional and Structural Aspects

Economic theory indicates that there are gains to be made from free trade. This view goes back a long way and it is supported by numerous empirical studies attempting to estimate the magnitude of such gains. Despite the evidence for the benefits of freer trade, all governments without exception intervene to varying degrees in the workings of natural market forces. The main reasons for trade protection include the need to protect infant industries, to ensure food security, to redistribute income by protecting specific agricultural industries, and to enhance incomes of small producers. However, the burden of protection increases over the years and many governments realize that it is not sustainable in the long run to continue to protect inefficient industries; hence the global move towards trade liberalization including agricultural trade.

The liberalization initiatives culminated in the signing of the Uruguay Round (UR) Agreement and the establishment of the World Trade Organization (WTO) on January 1, 1995. The main elements of the UR Agreement include market access commitments, concessions on trade in goods and services, and dismantling of quantitative restrictions and subsidies as well as other non-tariff barriers by both developed and developing countries. Apart

from being a signatory to the Uruguay Agreement and a member of the WTO, Malaysia, which is also a member of ASEAN, is additionally committed to the implementation of the ASEAN Free Trade Area (AFTA). The AFTA is a commitment by ASEAN to enhance intra-ASEAN trade and to building up competitiveness through increased regional economic cooperation. The members signed the CEPT Agreement (Common Effective Preferential Tariffs Agreement), which is the main mechanism towards implementing the AFTA. The agreement now covers agricultural products.

However, many of the areas under the UR Agreement such as anti-dumping, safeguards, handling of subsidies and dispute settlement are new to developing countries, and the effects of the liberalization itself at both global and regional levels

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are not well understood by many countries including Malaysia. It is, therefore, the objective of this study to examine the actual effects and extent of benefits and losses to be gained by Malaysia as a result of trade liberalization in agriculture, with special focus on the subsectors that are important to Malaysia, such as palm oil, rice and tobacco and CGPRT related crops. The specific objectives are:

- to review policies affecting trade including financial, fiscal and other related policies,
- to analyze trends in Malaysian agricultural trade and assess the overall impacts of liberalization measures on Malaysia, and
- to make recommendations pertaining to trade liberalization in Malaysia.

The Malaysian economy

Malaysian economic growth has consistently been above the 8% level for the past ten years (1987–1996). In 1995, its per capita GNP was US\$4,023, which is ranked third after Singapore and Brunei in South East Asia. When the country gained its independence from the British in 1957, the economy was predominantly based on primary commodities such as rubber, timber and tin. Together they contributed more than 50% of the country's GDP. The contribution from the manufacturing sector was only 9%. By 1995, the manufacturing sector contributed 33.1% to GDP, while the contribution of agriculture declined to just 13.5%. Between 1982 and 1996, the manufacturing sector registered double digit growth, averaging 12.5% per annum. Agriculture, on the other hand, grew at only 2.7%. Growth in the service sector was also strong. The changes in the structural composition of the Malaysian economy were also reflected in other major macroeconomic parameters such as the composition of exports and employment.

Nevertheless, despite the declining relative contribution of the agricultural sector to the national economy, the role of agriculture is viewed as strategically important. Apart from its critical role of providing food for the nation, the sector is still an important source of employment. Agriculture is also important to support agrobased industrial development and in terms of its linkages with other industries. More importantly for Malaysia, however, is that the agricultural sector is seen as a vital sector for the attainment of national unity. The underlying issue concerns the relatively high incidence of poverty in the sector as compared to

the other sectors. Policies and programmes in the agricultural sector focussed on enhancement of income of agricultural producers in order to reduce the incidence of poverty and to minimize the intersectoral disparity and inequity between agriculture and non-agriculture. These policies are considered crucial in maintaining and enhancing the social and economic stability of this multi-racial country.

The Malaysian agricultural sector can be primarily grouped into the agro-industrial subsector comprising oil palm, rubber, cocoa and timber, the food subsector comprising paddy, fruits and vegetables, livestock and fishery and the miscellaneous group consisting of tobacco, pepper, coconuts, sugarcane, cassava, sweet potato, maize, tea and coffee. Another subsector consists of the newly-emerging agro-industries such as floriculture, sago and aquarium fish and aquatic plants. The structural composition of the agricultural sector has not changed very much in the last ten years with the agro-industrial subsector, which mainly serves the export market, dominating the agricultural scenario. This composition can be reflected in Malaysia's agricultural land use data for the 1985-1995 period. In 1995, oil palm, rubber and cocoa accounted for more than 77% of the total agricultural land use in Malaysia. In terms of value added, these three crops contributed to about 57% of agricultural GDP in 1995. Composition of exports also showed identical patterns with palm oil accounting for almost 30% of total export earnings in agriculture in 1995 and rubber accounting for 11%.

Malaysia's domestic and trade policies

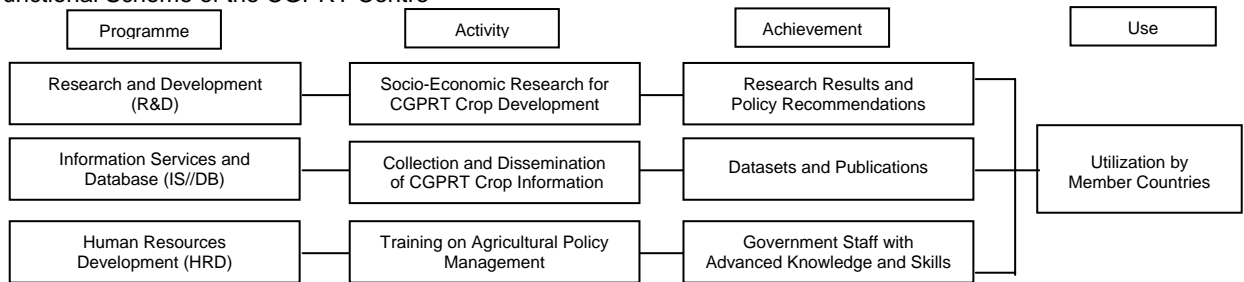
Malaysia's policy planning can be divided into three phases. The first phase ran from 1956 to 1970, the second from 1971 to 1990 and a third from 1991 to 2000. During the first phase, the main thrust was in the provision of social and industrial infrastructure to lay the foundation for a free market economy for growth. The second phase of development planning was influenced by efforts to narrow income gaps along racial and regional lines towards establishing political and economic stability. Built on the success of the second phase, the new era maintains the ultimate goal of achieving a united society and of becoming a developed nation by the year 2020. This new phase, referred to as the New Development Policy era, has set the stage for increased opening of the economy, including the

Message from the Director

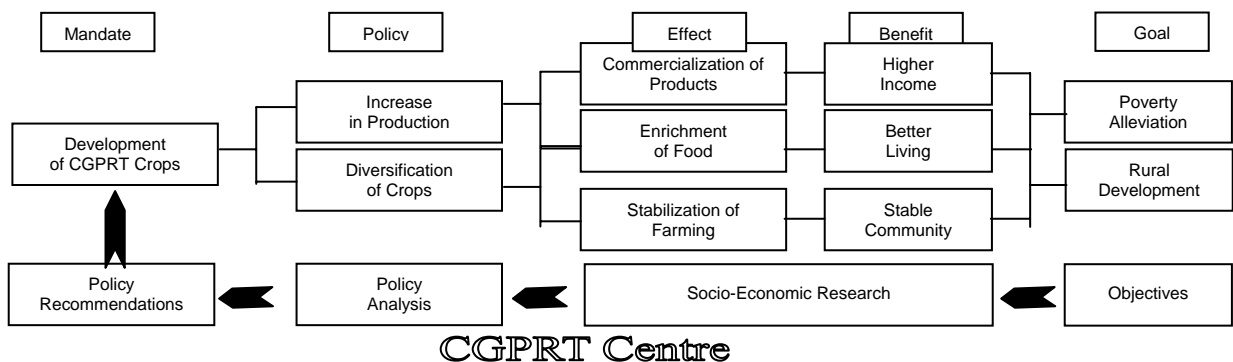
The CGPRT Centre will participate in an exhibition to be held during the 57th ESCAP session, 19-25 April 2001 in Bangkok.

