Agricultural Policy Reform in Japan and WTO Negotiations

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Foreword

Professor Masayoshi Honma visited Massey University as a 2000 Venture Trust International Travel Fellow. Professor Honma is at Seikei University's Department of Economics in Tokyo. He has a PhD from Iowa State University, and has held positions at Tokyo Metropolitan University, Otaru University of Commerce and the International Food Policy Research Institute. Professor Honma was also appointed by Japan's Prime Minister to the Committee that drafted the new Agricultural Basic Law of 1999.

This Discussion Paper is based on the public seminar he presented at Massey University. Despite the high level of agricultural protection, Japan's food self-sufficiency has declined to 40%. Such protection appears to have played no role in strengthening Japanese agriculture, but rather it has impeded intersectoral adjustments. Although little change is likely in the immediate future, Japan must take steps to ensure its agriculture can become competitive under more liberalized trade. Options include increasing productivity and the scale of farming, and identifying food production activities in which Japan may have a comparative advantage.

Allan N Rae
Director

1. Introduction

The Japanese economy is under restructuring in globalisation. Agriculture is not exempted from this process. Rather, agricultural reform should be prompted because it has been behind other sectors to be liberalised in international trade. Japanese agriculture, in particular rice farming has been under protection by border measures and domestic price supports while Japan is the largest agricultural importer in the world. Despite the high level of agricultural protection, Japanese food self-sufficiency ratio has declined to 40 percent on a calorie basis. It appears that the protection policy has played no role to strengthen Japanese agriculture and rather impeded the inter-sectoral adjustment.

Japan is under pressures for agricultural policy reform by which Japanese agriculture is to be more consistent with the open trade system. The new WTO negotiations on agriculture started in March 2000. It is the second stage of the worldwide agricultural policy reform following the Uruguay Round Agreement (URA) and its implementation. The URA on agriculture was very much successful in the sense that agriculture was brought into the GATT and the new WTO. But it does not mean that agricultural trade has increased remarkably by the URA. There are still many barriers and distortions in agricultural trade. Particularly, developed food-importing countries like Japan try to maintain the system to protect domestic farmers.

The purpose of this paper is to investigate the possibility that Japanese agriculture may be viable through the policy reform. Ongoing policy reform is the implementation of the new Basic Law on Food, Agriculture and Rural Ares, which was established in July 1999 replacing for the 1961 Agricultural Basic Law. The new Basic Law is more market oriented than the previous one, but it still allows the government to intervene in several aspects. Of course, the role of government is undeniably to assist properly the growth of the agricultural sector, but its implementation should be carefully observed from an economic viewpoint. In the following sections, we first review the structure of Japanese agriculture. Then the performance of Japanese agriculture for last 35 years is examined in terms of labour productivity growth compared to manufacturing. In the light of the past performance, we discuss the new Basic Law and its effectiveness for agricultural policy reform in Japan. It is followed by the examination of the Japanese preliminary proposal for the new WTO negotiations on agriculture. It is important to examine the Japanese standpoint for considering the possible issues to be discussed in the negotiations. Finally, the future direction of Japanese agriculture in an open trade system is suggested .

2. The Structure of Japanese Agriculture

Japanese agricultural production creates farm-gate sales of 11 trillion yen and value added of 6 trillion yen[1]. As shown in Table 1 there are 3.08 million workers engaged mainly in agricultural activities from 3.29 million farm households as of 1998. Their relative importance in the total economy, however, is declining. Agriculture's share is 1.2 percent of GDP and 4.7 percent of the labour force. It is noted that the number of workers engaged mainly in agriculture is less than that of farm households. This means that in some farm households there are no workers engaged mainly in agriculture. It depends on the definition of a farm household, that covers many small part-time farm households.

Japan's Agricultural Census defines a farm household as one that operates on 10 acres (0.1 hectare) or more of farmland, or annual sales of agricultural products of 150,000 yen or more. Thus, it includes very small farm units in which there are no full-time farm workers. Indeed, full-time farm households in which there are no workers engaged in other employment account for only 13 percent of total farm households. On the other hand, non-commercial farm households, which operate on less than 30 acres of farmland or annual sales of less than 500,000 yen, account for 23 percent of total farm households. In addition, among part-time farm households the majority is Type II part-time farm households whose income from non-agricultural sources exceeds agricultural income[2] and they account for 50 percent of total farm households.