In addition to the outline and the current activities and achievements of the Centre, the following flow charts will be displayed:

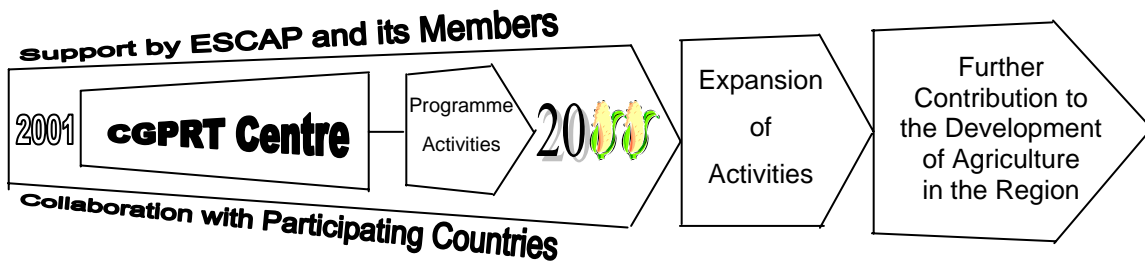
Functional Scheme of the CGPRT Centre



Basic Concept of Research and Development Programme (R&D) of the CGPRT Centre



The CGPRT Centre in the future



The Centre also displays its mission statement on the entrance board as “CGPRT Centre Works Towards Enhancing Sustainable Agriculture and Reducing Poverty in Asia and the Pacific”.

What we want to say here is self-explanatory. These words and schemes are based on the principal concepts and mandates given in the Centre's statute. It is not necessary to memorize these words and schemes, but we must keep the spirit of the Centre's mandate always in our mind. I used to come back to the statute whenever I encounter confusion and difficulties in the management of the Centre. I believe these words and schemes clearly show the Centre's future direction.

HARUO INAGAKI

agricultural sector, to external competition. Malaysia's signing of various agreements on trade liberalization is a testimony to Malaysia's stand as a strong proponent of trade liberalization, consistent with the country's development plans.

Policies in the agricultural sector

Agricultural development strategies in the 1960s and 1970s mainly focused on providing employment, as well earning and saving foreign exchange. Strategies and programs during the period were also designed to raise farm incomes to reduce poverty in agriculture. Export crops such as rubber, oil palm and cocoa were actively promoted. Many subsectors in agriculture were protected through tariffs and nontariff barriers such as quotas and other import barriers to protect producers and save foreign exchange in line with the import substitution strategy during this period. High emphasis was given to food security, where a 100% self-sufficiency target was set for domestic rice production. The launching of the National Agricultural Policy (NAP, 1984) marks the actual beginning of liberalization of the agricultural sector. Productivity, efficiency and competitiveness were the main focus of the policy. Self-sufficiency for rice was rationalized to 85% of domestic consumption.

The period of 1984 - 1990 marks an important threshold in the transformation and development of the Malaysian economy. This era saw rapid expansion of the manufacturing sector and altered the relative importance of the agricultural sector. The overall development of the agricultural sector was beset with problems including more favorable policies towards manufacturing, labor shortages and increasing wages, increasing competition for land for other uses and others. A second NAP was introduced in 1992. Greater emphasis was given to productivity, efficiency and competitiveness issues in the context of sustainable development and linkages with other sectors of the economy, in particular, the manufacturing sector. The development effort was geared towards modernization and commercialization of the sector and tariffs on many agricultural products were dismantled to prepare the sector for increased competitiveness. The food security issue was further rationalized and the self-sufficiency level for rice was further revised downwards to 65%. Exports were further encouraged. The government also introduced new and additional incentives to attract investments in the agricultural sector.

Trade policy

Malaysia has a fairly liberal trade regime with low tariffs for most products. In 1993, the simple average and ad valorem tariff was 14%. The average was lower for agriculture at 10.4% while for industry it was 14.4%. The level of tariff protection is regularly revised to harmonize the tariff structure and reduce excessive protection. In most cases, tariffs on products are revised downwards except for products that are luxurious and unhealthy, such as luxury cars, cigarettes and alcohol where increases on tariffs were imposed on the importation of these products. With respect to nontariff measures, Malaysia also practices import quotas and licensing (automatic and nonautomatic) on a fairly wide range of products. This is used both for restricting imports to protect certain industries, to ensure adherence to sanitary, phytosanitary, safety, environmental protection as well as copyright requirements and also for the purpose of monitoring. For rice, an import monopoly is held by BERNAS, the privatized state enterprise of the National Paddy and Rice Board. Export duties are levied on a number of primary commodities for revenue and to encourage domestic processing. Malaysia does not have any export subsidies but provides incentives such as tax rebates for certain promoted export-oriented industries.

The trade regime for agriculture

The effective duty rates on imported agricultural products are low by international standards and protection afforded to the industrial sector is still considerably higher than that of agriculture. Over the years, and more so in the 1990s, tariffs have been reduced on a broad range of products to meet Malaysia's obligations to international and regional trade agreements. In addition voluntary cuts have been made to ensure competitiveness of agricultural subsectors in the long term. For agricultural products under chapters 1-24 of the Malaysian Customs Trade Classifications and Customs Duty Order, the number of tariff lines under the 0-5% category has increased from 318 lines to 866 lines from 1978 to 1997 or from 50.9% to almost 70% of all tariff lines in the 24 chapters. The reduction has been more rigorous for the 1988 - 1997 period, where the number of tariff lines under the 0-5% group has increased from 52% to almost 70%. Similarly, the number of tariff lines that fall under the 6-15% group has also increased from 21 lines in 1978 to 95 lines

in 1988 or from 3.4% to 7.6% of the total tariff lines. Out of the 866 tariff lines that are in the 0-5% category, about 850 lines or 61% are actually duty free.

Policy measures for palm oil, rice, tobacco and CGPRT-related crops

In general, the government maintains a non-interventionist policy for palm oil and the CGPRT crops such as maize, tapioca and sweet potato. In palm oil, direct policy measures that distort trade flows in the edible oil and fats market can be considered as insignificant. However, institutional support from the government for production, marketing, promotion and R&D of palm oil is strong. This includes direct involvement of government owned agencies in production, processing and marketing, the provision of incentives and export credit financing. Maize, tapioca and sweet potato, being important raw materials for other agricultural industries, have always enjoyed a free market status. On the other hand, rice and tobacco, being important socio-economic crops, have been subjected to heavy intervention by the government in the marketplace. In the rice industry, a host of interventions are in place, including monopoly on imports, GMP for paddy, controlled prices at milling, wholesaling and retailing, fertilizer subsidy and price support. In addition, the government also provides drainage and irrigation facilities and undertakes R&D for rice. For tobacco, apart from being protected by high tariffs, the Malaysian tobacco industry also received other forms of support from the government. The major interventions include licensing of curers and cigarette manufactures and registering of growers, implementing production quotas to balance production with demand, setting proper grading and pricing of green and cured leaves and controlling and regulating the marketing of green and cured leaves.

Performance in international trade

The growing significance of Malaysia in international trade is reflected in the expansion of imports and exports. Total imports and exports increased 5.75 fold during the 1985-1996 period from RM 68.5 billion to RM 394.0 billion. In 1994, Malaysia ranked 19th in the world in terms of exports and 18th in terms of imports. Malaysia is increasingly becoming a trade-oriented economy with the ratio of exports and imports to GDP increasing from 0.49 to 0.78 and 0.39 to 0.79,

respectively, between 1985 and 1996. The trade balance was most of the time positive for the period under study, except in recent years. The agricultural balance has always been positive and increasing. Agricultural trade grew at a rate of 10% per annum, from RM 19 billion to RM 52 billion during the same period. Agricultural exports mainly consisted of primary commodities while imports were mainly food items. The agricultural sector is also becoming more trade-oriented with the ratio of exports and imports to agricultural GDP increasing from 0.86 to 1.2 and 0.32 to 0.58, respectively, between 1985 and 1995.

Direction of trade

At the aggregate level, ASEAN particularly Singapore, Japan, the USA and the EU continued to be major markets for Malaysia products. Together they accounted for more than 75% of Malaysian exports for the last two decades. Singapore, the USA and Japan together have consistently accounted for more than 50% of total exports. Thus, the Malaysian export market remained highly concentrated with limited progress being made in market diversification. The direction of imports was also similar, with Japan, Singapore, the USA and the EU being the major source of Malaysia's imports. The trend showed that there was also an increased concentration in the sources of Malaysia's imports. Trade in agriculture, on the other hand, is more successful in terms of diversification. The ten major export destinations for Malaysian agricultural products were Japan, Singapore, USA, China, Hong Kong, Korea, the Netherlands, Thailand, Taiwan and Pakistan. There is a decrease in concentration of exports to these countries from 64% of total agricultural exports in 1985 to 54% in 1995. For agricultural products, the Asian market is becoming increasingly important with China and Pakistan displacing the USA in the top five export destinations. The sources of agricultural imports were also becoming less concentrated.

Imports of selected agricultural and agricultural related products such as agricultural inputs and machinery, fish products, feed grains and livestock products have shown tremendous increases over the years. Ratios of the value of these imports to agricultural GDP have also been continuously increasing for the 1985-1996 period, from 0.016 to 0.034 for fish and fishery products, 0.012 to 0.025 for feed grains and 0.011 to 0.018 for livestock and livestock products. For food crops the ratio

increased from 0.11 to 0.15 for the period. These subsectors as a whole have become more import-oriented.

Competitiveness of commodities

Analyses of ratios of f.o.b. and wholesale prices to world prices of major export commodities showed that Malaysia is still competitive in the production and export of palm oil, cocoa beans, saw logs and pepper. Both the f.o.b. and wholesale prices to world price ratios were less than 1. The situation is not so true for rubber where these ratios were consistently above 1 for the 1994-1996 period. For palm oil, the average f.o.b. to world price ratio for the 1985-1990 was 0.66 compared to 0.84 for the 1991-1996 period. This indicates that although Malaysian palm oil can still be considered efficient and competitive, its competitiveness over the years seems to be lower in recent times. In general, although the ratios indicated that Malaysian cocoa beans and pepper were still competitive, labour problems and better economic returns from other crops, especially palm oil, saw many investors and producers exiting the industry for more lucrative ventures.

As expected, Malaysia is not competitive in rice and tobacco production. The ratios of wholesale price to world price of these commodities were consistently more than 1. For rice, the average ratio increased from 1.17 for the 1985-1990 period to 1.51 for the 1991-1996 period, indicating increasing economic inefficiencies and decreasing competitiveness.

Effects of liberalization

Past literature indicated that most countries including the developing ones would benefit from trade liberalization. However, these studies also indicated that large net-importing food countries would lose due to increases in prices of food items resulting from liberalization. Nevertheless, they would lose more if they do not liberalize when others liberalized.

For Malaysia, major gains are only expected from the exports of palm oil and wood products. Both the USA and EU that are major markets for Malaysian palm oil are expected to reduce their tariffs by 19% for unprocessed or semi-processed and 30% for processed oils and fats. Similarly, developing countries, which are becoming more important markets for Malaysian palm oil, are also reducing their tariffs on palm oil imports. Thailand

and the Philippines, for example, are reducing them by 24% and 12%, respectively. For wood products, reduction in tariff escalation in developed countries would certainly benefit Malaysia. Other export crops including cocoa, rubber, and pepper are only expected to register modest gains, since Malaysia's competitiveness in exporting these products in the future is uncertain, and further declines in exports of these commodities are expected.

In general, the Agricultural Agreement is not expected to bring radical changes in the import tax regime for Malaysian agricultural products, since Malaysia's import tariffs for agricultural products are already low. However, the Agreement can severely affect the rice industry when all direct supports including the price support are withdrawn from the industry. Many producers are expected to exit the industry as profit margins decrease. Unless the government undertakes massive infrastructural upgrading to increase current productivity levels, rice production is also expected to decline. Other protected subsectors such as tobacco, poultry and the swine subsectors are not expected to be significantly affected by the Agreement. However, the CEPT Agreement of ASEAN is expected to inflict significant impacts on these industries, especially on the local tobacco industry. At the pessimistic end, full implementation of the CEPT Agreement for agricultural products may see a total collapse of the industry as most ASEAN countries are more cost-effective producers of tobacco. Overall, the balance of gain and losses in agriculture for Malaysia will very much depend on the in-roads that will be made by Malaysian palm oil as Malaysia will lose in terms of higher import prices and imports of food.

Issues and recommendations

At the international level, there are increasing concerns on the use of non-tariff barriers such as sanitary and phytosanitary measures to protect domestic agriculture. At the same time there is increasing use of non-trade-related issues such as the environment and labour especially by developed countries to restrict imports from developing countries. The other concern is the emergence of a monopoly held by a few countries on food exports resulting from liberalization.

For Malaysia some recommendations were put forward in pursuing the agricultural liberalization agenda. These include the need for a well planned strategy to prepare for adjustments in the protected

and most affected subsectors, increasing the capacity for food production, expanding value added and downstream processing, and a quality enhancement program. It may also be necessary for Malaysia to join forces with other smaller countries to exert increased influence in the trade liberalization negotiating process.

Commodity Aspects

In this study, the effects of agricultural trade liberalization are analyzed from two main perspectives. The first is from a commodity perspective, where the effects of trade liberalization on the commodity with respect to prices, consumers' and producers' welfare were evaluated. Subsequently, the study analyzed the effects of liberalization on the farmers involved with the commodity. It also attempted to analyze the aggregate effects of liberalization on the areas where the farmers are located. This study covers palm oil, paddy and tobacco, the three crops in Malaysia that are likely to be most affected by the liberalization initiatives.

Palm oil is the largest agricultural industry in Malaysia. As an export-oriented industry, which is devoid of any subsidies, this industry is expected to register gains as a result of global liberalization of trade in the oils and fats market. The findings from this study confirm this expectation. Under a free trade environment, where tariffs by importing countries of Malaysian palm oil are zero, exports of Malaysian palm oil are expected to increase by 1.973% (current weighted tariff of major importers = 15%). Using the 1996 data of exports of CPO equivalent of 7,587,855 tons, exports of CPO will increase by 149,708 tons under free market conditions. Prices of palm oil in the domestic market are expected to increase by about 3%, which translates into RM35 per ton of CPO equivalent. As such, consumers are expected to lose as a result of this increase in price. The consumer welfare loss is estimated to be in the region of RM28 million. However, producers are expected to register gains. Fresh fruit bunch (FFB) prices are predicted to increase by 3.2% leading to an increase in producer surplus of almost RM263 million. Hence the net gain from totally liberalized trade in palm oil for Malaysia is estimated to be RM235 million. Furthermore, Malaysia will gain from increased foreign exchange earnings resulting from the increased exports of palm oil. In addition, Malaysia's benefit can be

further expanded due to the requirement of other oilseed producers to reduce support to their industries, which will most likely put upward pressure on prices of other edible oils such as soybean and corn oil. The higher prices of these products can result in a substitution effect that will be beneficial to palm oil.