As indicated in Table 1 agricultural workers declined from 12million in 1960 to 3 million in 1998 but the number of farm households in 1998 was more than half of that in 1960. Together with the decreases in agricultural land, this resulted in just a small increase in agricultural land per farm, from 1 hectare in 1960 to 1.5 hectares in 1998. Table 2 shows how small the size of Japan's agricultural land per farm is in an international comparison. It is only 1/127th of the United States or 1/20th to 1/45th of European countries. This fact is indispensable when considering the comparative advantage of Japanese agriculture, particularly of land-intensive sectors.

It is true that Japanese farms are very small and do not take advantage of scale economies. But this does not mean that Japanese farm households are poor. In reality, as indicated in Table 3, in 1998 the total income of a farm household on average was 8.7 million yen. That was 23 percent more than that of an urban-worker household. Income from agricultural activities accounts for only 14 percent , on average, of total income in a farm household.

Part-time farm households have tended to concentrate on rice farming because it is a very staple crop offering a high return on only intermittent labour. Because rice marketing had been carried out through the channels determined by the government (until the former

[1] Figures are for 1997.

[2] Type I part-time farm households are farm households whose income from farming exceeds income from non-agricultural sources.

Food Control Law was abolished in 1995), rice farmers were guaranteed a high price and could easily sell their harvest through agricultural cooperatives. In addition, agricultural research and extension services have traditionally concentrated on the rice crop to the extent that rice cultivation has become highly standardised and there is relatively little difference in productivity between part-time and full-time farmers. The fact that the production of Japan's staple crop has been geared to part-time farming in this way is a major factor encouraging part-time farming and impeding the consolidation of farms.

3. Agricultural Labour Force and its Relative Productivity

In addition to the dominance of part-time farming, farmers tend to be strongly attached to the land because of the expectation that such land could be sold for non-agricultural purposes at much higher prices than the current agricultural land prices. This results in less mobility in the farm land market and less new entrants to agriculture. Therefore, agricultural labour is aging rapidly. Table 4 shows the structure of the agricultural male labour force. Of male workers mainly engaged in agriculture, 57 percent are at least 65 years old. Even for core male workers, substantially engaged in agriculture, 52 percent are at least 65 years old.

According to the estimates of MAFF (Ministry of Agriculture, Forestry and Fisheries) as shown in Table 5, the core farm workers may reduce to 1.47 million in 2010, 58 percent of that in 1995. But still, one half of the core farm workers would be at least 65 years old. Furthermore, 68 percent of the total farm households projected in 2010 would not have any workers who are engaged in farming 150 days or more a year. Thus the labour force in Japanese agriculture is facing a serious problem of aging.

The delay of structural adjustment in agriculture has impeded improvements in agricultural labour productivity. Table 6 shows the labour productivity of agriculture relative to manufacturing. Net nominal product per worker in agriculture in 1995 was 1.7 million yen, which is less than 30 percent of that in manufacturing. The ratio of agricultural labour productivity to manufacturing was 21 percent in 1960 and increased to 1995 at an average rate of only 0.89 percent.

The relative labour productivity is expressed as relative product price multiplied by relative physical labour productivity and relative value-added ratio[3]. Therefore, the growth rate of the nominal labour productivity ratio can be decomposed as follows:

$$G(Vam) = G(Pam) + G(Mam) + G(Ram) \quad (1)$$

[3] The nominal labour productivity (V) of an industry is expressed by V=P M R, where P is product price, M is physical labour productivity, and R is value-added ratio. Labour productivity of industry i relative to j (Vi/Vj) is, therefore, relative price (Pi/Pj) multiplied by (Mi/Mj) and (Ri/Rj).

where G represents a growth rate of the variable in the following parentheses and Vam, Pam, Mam, and Ram are relative nominal labour productivity, relative product price, relative physical labour productivity, and relative value-added ratio of agriculture to manufacturing, respectively.

Table 7 shows the result of the decomposition of the growth rate of the relative labour productivity for the period of 1960 to 1995 following equation (1). Relative physical labour productivity contributed little to the growth of relative labour productivity for the whole period. The largest contribution was made by the relative price, which has grown at 2.57 percent per year on average for the period. The relative value-added ratio tends to be negative because the value-added ratio in manufacturing is increasing while the value-added ratio in agriculture is relatively stable over time.

Looking at the contribution by factor and by decade helps to clarify the sources of changes in relative productivity growth. As indicated in Table 7, in the 1960s the contribution of the relative price was greatest with an annual growth rate of 6 percent. Meanwhile, the relative physical labour productivity declined at 2.78 percent per year during the 1960s, which means that the gap in the physical labour productivity between agriculture and manufacturing widened during the period. It was after the 1970s that the contribution of the relative physical labour productivity became positive.

The large contribution of the relative price increases was not a result of market forces, but political forces to strengthen price support policies for agricultural commodities. The 1960s was the era of rapid economic growth in Japan based on the high rate of labour productivity growth in manufacturing, which widened the income gaps between rural and urban areas. This caused massive political pressures from farmers to increase their income through raising support levels of agricultural prices. At that stage of economic development, it became easier for farmers to organise political lobbying as the number of farmers decreased enough to avoid the so-called "free-rider" problem. On the other hand, consumers were more tolerant of agricultural protection because the cost of protection per capita became very low in the course of income growth[4].

Thus, price support policies were strengthened and agricultural prices were raised rapidly during the period. The sharp increases in agricultural prices in this period suggests that Japan preferred to pay the cost of agricultural protection in lieu of a perceived high social cost of even more rapid inter-sectoral adjustment, particularly in labour, than actually took place. The problem, however, is that such price policies have lasted even beyond the end of the rapid economic growth era and have impeded the necessary structural reforms in the agricultural sector.

[4] See Hayami (1988) and Honma (1994) for the logic of agricultural protection in the political market.

4. Domestic Policy Reform

4.1 The New Basic Law for Food, Agriculture, and Rural Areas

The fundamental philosophy and basic guideline for formulating Japanese agricultural policies have been based on the Agricultural Basic Law established in 1961. The Agricultural Basic Law aimed to make per capita family farm income equal to that in non-farm sectors through improving the agricultural structure. As indicated by the "selective expansion" slogan, this has meant policies designed to raise agricultural production efficiency and agricultural income by transferring resources from the production of farm products of low-income elasticity, to those of high-income elasticity and by expanding the scale of operations.

Yet despite the policy efforts, it had proven impossible to achieve income equalisation through agricultural restructuring alone. Protective policies, particularly high-price support policies, had to be resorted to, primarily because the rapid economic growth induced such rapid increases in non-agricultural income that agricultural restructuring and the improvement in labour productivity in agriculture could not keep pace. The Agricultural Basic Law failed to achieve its goal of restructuring Japanese agriculture but had remained unchanged since 1961[5].

But it appeared that Japanese agricultural and food policies needed a new basis to deal with new issues in recent years and to satisfy the needs in the coming 21st century. In September 1998, the Investigative Council on Basic Problems Concerning Food, Agriculture, and Rural Areas, an advisory committee to the Prime Minister, submitted a report on a basic direction of policies on food, agriculture, and rural areas for the 21st century. On July 12, 1999, a bill based on this report introducing a new basic law for food, agriculture, and rural areas (the new basic law) cleared the Diet. Basic philosophies of the new law include securing a stable food supply, fulfilling agriculture's multi-functional roles, sustainable agricultural development and the development of rural areas.[6]

In advance of submitting the bill, the Fundamental Principles of Agricultural Policy Reform indicating a specific guideline for new policy-making was decided upon in December 1998. The Principles are the agreements by the ruling party (LDP), MAFF, and the Agricultural Cooperatives (Nokyo). Based on the Principles, the Agricultural Policy Reform was started, though the new basic law had not yet been established. This means strong support of MAFF for the policy reform because MAFF can proceed with these agreed Principles even if the new basic law had failed to be established. Indeed, the price

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[5] For the analysis of agricultural policies under the Agricultural Basic Law, see Hayami (1988) and Honma and Hayami (1989).

[6] See Honma (2000) for details on the provisions of the Basic Law on Food, Agriculture and Rural Areas. Also, see Okuno and Honma (1998) for the analyses on the issues discussed in the process of establishing the new Basic Law.

supporting policies for major commodities are now under investigation to reflect more the functions of the market mechanism.

But this does not mean the price supporting policies will all be abolished in near future. The first step of the reform of price supporting policies is to evaluate the domestic products at market prices through tender or similar market systems. For example, the government has purchased all wheat produced in Japan at a fixed price, which is much higher than the international market price. In the reform of the wheat policy, domestic wheat is supposed to be marketed at prices determined by tender, though wheat farmers can still receive a guaranteed price. But this guaranteed price is being lowered gradually. One of the main characteristics of the new basic law or new agricultural policy is the restoration of the price mechanism in agricultural markets. Farmers are supported, if necessary, by the so-called de-coupling policy.