Analysis of the likely effects of trade liberalization in palm oil at the farm level reveal that the net income of an average smallholder would increase by more than 9% or by RM147 per hectare per year. Considering that an average smallholder in an organized land scheme has about 3.5 hectares, the difference in income would be in the region of RM5,000.

This study recommends that continuous efforts to increase productivity and efficiency of the industry be undertaken to enhance competitiveness of the industry in the long run. In addition increased efforts are also necessary to further promote the use of palm oil in order to better compete against other edible oils. Among the specific recommendations to enhance the industry are reducing labor requirements in the palm oil production process, enhancing competitiveness through productivity gains via R&D and quality improvements, product development and diversification, strengthening institutional support and market diversification and deepening.

The paddy sub-sector is one of the most highly protected agricultural sub-sectors in Malaysia with a high degree of market intervention. This protection is based on food security and socio-economic reasons, the paddy sub-sector being the sub-sector with one of the highest incidences of poverty in the country. Liberalization is expected to bring rationalization to the industry. Analyses in this study indicate that liberalization of the paddy and rice industry would, as expected, decrease domestic supply while increasing demand. There are all round efficiency and welfare gains that will benefit Malaysia, mainly brought about by the increase in consumer surplus and a decrease in government spending on subsidies. The total gain in consumer surplus brought about by liberalization is RM286.2 million, while the loss in producer welfare is estimated to be RM354.2 million. Hence net welfare loss is estimated to be RM68.0 million. However, there is a reduction in government expenditure to support the paddy price subsidy program, which is equivalent to RM553 million. Also, imports will increase quite significantly to cater to the increased

demand-supply gap and farm incomes would be reduced by about 15%. Supply is predicted to decrease marginally by 1.34%.

Hence, from the analysis, it appears that the food security objectives might not be very much compromised even if total liberalization takes place. However the poverty and income issue is a more delicate issue to handle. While the analysis does not indicate a large reduction in farm income, any decline in the income of the poor without compensation, however small, can lead to serious political and social consequences. Furthermore, there is a strong possibility that the actual decline in income by this study might be underestimated, resulting from underestimation of the level of protection in the rice sector (the TE). Analyses of farm profitability based on an actual survey of farmers indicated significant financial implications for the farmers. Depending on the tenure status and farm size, the farm income could be reduced by as much as 68% per season.

This study recommends several measures for the paddy and rice sub-sector to prepare for the challenge of liberalization. They include new and additional infrastructure in new areas, infrastructural improvements in existing areas to induce productivity and efficiency gains to increase competitiveness, farm consolidation and enhancing rural employment opportunities. In addition the study also recommends that institutional support be strengthened especially in the areas of R&D, extension and technology transfer.

The tobacco industry is another industry that receives high protection from the government through a web of policy interventions including high tariffs, production quotas, guaranteed minimum price, input subsidy and others. This protection is accorded with the aim of protecting the small producers, who are mainly located in relatively poor regions of the country. Due to the high degree of protection that the industry now enjoys, complete liberalization would most likely have serious consequences for the domestic industry. Estimates from this study indicate that the supply of green uncured leaves would be reduced by more than 73% with a producer loss amounting to RM17.32 million. Consumers would gain from cheaper tobacco and the net gain in consumer surplus is estimated to be RM58.88 million. Hence net welfare gain is estimated to be RM56.74 million. However imports would jump by 12,758 tons with an estimated cost of RM170 million. In addition, the

government would also lose about RM500 million in revenue in terms of tobacco taxes.

Analysis at the farm level shows that for the average farmer in a major tobacco growing area, operating a farm size of 0.175 hectares, gross income would be reduced to RM952 per season, down from the pre-liberalization scenario of RM1,516. Net returns would turn negative although returns to labor are still positive at RM484.57. Net income would decline by almost 111%, while returns to labor decline by almost 54%. This reduction in income is due to the expected decline in the price of tobacco in the domestic market resulting from cheaper imports.

The following recommendations are put forward for the tobacco industry to face liberalization:

- Implementing a gradual structural adjustment program in the tobacco industry: The structural adjustment can start by gradually dismantling the tobacco tariff especially to ASEAN, so that the process of adjustments can now begin.
- Restructuring production: The tobacco industry in its present form is certainly non-viable. The curer system whereby uncured and cured tobacco production processes are separated and under different producer groups has led to high inefficiency in the industry. This system needs to be phased out and replaced with the grower-curer system or a system that will allow increased economy of scale and lower cost of production. Data from NTB, indicate that the average cost of cured tobacco under the grower-curer system ranges between RM6.85 and RM7.38 per kg, while that of the curer system averages RM11.41. The grower-curer system manages to cut the cost of production by almost 38%. With an average cost in the region of RM6.50, Malaysia would be in a better position to compete with Thailand, where cost of production was reported to be in the region of RM4.50/kg.
- Implementing an income support program: A de-coupled income support program would assist farmers in gradually picking-up new knowledge and venturing into other economic activities. This direct income support would only be given for a specified number of years, giving sufficient time for farmers to adjust to changing economic conditions and opportunities.

- Other facilitating programs: Other programs that will assist the industry include improving infrastructure in selected areas, focussing institutional support on adjustment programs, R&D on alternative crops and increasing productivity of tobacco under alternative production systems.

This study on the effects of liberalization on palm oil, rice and tobacco crops in Malaysia confirms the fact that local industries that are competitive will gain, while inefficient domestic industries will lose from the liberalization initiatives. Palm oil in Malaysia, reputed to be the most efficient in the world, will benefit in all aspects including increased exports, higher earnings to the industry and better competitive footing in the international market as other edible oil producers need to scale down support to their respective industries. Uncompetitive industries, such as rice and tobacco in the Malaysian case, will lose. These industries are expected to be 'naturally' downsized as the effects of liberalization work their way through the economy. Eventually there will be all-round efficiency gains to the economy as resources are re-allocated to the more productive sectors of the economy.

In facing the challenges and opportunities in agricultural trade liberalization, the approach that has to be adopted in further developing the industries must be market-based. Society-based strategies may no longer be applicable in this globalization era. Strategies and programs to develop specific enterprises may now need to be differentiated from social programs like helping the poor. Competitiveness is not the same as welfare.

One of the market-based strategies that developing countries like Malaysia need to adopt would be to strengthen the five pillars of economic foundation, i.e. infrastructure, finance and capital institutional support, R&D and technology as well as human resource development. Strengthening the economic foundation in a particular sector would enable the sector to be more efficient. Previous allocation used to support subsidies should now be re-allocated towards strengthening these foundations.

In summary the following recommendations that are globally applicable to all sectors can be considered:

- Strengthening the economic foundation to increase efficiency of agricultural industries;

- preparing for adjustments in the affected sectors including planning for income support programs;
- widening product range and value-added to increase product competitiveness and industry profits;
- enhancing marketing efforts for market diversification and deepening;
- re-structuring of production to allow farm consolidation and operation of better economy of scale; and
- increasing rural industrialization to create better employment and income-generating activities from competitive industries.

Effects of Trade Liberalization in India

*Ramesh Chand**

Institutional and Structural Aspects

Agriculture constitutes the largest share of India's national income, although the share has declined from 55% in the early 1950s to about 30% in the early 1990s. Nearly two-thirds of the population of the country depend directly on agriculture for their livelihood and the growth of the overall economy depends on the performance of agriculture to a considerable extent.

India embraced a new Economic Policy in 1991 in the wake of compelling domestic economic factors. The country at that time was suffering from serious fiscal indiscipline and a severe balance of payments crisis. The new policy adopted at that time consisted of two components: (i) short term stabilisation measures which included reduction of the fiscal deficit, devaluation of the currency (rupee), and dismantling of barriers to the free flow of foreign capital; and (ii) medium term structural programmes involving reforms in fiscal policy, exchange rate policy, trade and industrial policy and policies on financial sector reform and capital market reforms. This period coincided with the new GATT which makes it obligatory for the member countries to reorient their domestic as well as

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external trade policies consistent with the GATT agreement. Thus, the new economic policy had to meet the twin objectives of adjusting to domestic needs and changes in the international scene.

A new Export-Import Policy for 1992-1997 was also announced. The main feature of the policy is that trade is free except for a short negative list of imports and exports. Agricultural exports and imports in the country were until recently strictly regulated through quantitative restrictions such as quotas and licenses or channelled through a trading organisation or some combination of both. With the new trade policy initiated in 1991, three major changes were effected in agricultural export-import. One, channelling of trade has been abandoned and now the government does not determine the value or nature of the import or exports, except for exports of onion and import of cereals, pulses and edible oils. Two, most of the quantitative restrictions on agricultural trade flow have been dismantled. Three, there is some reduction in tariffs. The policy of trade liberalisation has provided impetus to agricultural exports which have registered remarkable growth during the 4-5 years.

Economic reforms introduced in India since 1991 and policy changes effected in the light of obligations to the WTO have focused mainly on industry. Nevertheless, the agriculture sector has been affected by the reforms through adjustment in exchange rates, which has bearing on agricultural exports and on input - output prices. A strong feeling has emerged in the country that the agriculture sector should not be kept outside the purview of direct reforms for several reasons.

Opinions on whether India should go for globalisation and liberalisation of its agriculture are at present sharply divided. Those who support trade liberalisation of Indian agriculture argue that India has a strong comparative advantage in agriculture over most of the developed world and the WTO induced trade liberalisation has made agricultural exports more attractive and remunerative. This advantage is said to be strong in the case of high value crops such as fruits, floriculture products and vegetables, basmati rice, and cotton. Opening up trade in these crops has already shown that there is considerable potential to promote export of such crops. On the other hand, those opposing globalisation of Indian agriculture assert that liberalisation of agricultural trade will destabilise prices and expose Indian markets to violent fluctuations in the international market. It is also

feared that liberalisation of agricultural exports will change the crop pattern away from food and one-third of country's population is below the poverty line and cannot afford to buy adequate foodgrains even at the existing price structure. There are also fears that liberalisation will result in a steep hike in foodgrain prices and jeopardise food security and that promotion of export oriented crops in some parts of the country is adversely affecting marginal and small farmers.

Notwithstanding this unresolved debate concerning liberalisation of agriculture, the Indian government during the last 4-5 years has taken bold initiatives to promote farm exports. India is also adjusting, albeit slowly, its policies to meet WTO requirements. The export-import policy, which is announced every 5 years, for the period 1997-2002 shows that several restrictions on free import and export of agricultural commodities have been removed or made less stringent.

Despite a sharp division of opinion concerning the desirability of liberalisation of agriculture trade, India has been marching ahead towards a liberalised trade environment.

Although India enjoys several advantages in export, international trade will become highly competitive in the post GATT period and the competitive advantage will be lost to the infrastructural advantage prevalent in the competing countries. Thus, realisation of positive impacts to the full extent and minimisation of adverse impact due to imports, if any, will require infrastructure for efficient movement, handling, packaging and processing, trade networks and an information dissemination system. Building infrastructure is also important to improve production efficiency which acquires greater relevance in a globally competitive environment and also because our existing productivity levels are very low compared to the competing countries.

The policy of trade liberalisation shows a clear positive impact on export of non-basmati rice, marine products and oilmeal. There were some relaxations like abolition of minimum export price, decanalisation, removal of bans and quotas for these commodities, particularly rice, which have contributed to the emergence of non-basmati rice as an important export item. Export of oilcake and oilmeals increased from \$ 374 million in the beginning of the liberalisation period to \$ 982 million after 5 years. Similar is the story with marine exports increasing from \$ 535 million in 1991/91

before liberalisation to \$ 1,122 million in 1996/97. Processed fruit products are also believed to have great potential for export, and some incentives have been provided to the fruit processing industry to encourage exports. Total agricultural exports were around \$ 3,000 million at the beginning of economic reform period. In a short span of 3-4 years the export earnings more than doubled. This is a clear indication that the indirect effect of trade liberalisation, exchange rate adjustments and effects of relaxation in government controls and restrictions on agricultural exports is positive and significant.

Import of rice declined from \$ 170 million in 1989/90 to nil in the last two years. However, India continued to be an occasional importer of sizable quantities of wheat following poor domestic harvests. Among all agricultural commodities, oilseeds comprised the largest share in imports in most years during the last decade. This happened despite a spurt in edible oilseed output in recent years. Nearly half of the agricultural imports consist of fertiliser imports in most of the years.

There is tremendous year to year variation in India's trading partners and the volume of trade with them for most agricultural commodities. The reason for this is that for most of the agricultural commodities export is not planned; it is residual. Due to lack of planned and sustained export it has been difficult to maintain a hold on overseas markets.

India's exports increased steadily from 10,000 million dollars in 1986/87 to about 33 thousand million dollars in 1996/97. Imports also showed a rising trend throughout and reached a figure of 38.5 thousand million dollars. Since imports remained higher throughout than exports, the trade balance has remained negative. The trade balance was about 6 thousand million dollars in 1986/87 and in 1990/91 when India was suffering from serious BOP problems. The economic reforms initiated in mid 1991 improved the trade balance for a few years but the data for the recent two years indicate that the trade balance has again started deteriorating.

Agricultural exports witnessed an increase of about 500 million dollars between 1986/87 and 1991/92 and started brightening up after that. During the 6 years of economic reforms, agricultural imports have more than doubled showing an increment of about 3.5 thousand million dollars. Agricultural imports remained significantly lower than agricultural exports whereas non-agricultural

imports remained higher than non-agricultural exports in the last decade.

India continued to have a negative trade balance since the beginning of the era of planned development in 1950/51. The ratio of trade balance to the country's GDP at current prices in the domestic economy was close to 3% in 1986/87 and it was 2.23% in 1990/91. The year 1991/92, when economic reforms were started and the rupee was devalued, witnessed a sharp drop in the trade deficit to a level 0.69%. The trade gap further declined to -0.46% of GDP in 1993/94 but showed a sharp rise thereafter. In 1995/96 the trade deficit was 1.66% of GDP which showed further deterioration in the next year.

There has been a constantly rising trend during the last 11 years in the proportion of GDP exported. From a modest level of 4.79%, the ratio of export to GDP rose to about 8% in 1991/92 and got further momentum as economic reforms progressed. At present, 11.24% of GDP goes as export.

The ratio of import to GDP also followed a rising trend, but growth in import was lower than the growth in the export when we consider the entire period from 1985/86 to 1996/97. The ratio of imports to GDP rose from 7.73% during 1986/87 to 13.10% in 1996/97. Between 1991/92 and 1996/97 the ratio of imports to GDP witnessed higher growth compared to the ratio of exports to GDP.

Agricultural exports comprised about 27% of the total exports from India during 1986/87 and the share dropped sharply during the next two years. Agricultural export in the latest year comprises one-fifth of the total exports from India and the balance 80% consists of non-agricultural exports. The value of agricultural exports remained below 1.32% till 1990/91, but thereafter the ratio showed some increase. In the latest year agricultural exports comprise 2.07% of total GDP. The proportion of agricultural exports in agricultural GDP remained below 6% till 1994/95 and in the next year it rose to 7.44%.