4.2 *Price Policy Reform*

The report submitted by the Investigative Council strongly emphasized "further introduction of market mechanism and stabilisation of farm management," which is the core of the agricultural policy reform in Japan. In the report, the reasons why current price-supporting policy should be changed are mentioned correctly. First, it states "under the current policy it is difficult to convey the supply and demand situation and consumer needs to farmers accurately, and this prevents farmers from cultivating the management sense." This means that the current policy cannot attract those who have management ability, and discourages training farmers for better management, because of less competition in the markets. Second, it states, "because the policy has effects on all farmers including small-scale farmers, it restricts the improvement of the agricultural structure." This is very crucial for structural adjustment in the agricultural sector. Third, it states, "the policy does not reduce the price gaps between domestic and international markets, and has caused the increases in food imports and the relocation of food industries overseas." This has been a serious problem for Japan's processed food industries.

In the light of the past experiences, it is remarkable that MAFF accepted the Council's statements on the problems of the current policies and also that there were no objections even from the agricultural cooperatives. Therefore, the report recommends accordingly that "the prices should reflect the trends of demand and market evaluation on quality exactly so that the prices can fully function as a signal for conveying them promptly and accurately to the farmers." In addition, the report says, it is essential that farmers can demonstrate their originality and get more profits from the market through this process. If this reform of price-supporting policy is successful, it is expected to link it directly to overall agricultural reform in Japan.

Price policy reform is urgent given the forthcoming WTO negotiations on agriculture, in which the reduction of tariffs will be given a top priority. The crucial condition for Japanese agriculture to be competitive internationally, is to raise productivity through expanding the scale of farm operations. Table 8 shows the structure of farming size in sales volume by

farming type and commodity. It is noted that the sales of two-thirds of specialist rice farmers were less than one million yen in 1995, while one-fifth of specialist poultry farmers recorded 50 million yen or more in sales. The former has been the most protected sector and the latter is internationally competitive, with less protection and less regulation. Figures in Table 8 are illustrative to show how competitive sectors can take advantage of scale economies and make profits though the markets rather than by protection.

In the investigation and discussions of the Council for two years, there were three controversial issues among Council members. First was whether the food self-sufficiency ratio should be set as a policy target or not. Second was the issue of the acquisition of farmland by joint-stock corporations, which are prohibited to purchase farmland under the current Agricultural Land Law. Third was the introduction of direct payments to farmers in hilly and mountainous areas.

4.3 Self-sufficiency Issue

On the first issue, it was clearly recognised that the food self-sufficiency ratio is not a policy variable because it depends not only on domestic production but also on consumers' preferences. The food self-sufficiency ratio in Japan has now dropped to 40% on a calorie basis, that is the lowest among the developed countries. Some Japanese are very much concerned about this low level of self-sufficiency from a food security viewpoint. But raising this ratio can not be achieved by policy alone. The maintenance and improvement of the ratio require the understanding and active efforts of people concerned, including farmers, food industries, and consumers.

Because there were a lot of requests made to the Council, mostly from agricultural groups, for setting a target self-sufficiency ratio as part of food policy, the government agreed. But it is only a guideline for those concerned and the government is supposed to assist the national movement to raise the food self-sufficiency ratio.

MAFF has set a target of food self-sufficiency at 45 percent, to be achieved by 2010. The implications of raising the food self-sufficiency ratio from a food security viewpoint will be discussed in a later section in the context of WTO negotiations on agriculture.

4.4 Land Ownership Issue

The second controversial issue was farmland ownership by join-stock corporations. The Agricultural Land Law prohibits joint-stock companies from purchasing farmland because the principle of the law is that farmland should be owned by cultivators of the land. The owners of a joint-stock company are stockholders and they do not generally cultivate the farmland themselves. Therefore, the joint-stock companies are excluded from land-intensive farming like rice production in Japan. But this regulation became an obstacle for farm operations being enlarged and made more efficient. The Council report admits the merits and advantages of joint-stock companies for large scale agricultural management. There was strong resistance from the farmers' side regarding the deregulation of the

Agricultural Land Law to allow joint-stock companies to purchase farmland. They say that the joint-stock companies may purchase farm land for speculation and leave it idle until a chance arises to convert it into industrial or residential use. It is true that there is speculation for large capital gains by converting farmland into other use. But the speculation for capital gain cannot be blocked by the regulation of entry of joint-stock companies into agricultural business. Also, the current farmers themselves have the same speculation on their farmland. To eliminate such speculation, we shall establish other policies for land use planning in each area. The conclusion of the council report is a compromise between the deregulation group and the conservative one. The report says it is desirable to deregulate, but only in the following way: current farmers shall be admitted to establish a joint-stock company for farm operation but the current joint-stock companies in non-agricultural sectors shall still be prohibited from purchasing or renting farmland.