The share of agricultural imports in total imports was around 10% in 1986/87 and it rose to 13% in 1988/89. During 1989/90 to 1991/92 the ratio kept on falling and after that it fluctuated between 5.65 and 8.88%. Except in the year 1988/89, agricultural imports varied between 2 and 2.5% of GDP of the agriculture sector. In the latest two years of the economic reform period, the ratio of agricultural imports to agricultural GDP exceeded 3%.

India initiated the economic reform programme in a big way in June 1991 under great economic stress due to BOP problems and a fiscal crisis. There was a lot of opposition to the reforms at that time and also to trade liberalisation in response to the GATT accord. However, the accelerated growth rate of the economy during the reform period, the comfortable BOP position, the decline in inflation rate and smooth economic transition in adjusting to liberalisation and globalisation have won some admiration and support in the country for these policies. Hopes have been raised about agricultural export potential and commercial producers are keenly waiting to reap benefits of higher prices in export markets. However, this will have implications for domestic consumers. Policies have to be designed to counter adverse impacts of diverting land and other resources to export oriented production.

India is under great pressure to remove quantitative restrictions on imports as the western countries supported by Australia have moved to WTO against such restrictions. As a result of stringent measures undertaken under the reform process, the country has been able to accumulate relatively large foreign exchange reserves and maintain the balance of payment for some time. This is being used as a plea by the western world to stop India from seeking concessions from WTO to maintain QRs on selected items for some more years. This is a setback to the reform process as the country could dilute this gain easily by using foreign exchange reserves for infrastructure development which is starving for funds. Moreover, the easy position of foreign exchange reserves for a short time should not be treated as a permanent feature. Another irritant to the liberalisation process is the ban on Indian exports by some western countries on the grounds of sanitary and phytosanitary conditions, environmental safety, use of child labour in production, etc.

The impact of globalisation of agriculture on natural resources, long-term productivity, crop pattern and nutritional intake of vulnerable sections of society is another important issue. Liberalisation should result in growth with a human face. There are also demands for a level playing field in agricultural support, as some of the developed countries are providing more subsidies to their farmers, which puts them in an advantageous position compared to their counterparts in countries like India.

For the success of external liberalisation, internal liberalisation is said to be essential. External liberalisation may not produce full impacts if domestic reforms by way of removal of excessive and unnecessary government controls, rationalisation of domestic policies on land lease, land markets, produce movement, private sector participation in agriculture, etc. are not undertaken.

There is strong pressure on the country to liberalise agricultural imports. This will force domestic producers to face competition from international agriculture which enjoys access to cheap capital, sound infrastructure and scale advantage. To face this situation there is a need to increase productivity and efficiency.

There are signals that the agricultural sector has started responding to economic reforms initiated in the country. The crop pattern is getting diversified with a shift away from foodgrain crops towards high value, in some cases export oriented, crops. This has implications for food security in the country. The growth rate in foodgrain production in the post-economic reform period has declined to 2.5% which is the lowest ever realised in the post-Independence period. This development is depressing when viewed in the light of existing nutritional intake and future demand for foodgrains.

Effects of Trade Liberalization in Japan

Hiroaki Kobayashi

Institutional and Structural Aspects

The objectives of this report are (i) to give an overview of the history of the trade regime relating to agricultural products, (ii) to clarify some aspects of international trade of agricultural products, and (iii) to discuss the effects of trade liberalization in the past, in the present and in the future.

Looking back at the history of agricultural trade policies since the early 1960s when Japan started to liberalize its economy, we can divide the period into three phases according to how Japan opened

^{*} Japan International Research Center for Agricultural Sciences, Tsukuba, Japan. This paper is adapted from Effects of Trade Liberalization in Japan: Institutional and Structural Aspects, Working Paper No. 36, CGPRT Centre, Bogor, and Effects of Trade Liberalization in Japan: Commodity Aspects, Working Paper No. 50, CGPRT Centre, Bogor.

its agricultural markets. The first phase started in the early 1960s. The second phase of import liberalization was triggered in 1968 by the Kennedy Round agreement and by bilateral negotiations with the US. Since the early 1980s, Japan has faced greater pressure to open its markets both in international relationships and from public opinion inside (the third phase). Appreciation of the currency since 1985, in particular, increased nominal rates of protection of Japanese products and lowered competitiveness of domestic production. More critical commodities began to be liberalized and the UR round was concluded.

According to the historical review, it is clear that the earlier import liberalization was implemented, the less it was expected to affect domestic production. Among the main items liberalized in the first phase, maize, soybeans, sorghum and coffee are characterized by a relatively low level of domestic production, while domestic consumption of these products was expected to increase strongly due to economic growth. In the context of both government decision making and research activities, the later trade liberalization was considered, the more heated the dispute whether and how liberalization should actually be conducted.

As for the current situation, most agricultural imports are tariffed. However, rice is the exception, because the Japanese government took great care of the rice sector in the post-war period. Trade barriers to some products other than rice seem to be relatively high, even under comprehensive tariffication, especially for wheat, starch, pork, sugar, designated dairy products and vegetable oil. In addition, tariffs applied to some commodities are often very sophisticated and complicated. Examples are the tariff escalation cases of oil seeds and oils, tariff 'de-escalation' cases of wheat and its products, seasonal differential duties on bananas and citrus fruits, application of tariff quotas for many liberalized items, and introduction of a differential duty system for pork.

When facing trade liberalization of a specific commodity, the Japanese government has introduced some schemes as countermeasures to support the corresponding domestic production, when liberalization is expected to cause a serious problem. Typical examples are found in the cases of oil crops such as soybeans and rapeseed, sugar and beef calves. While specific purposes were not declared in law to weaken the effects of

liberalization, Japan is administering a large number of domestic support policies for some important products, such as rice, wheat, meat and dairy products. How and to what extent domestic production and farm incomes would be affected by changes in trade policies are closely linked to the effectiveness of those domestic measures.

A lot of historical surveys and general descriptions are found in the literature and in government statements. Regarding the effects of trade liberalization, whether it has been already implemented, is being implemented or will likely be implemented in the near future, many articles analyze implementation issues, and some of them have conducted evaluations employing econometric analyses. The amount of research focusing on effects of import liberalization on domestic production and consumption has increased since the early 1980s.

In post-war Japan imports dominated exports in the field of international trade of agricultural, forestry and fisheries (AFF) products. In 1963, exports of AFF products amounted to US\$ 564 million, i.e., 10.3% of US\$ 545 billion of total exports, while imports of AFF products amounted to US\$ 2.9 billion, i.e., 43.4% of the total imports. The percentage share of AFF products in Japanese exports decreased considerably to 1.3% in 1984 and to 0.7% in 1996, while nominal values of AFF product exports increased to US\$ 3.0 billion in 1996. Imports of AFF products in nominal value also increased drastically to US\$ 75.1 billion, but the share in total imports decreased to 21-25% in recent years. Trends in imports by major agricultural product are: (i) while Japan accepted the minimum access commitment of rice according to the UR agreement, the volume of rice imported has been very limited; (ii) self-sufficiency ratios of other crops, such as wheat, soybeans, feed crops, raw sugar and oil crops have been very low since decades ago; and (iii) imports of livestock products have considerably increased since the late 1980s.

The overall decline of Japanese agricultural production in the post-war period has led to a lower rate of food self-sufficiency. It is clear that trade liberalization has played an important part in the above trend in food self-sufficiency, but at the same time we have to take into consideration other basic conditions, such as resource endowment and dietary changes. Japanese agriculture as a whole has lost its comparative advantage in the process of economic development. The self-sufficiency of land

using crops such as wheat and pulses is extremely low, while rice is an exception.