In this manner the route for direct entry into the agricultural sector continues to be closed for join-stock companies. But the indirect route to enter the farming business will be deregulated for non-farmers to a large extent through purchasing the stocks of farm companies and participating in the farm management, though the number of such participants from the non-agricultural sector is limited. It is expected that various types of farm operation will appear and they will hopefully activate Japanese agriculture in the future.

4.5 Direct Payment Issue

The third issue, to which farmers paid much their attention, was the introduction of direct-payments to the handicapped areas. Sometimes this payment is misunderstood particularly by farmers who consider it as compensation for the introduction of the price mechanism in agricultural markets. This is not compensation, but a payment for farming activities that maintain the environmental conditions and secure the multi-functional roles of agriculture. Therefore, the payments should be targeted to those who clearly continue the activities so that taxpayers can admit the payments.

Indeed, MAFF decided to introduce direct payments in 2000 to those villages or individuals who make agreements on their agricultural activities to promote the multi-functions of agriculture. The payment will be a maximum of one million yen annually per farm household under the condition of continuation of agricultural activities at least for 5 years. But it is feared that the payments may be extended in the future to all farmers in an untargeted manner, because politicians are trying to attract the main voters in all rural areas with subsidies, as has been the case with other agricultural subsidies.

It is essential that direct payments be made only to provide the multi-functional attributes in question. For example, if paddy fields contribute to flood mitigation any payments for this benefit should only go to those areas where there are flood mitigation benefits from paddies. Therefore, rice farmers in areas where paddies do not provide this benefit would not receive the payment. But it is extremely difficult to identify correctly the areas that create multi-functions of agriculture. The linkage between agricultural production and

multi-functionality will be discussed again in the next section.

5. New WTO Negotiations and Japan's Proposal

WTO negotiations started in March 2000 and each county is supposed to submit a proposal on the negotiations by December 2000[7]. Most countries for which the agricultural negotiations are important submitted advance proposals to the 1999 Ministerial Conference held in Seattle in December 1999. So, proposals to be submitted in 2000 will most likely be the same as (or revisions of) those in 1999. It may be useful, therefore, to review the 1999 proposals in order to foresee the issues in the new agricultural negotiations.

Japan submitted a proposal on agricultural negotiations to the WTO in June 1999[8] and presented a supplementary paper published in November 1999[9]. Japan's proposal emphasises the following three points, to be ensured in a set of rules and disciplines to be established in the forthcoming agricultural negotiations: (a) the importance of the multi-functionality of agriculture, (b) the importance of food security, and (c) impartiality between importing and exporting countries[10]. It may be convenient to discuss each of the above items in order in the following sections.

5.1 Multi-functionality of Agriculture

The concrete contents of multi-functionality vary according to the history and national conditions of each country. Japan considers the following functions the major elements. (1) Land conservation including soil erosion, landslides and flood prevention, (2) Fostering of water resources, (3) Preservation of the natural environment including management of organic waste, resolution and removal of polluted substances, air purification, and maintenance of bio-diversity and preservation of wildlife habit, (4) Formation of a scenic landscape, (5) Transmitting culture, (6) Rural amenity, (7) Maintaining and revitalising the rural community, and (8) Food security[11]. Most functions are so-called externalities created with agricultural activities. Food security is not an externality, so it will be discussed separately in the next section.

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[7] Some countries submitted their proposals in the June 2000 Special Session of the WTO committee on Agriculture but Japan has not yet submitted the 2000 version of her proposal.

[8] MAFF, Preparations for the 1999 Ministerial Conference, Negotiations on Agriculture, Communication from Japan, June 28, 1999.

[9] MAFF, Toward the Establishment of the Trade Rules for the 21st Century that Contribute to the Era of "Diversity and Coexistence," November 1999.

[10] In the paper referred to in footnote 2, as major points of Japan's proposal two more points, special consideration for developing countries and response to new challenges such as GMOs (genetically modified organisms), are mentioned.

[11] MAFF, Multi-functionality in Japan (Reference No.2), June 1999.

Recognition of multi-functionality of agriculture itself represents important progress in evaluation of agricultural activities, especially from an environmental viewpoint. But what has to be asked is how to maximise the net benefits from the multiple functions of agriculture with consideration to the costs of maintaining agricultural operations. MAFF reported the estimated value of paddy and upland fields according to a substitutive cost method[12]. The estimated values are 4.6 trillion and 2.0 trillion yen, respectively. There are other estimates of externalities of agriculture by researchers based on different methods (such as the travel cost, contingent valuation, or hedonic method[13]). There are criticisms of these methods, ways of calculations, and data used to evaluate the value of multi-functions of agriculture[14].

A fundamental variable, however, is not the total value but the marginal value of multi-functionality as agricultural production changes, even if the value of multi-functionality is recognised. Evaluation of the total value of externalities of agriculture does not have any implications for efficiencies and choices in agricultural policy measures. What we need to know is the marginal loss (gain) of the value of the multi-functionality as agricultural production shrinks (expands). In other words, we need to know the social demand curve for the multi-functions and how they are related to agricultural production. Otherwise we can not find the optimal level of domestic production to maximise the social net benefit taking externalities into account. For example, we need to know how much social value has been lost by the paddy fields diversion programs, how the minimum access imports of rice have damaged the environment value, and so on. It is difficult to estimate such changes in social value caused by multi-functionality but it is logically necessary if multi-functionality is to be placed at the centre of the proposal for the agricultural trade negotiations.

Furthermore, the relationship of multi-functionality with agricultural production is not straightforward. There are many alternative levels of production and many combinations of products to achieve a certain level of social value created by agricultural activities. WTO negotiations are to discuss the levels of support and protection that affect trade and production. Thus, the quantitative assessment of multi-functionality in terms of agricultural production is necessary. However, multi-functions of agriculture are not the targets that agricultural production directly aims to hit. Therefore, they are not necessarily efficient to fulfil the social needs. For example, paddy fields keep water in heavy rainy seasons and prevent and diminish floods. But it should be accompanied with efficient and timely water control. At present water is controlled not for preventing floods but for the growth of rice paddies. Another example is maintenance of bio-diversity that emphasises the maintenance

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[12] MAFF, Environmental Externalities of Japan's Paddy Fields Farming, and Environmental Externalities Provided by Upland Fields, web site of MAFF:
http://www.maff.go.jp/soshiki/kanbou/Environment/

[13] For a review of studies in this area see Demura, K. and K. Yoshida (1999).

[14] See, for example, ABARE (1999) and Trewin (2000).

of a variety of flora and fauna in paddy fields. But at the same time many varieties in the eco-system are at risk of extinction because of the chemicals and pesticides used in agricultural activities. These complexity and ambiguity of the relationship of multi-functionality with agricultural production make it difficult to give the quantitative assessment and the scientific evidence of multi-functionality.

5.2 Food Security

In Japan's proposal, food security is considered one aspect of multi-functionality. Inclusion of food security makes the concept of multi-functionality fuzzy. If food security is included in the multi-functionality of agriculture, then oil and other energy industries, high-tech industries, and all other industries related to national security are also considered to have multi-functionality. It is better to limit the multi-functionality of agriculture to the external effects, particularly on the environment.

Food security is defined as a situation in which all households have both physical and economic access to adequate food for all members and where households are not at risk of losing such access (FAO, 1996). We have two options to achieve food security at the national level. One is the pursuit of food self-sufficiency and the other is food self-reliance. Food self-sufficiency means meeting food needs as far as possible from domestic supplies and minimising food imports. On the other hand, food self-reliance means maintaining a level of domestic production but relying also on international trade to meet the food needs of the population. Which strategy a country should adopt depends on the benefits and risks of relying on international trade.

Food security is an important issue in countries whose food self-sufficiency rates are very low. In Japan the food self-sufficiency ratio has dropped to 40 percent on a calorie basis, which is the lowest among the developed counties. Some people are very much concerned about this low level of self- sufficiency from the food security viewpoint. Food security is one of the basic roles that the government should play. MAFF has targetted a 45% ration for food self-sufficiency as a guideline to be reached through public efforts by 2010.

Japan's proposal acknowledges imports and stockpiling as well as domestic production as policy measures for food security. However, excessive dependence on imports is considered to have the following problems: (a) the world food supply may become unstable in the short term and may become tighter in the medium to long term; (b) agricultural trade has such unstable features as relatively low portions of national output are currently being exported and the major agricultural products are only being exported by some specific countries; and (c) large purchases by an economically-dominant country at a time of food shortage may have a negative impact on the international market[15].

[15] Paragraph 18 in Communication from Japan of 28 June 1999.

Stockpiling is also questioned because it is only a short-term measure due to the loss in quality and the cost of stockpiled food.

Policy measures for food security differ by what types of crises are considered. Predictions on future world market conditions depend on the assumptions and forecasts of exogenous variables. It is important to prepare policy measures at a minimum social cost for possible different food security risks[16]. In addition, the volatility of world food market prices comes from the interventions of governments endeavouring to insulate domestic markets from international trade, which makes the world market smaller than it would be without intervention. If all domestic markets are integrated to international trade, poor or rich harvests in some areas can be easily absorbed into the world market. Therefore, limiting trade for food security purposes is not the correct policy measure to achieve its purpose.