In order to identify the effects of trade liberalization, investigation and analysis have to be conducted carefully taking into account the above two considerations, i.e., domestic measures and basic economic conditions.

Other important features clarified in this study could be summarized as follows:

- Equipment for transportation both from abroad and inland has not restricted international trade. Cargo shipments by aircraft also contributed to the development of international trade of perishable products.
- Sanitary and phytosanitary measures are effective to restrict importation of many agricultural products.
- In evaluating the possible effects of market access increase of some foreign products, their quality compared to that of domestic products has to be taken into consideration, because Japanese consumers in general are very sensitive to quality, such as taste, freshness, grade, additives and contaminants, production date, etc.
- To cope with the above two problems, increase in overseas production by Japanese companies and in transfer of technology are outstanding events since the late 1980s.

Commodity Aspects

The objective of this section is to analyze aspects of the effects of agricultural trade liberalization in more detail and in greater depth compared to the previous section. Some important commodities, i.e., rice, crops related to sweetener products and beef are selected. Major components of the Japanese sweetener markets are sugar from sugarcane and beet, and HFCS from starch. Domestic starch materials consist of sweet potatoes and potatoes. Location-specific features of agriculture are taken into consideration, and we put more emphasis on effects at the farm level, also.

Since it is generally recognized that the implementation of the UR agreement, which expires in the year 2001, would not seriously affect Japanese agriculture, analyses in this study mainly consider the period after the year 2001 in their perspective. Outstanding features of the selected commodities and major conclusions of the paper are summarized by commodity below.

Rice: International trade in rice was completely controlled by the government under the Food Control Law until 1995 and by the Law for Stabilization of Supply, Demand and Prices of Staple Food thereafter. Rice production has been controlled under the paddy field diversion programs since 1970. Rice has been highly protected throughout the post war period. The government accepted the minimum access commitment according to the UR agreement, and then rice was tariffed in 1999 with a high rate of specific duty, which amounts to roughly 1,000% ad valorem. The import quantity is still limited at 7.2% of domestic consumption in the year 2000. The rate of self-sufficiency has been maintained at a high level, while domestic production of the other crops which use land, such as wheat, coarse grains and soybeans has decreased significantly.

Rice production is located all over the country and nearly three million producers are involved. Looking at the production structure in terms of production cost, most of Japanese rice production seems to diminish if the market price would decline to one-third or one-quarter of the present level. Profitability of rice production in several districts such as Tyugoku and Shikoku, of which large areas are less favored, is relatively low under the current situation. However, consumers prefer japonica rice, such as that from northeast China, and quality difference causes a larger wedge in prices. It is easier for production of higher quality rice to survive under trade liberalization but lower quality products and small-scale producers will suffer even under lower rates of duty. In this context also, less favored areas in several districts will be strongly affected by trade liberalization or greater opening of the market according to the analysis using production cost survey.

The huge amount of income, which transfers from consumers to producers through the highly protective policy on rice, has been estimated. On the other hand, it is widely recognized that agricultural land use, that of paddy fields in particular, also obtains a huge amount of externalities, namely *multi-functionality*. Although the studies evaluating these external effects are still underway, we should take into consideration these aspects when evaluating the effects of trade liberalization on rice production.

Crops related to sweetener products: Sugar is produced from both sugarcane and beet in Japan. Sugarcane is first processed into raw sugar and

then processed into refined or centrifugal sugar as final products. Beet sugar is generally processed directly for consumption. Although raw sugar imports were liberalized in 1963, production was strongly protected until recent years by a high rate of duty and another levy applied in the domestic market. The customs rate of specific duty on raw sugar was reduced from 41.5 yen/kg in 1993 to 10 yen/kg in 1998, which correspond to ad valorem equivalence of 143% and 28%, respectively. The Japanese food industry has faced a difficult problem because it has to purchase expensive materials to compete with foreign products for which tariffs are lower than on sugar. The tariff equivalent, which consists of the import duty and domestic levy, still exceeds 100%. Sugar production decreased in the 1960s and increased in the 1970s partly due to the paddy field diversion program. The self-sufficiency of sweeteners, which had been maintained around 35% until recently, decreased to 31% in 1997.

Sugarcane is produced in Okinawa and Kagoshima prefectures and is characterized as small-scale farming. Moreover, the cane production is located mostly in less favored areas, the Nansei Islands, which comprise Okinawa prefecture, and small islands of Kagoshima prefecture. A number of farmers depend heavily on its production for their livelihood. Processing cane into raw sugar plays an important role in regional economies, also. Policy-makers have to take into consideration these specific features of cane sugar production as well. Beet is produced in Hokkaido prefecture. The average scale is relatively large and beet is grown under crop rotation with other upland crops such as potatoes, wheat, soybeans, etc. Although beet producers have faced a production quota since 1985, they have attained high levels of profitability.

A sugar substitute, high fructose corn syrup (HFCS), was integrated into the sweetener market in the mid-1970s. The market share of HFCS increased rapidly and it was involved in the government intervention together with sugar in 1982. Government policy on the sweetener market now covers sugar, sugar substitutes such as HFCS and starch, which is the raw material of HFCS. The former two are managed under the Sugar Prices Stabilization Law established in 1965 and the latter under the Agricultural Products Price Stabilization Law established in 1953. Importation of starch was regulated by IQ and was tariffed in the UR, but it is still protected strongly by a tariff quota applying a prohibitive tariff on over-quota importation, i.e.,

US\$1/kg, which exceeds 300% ad valorem. Domestic and border measures on commodities related to sweeteners are managed under a very complicated system. The quantity of current access for starch under lower tariffs is 157 thousand mt, 5% of the total demand in the implementation period. Both domestic and border measures on raw materials of starch play important roles, and the TQ on maize is a dominant tool (maize for feed use is free from customs duty). Under this system, the customs duty on maize importation is exempted when the processors use a designated amount of domestic materials together with the import product.

Raw materials from domestic production are limited to sweet potatoes and potatoes. Potatoes are produced in Hokkaido by larger scale farmers and sweet potatoes are produced mainly in South Kyusyu under small scale farming. Because there seems to be little difference in quality between domestic and imported products, trade liberalization such as reduction of the levy on imported sugar would cause serious damage to domestic production. The analyses based on cost of production suggested that small-scale producers will be most affected by decreases in output prices.

Beef: Importation was liberalized in 1991. The customs rate of duty (temporal rate) was first 70%, and then gradually decreased to 40.4% in 1999. It is scheduled to be reduced to 38.5% in the year 2000, although the bound rate of duty (general rate) in the UR agreement is 50%. A safeguard clause to shift the rate of duty back to 50% exists and it was triggered on frozen beef in the second quarter of both 1995 and 1996 JFY. Since the trigger level is increased according to the increase in the actual imports, the safeguard measure applied to beef could not be very effective in the long run. The trade barrier to beef importation is relatively low compared to those of rice, sugar and starch.

The rate of self-sufficiency declined in the 1990s. Both production and policy measures of beef are two-fold, namely calf production and fattening. The production of *Wagyu* calves, a native variety, is managed by a large number of small-scale farmers. Calves for beef production are also produced in the dairy sector. A deficiency payment scheme has supported calf production since 1990. The fattening sector on the other hand, introduces calves from *Wagyu* calf producers and dairy farmers. The fattening sector strongly depends on imported feed. Domestic measures on beef production are limited.

Quality difference causes a large price wedge as in the case of rice. Wagyu beef prices did not decline considerably due to import liberalization. Prices of dairy beef declined more on the other hand, but that seems to have been absorbed by corresponding decreases in calf prices. Supply of calves and female cattle from the dairy sector doesn't respond to changes in prices of meat, because they are produced as by-products in the milk producing sector. Decreases in prices of calves both of Wagyu and dairy variety have been partly compensated under the deficiency payment system, which was introduced facing the trade liberalization.