What the government of Japan should prepare is a blueprint for unpredictable emergencies in which food security measure is one of total national security measures. The MAFF estimates the availability of food energy using only the domestic agricultural resources[17]. According to this, Japan can provide 1,890 to 2,030 kilocalories of food per day per person without any food imports in 2010, which is about equivalent to the calorie intake in the early 1950s. This kind of information is important, though the production composition is of course different from the current dietary pattern. However, it is not shown how to shift from the current regular farm operations to emergency ones, nor how to realise these food emergency supplies for the general public. It is necessary to establish a system to supply foods efficiently in emergencies as part of a national security plan, rather than increasing the food self-sufficiency ratio at a cost to consumers and taxpayers in peace time.

Japan seems afraid of criticisms on her food purchases in world markets at a time of food shortage and some developing countries cannot purchase food in world markets due to a lack of foreign currencies. The solution for this from a Japanese viewpoint is not to desist from importing food but to assist developing countries to expand purchasing power and to take leadership in international cooperation to overcome the world food problem on a regular basis.

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[16] For example, see Hayami (1988), in which he classified possible food crises and proposed appropriate policy measures by case.

[17] See MAFF web site; http://www.kanbou.maff.go.jp/anpo/

5.3 *Strengthening Export Rules*

The third emphasis in Japan's proposal is to redress the imbalance in rights and obligations under the WTO rules between exporting and importing countries. Japan expresses complaints about the current Agricultural Agreement in which rules for imports are much stricter than those for exports. For example, while for export prohibition and restriction, only a prior consultation obligation is established (Article 12) and no rules are set for export taxes, reduction or a comprehensive binding of import customs is required. And all quantitative restrictions are prohibited (Article 4-2), except for a special treatment based on Annex 5 and measures based on the general rules of GATT. Given the example of product coverage in the footnote and separate institution of rules of Article 12, it is understood that the rule does not cover export restrictions[18]. The differences in disciplines between importers and exporters in the agricultural sector are summarised in Table 9.

The improvement and greater transparencies in export competition are also addressed in proposals by exporting countries like the United States and the European Union, although they do not explicitly state strengthening export rules[19]. Clearly mentioning the disciplines of export restrictions is included in the Australian 1999 proposal as the Cairns Group Vision Statement. It says, "Export restrictions must not be allowed to disrupt the supply of food to world markets, in particular to food net-importing countries[20]." The Cairns Group insists on elimination of all trade barriers, putting agricultural trade on the same basis as trade in other goods. They argue for tighter disciplines on export restrictions and taxes in this context[21].

Japan's proposal for correcting impartiality between importing and exporting countries is very reasonable and consistent with the objective of establishing a fair and market-oriented agricultural trading system as described in the preamble to the Agreement on Agriculture. It is noted that strengthening export rules is strongly related to the two other arguments in Japan's proposal already discussed above. If exporting countries agree to correct the impartiality as in Japan's proposal, one of the major factors jeopardising food security is eliminated. Consequently Japan loses its ground for emphasising domestic production for food security. Also, if multi-functionality is impartially applied to exporting countries, Japan may have to accept other minimum imports to maintain multi-functionality of exporting countries. Japan should prepare to accept the latter two cases if she tries to establish all three issues consistently together in the new agricultural trade system.

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[18] MAFF, Export regulations in the existing agreement (Reference No.4), June 1999.

[19] The U.S. proposal to the June 2000 Special Session of the WTO Committee on Agriculture, however, suggests explicitly prohibiting the use of export taxes and conducting negotiations for export credit programs, although it does not mention export restrictions or export prohibitions.

[20] Communication from Australia of 6 July 1999.

[21] The Cairns Group submitted a proposal to the June 2000 Special Session of the WTO Committee on Agriculture but it is the first of a series of proposals and there are no statements on export restrictions or prohibitions in it.

However, in reality Japan's proposal does not seem to be directed to such freer trade with less restrictions and barriers. Rather Japan insists on the right of importers to take border measures owing to the impartiality of the current rules. It says, " Given the existing trade rules, which allow an exporting county to take restrictions or prohibitions, importing countries have legitimate rights to take appropriate border measures for food security in their own country.[22]" It is apparent that impartiality is used as a reason for the necessity of border measures and that focus is not on trade liberalization in both exporting and importing countries. In this sense Japan's proposal seems impartial and not positively seeking elimination of barriers on both sides.