In conclusion, domestic production was not seriously damaged in terms of production quantity, although dairy farmers and raising operations of dairy bred calves have lost their income to some extent. This evidence is well supported by the analysis applying a synthetic model which explains both input and output aspects in a consistent framework. This model suggested one example for analyzing the effects of trade liberalization on commodities for which quality difference from imported products is significant. The analysis in this study also suggests that finding proper estimates of own cross price elasticities plays a critical role.

HASSAN-2K and CM-2000: High Yielding and Disease Resistant New Varieties of Kabuli Type Chickpea in Pakistan

Contribution by Mohammad Nafees Zakaria (First Secretary, Embassy of the Islamic Republic of Pakistan, Jakarta)

In Pakistan, chickpea is the most important legume crop and a cheap source of good quality protein in a cereal-dominated diet. However, national average yield has remained very low (0.6 tons/ha) due to the impact of biotic and abiotic stresses including susceptibility of local varieties to diseases (blight and wilt) and poor crop management.

There are two types of chickpea: desi (brown seed) and kabuli (cream seed). Desi type is grown on over 90% of the area, while kabuli occupies only about 15% because of its higher susceptibility to various stresses compared to desi type. As a result, the price of kabuli chickpea is higher and Pakistan has to import kabuli chickpea to meet the local demand. In 1999, Pakistan imported 15,353 metric tons of chickpea or spent approximately US\$ 5.8 million (FAO, 2000).

The Nuclear Institute for Food and Agriculture, (NIFA, Peshawar) has developed a variety Hassan-2K by irradiating the seed of an exotic variety ILC 195. The new variety has higher yield potential (1.6-3.0 tons/ha) and is resistant to gram blight and wilt. It also has a higher protein content (23.2%) than the parental variety.

Likewise, the Nuclear Institute for Agriculture and Biology (NIAB) has been working on a program aiming at the evolution of high yielding and disease resistant varieties of chickpea through the use of mutation and conventional breeding methods. In 2000, they released another high yielding and disease resistant variety of kabuli chickpea, CM-2000 from the same parental variety of ILC 195. The new variety was approved for general cultivation by the Punjab Seed Council in September 2000.

The results from various yield trials showed that the yield of CM-2000 was apparently increased by 20% over the best check variety of Noor 91. Being resistant to *Ascochyta* blight and *Fusarium* wilt, the variety is recommended for cultivation in rainfed and irrigated areas of Punjab.

It is hoped that large-scale cultivation of these new varieties will greatly help Pakistan in reducing the chickpea import and the associated costs.

CGPRT Centre News and Activities

ELNINO

The interim reviews of the country studies were conducted for Papua New Guinea and Thailand in January - February 2001.

Papua New Guinea: The country study progressed mostly as planned. Collaboration with

other related projects is coordinated well. Well-designed datasets created from the comprehensive 1997 survey were found to be excellent primary data on the 1997/98 El Niño event. The survey was conducted three times during the event, allowing analysis on farmers' interactive responses to

hazards. The expected survey sites for the second phase are set in two highland villages, namely one drought prone and one drought and frost prone area. The study could provide a wider range of policy implications if it included other agro-ecological areas such as lowlands. Thus, collaboration with other NARI offices is worth seeking.

Thailand: The project is progressing well and report writing has already started. To improve the report the following ideas were suggested: i) to relate the historical events of abnormal weather and agricultural production by province to clarify the impacts of El Niño, ii) to point out positive impact of abnormal weather too, if any, and iii) to identify factors which mitigate the adverse effects of abnormal weather. From the field visit and discussion with the study team, it seems that the government provides basic infrastructure such as dams, roads, small water reservoirs, while the community or farmer's group takes the initiative on operation and maintenance of this infrastructure and agribusiness contributes to reduce farmers' risk through contract farming.

A conceptual framework for the regional study was established. Based on the former studies, the key concepts of climatic risk are defined as follows. Climatic agricultural risk is the expected production loss caused by abnormal weather. It is a function of abnormal weather and vulnerability. Abnormal weather here is limited to El Niño events which are measured by Southern Oscillation Index (SOI) or Multivariate ENSO Index (MEI). Vulnerability is a function of sensitivity and adaptability. Sensitivity is the degree to which a system is affected by climate-related stimuli. Adaptability is the ability of a system to adjust to climate change to moderate potential damage, to take advantage of opportunities, or to cope with the consequences. The following data were collected in the regional study: production, area harvested, and yield of rice, major CGPRT crops and some perennial crops; Southern Oscillation Index; and historical record of monthly rainfall.

The draft report meeting for the first phase and the planning meeting for the second phase are scheduled for May in Bogor.

MAPSuD/Metropol

During the first trimester of 2001, MAPSuD/Metropol staff participated as lecturers in

a training course on Planning and Management of Lake and Reservoir Eutrophication, organised by SEAMEO BIOTROP in Bogor, and sponsored by UNEP. Lectures and interactive case studies on applied tools for socio-economic, institutional and policy analysis were presented to the 13 participants from different Asian countries.

In Indonesia, as a first step in the preparation of a review of the current situation and needs for socio-economic, institutional and policy analysis methods for the development of CGPRT crops in Asia and the Pacific, several discussions took part with the Central Research Center for Horticulture and Miscellaneous Crops (CRIH), CASER, and Jakarta and West Java Agricultural Technology Assessment organisations in order to establish priorities and a training programme in support of a Periurban Agriculture Project at CRIH.

Asian and Pacific research centres focusing on CGPRT crops will soon be contacted for participation in the regional survey, results of which should be useful for defining the current strengths and needs in the region as well as a training strategy to be supported by the CGPRT Centre.

Database/IS

The database activities for the quarter include:

- Compilation and editing of a statistical profile entitled "An Agricultural Statistical Profile of Bangladesh, 1947-1999".
Two technical assistants of the Centre have recently completed a ten-week in-house training course on database home page design. The training components include: (i) basic concepts of relational databases; (ii) management of web based systems; (iii) database structure and design; (iv) modifying structure and compacting data; and (v) programming languages.

Information Service activities include:

- Publication and distribution of:
 - (i) Palawija News Vol.17 No. 4.
 - (ii) An Agricultural Statistical Profile of Bangladesh, 1947-1999 (Working Paper No. 54)
 - (iii) Food Security Strategies for Vanuatu (Working Paper No. 58)
- Designing the layout of displays for exhibition at the 57th ESCAP Session in Bangkok, Thailand.

CGPRT Centre

The Regional Co-ordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific (CGPRT Centre) was established in 1981 as a subsidiary body of UN/ESCAP.

Objectives

In co-operation with ESCAP member countries, the Centre will initiate and promote research, training and dissemination of information on socio-economic and related aspects of CGPRT crops in Asia and the Pacific. In its activities, the Centre aims to serve the needs of institutions concerned with planning, research, extension and development in relation to CGPRT crop production, marketing and use.

Programmes

1. Research, which entails the preparation and implementation of studies covering production, utilization and trade of CGPRT crops in the countries of Asia and the South Pacific.
2. Training of national research and extension workers,
3. Information and documentation which encompasses the collection, processing and dissemination of relevant information for use by researchers, policy makers, and extension workers.

Palawija News

Contributors are invited to submit concise summaries of significant social research related to CGPRT crops for publication. Figures (graphs or tables) may accompany the article. All articles are subject to editing to meet space limitations.

Please send all queries relating to articles in *Palawija News* to Publications Section, CGPRT Centre, Jalan Merdeka 145, Bogor 16111, Indonesia.

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