6. Conclusions

As far as Japan is seeking economic development based on international corporations, it is necessary to liberalise agricultural trade. This means that Japan has to foster an agricultural sector of comparable productivity with the other industrial countries, particularly with the EU countries, so that Japanese agriculture becomes viable under liberalised trade. The critical condition for raising productivity is to expand the scale of farm operations. However, small farmers are strongly attached to their farmland with the expectation that they may have an opportunity to convert their farmland to non-agricultural uses. If agricultural land is sold for non-agricultural uses, a huge capital gain is realised. Therefore, it is difficult to expand the scale of agricultural operations through transferring land ownership. One way to expand the operation size is through land leasing. Thus, activation and deregulation of the farmland rental market is essential.

Even in the case that Japan achieves the expansion of farm operation size to the level of the EU, for example, it does not necessarily mean that Japanese agriculture becomes internationally competitive. It may be impossible for Japanese agriculture to compete in wheat or feed grains with countries such as the United States and Australia. A significant re-orientation of agricultural production is required for the shift to an open trade system. Japan should seek her comparative advantage in various agricultural activities.

There are new developments in Japanese agriculture, one of which is the entry of non-agricultural companies into horticultural production. For example, Omuron Corporation, which is a high-technology development company for industrial automation, is operating a huge glass greenhouse to produce a specific variety of tomatoes. The size of the greenhouse is as large as seven hectares. Production is under control of computers applying its own technology. This is an illustrative case for seeking comparative advantage in Japanese agriculture.

Japan calls the 21st Century the Era of "Diversity and Coexistence"[23]. It appears that Japan tries to achieve the diversity and coexistence of agriculture by protection. It is recognised that agriculture has multi-functional roles jointly created with farming activities. However,

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[22] Paragraph 31 in Communication from Japan of 28 June 1999.

[23] See footnote 9 in this paper.

multi-functionality can not be a reason for protecting agriculture at the border. Multi-functionality is nothing worthy for exporting countries and it is very much a domestic matter. Therefore, it can not stop the trend of further liberalization in agricultural trade. The only way for Japanese agriculture to survive in an open trading system is to seek its own comparative advantage and to shift resources in that direction. Technology and human capital intensive sectors like horticulture and livestock seem promising. Not only products but also types of farm management should have more varieties including joint-stock companies. Promotion of domestic reforms and deregulation based on the new Basic Law on Food, Agriculture and Rural Areas are urgent to achieve the target of "Diversity and Coexistence" of agriculture.

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Table 1. Basic Statistics of Japanese Agriculture

	1960	1970	1980	1990	1998
Agricultural GDP (billion yen)	1493	3131	6007	7701	6040*
Ratio to total GDP (%)	9.0	4.2	2.4	1.8	1.2*
Agricultural labour force** (million)	11.96	8.11	5.06	3.92	3.08
Ratio to total labour force (%)	26.8	15.9	9.1	6.2	4.7
Agricultural production index (1995=100)	75.5	94.9	99.0	104.8	92.5
Agricultural land (thousand ha)	6071	5796	5461	5243	4905
Farm household (thousand)	6057	5342	4661	3835	3291
Agricultural land per farm household (ha)	1.00	1.08	1.17	1.37	1.49

Note * Figures are for 1997
** Workers mainly engaged in agriculture

Source: MAFF, Nogyo Hakusho Fuzoku Tokei-hyo (Statistical Appendix of Agricultural White Paper), various issues.

Table 2. International Comparison of Total and Agricultural Land, 1995 (Japan=1)

	Japan	U.S.A.	Germany	France	U.K.
Total land area (A)	1	24.8	0.9	1.5	0.6
Agricultural land area (B)	1	77.9	3.4	5.8	3.3
Agricultural land per farm	1	126.5	18.7	23.4	44.9
Ratio of (B) to (A) (%)	13	43	47	51	68

Source: MAFF, Agricultural Land Statistics; FAO, FAOSTAT.

Table 3. Average Annual Income of Farm Households and Urban-worker Households, (thousand yen)

	1960	1970	1980	1990	1998
Farm household:					
Total income (A)	449	1592	5594	8399	8680
Income from farming (B)	225	508	952	1163	1246
Ratio of (B) to (A) (%)	50	32	17	14	14
Income per family member (C)	78	326	1271	1967	2112
Urban-worker household:					
Total income (D)	502	1391	4254	6323	7072
Income per family member (E)	115	358	1111	1709	2020
Income Ratio:					
Total income (A/D)	0.89	1.14	1.31	1.33	1.23
Income per family member (C/E)	0.68	0.91	1.14	1.15	1.05

Source: MAFF, Noka Keizai Chosa (Farm Household Economy Survey), Prime Minister's Office of General Administration, Kakei Chosa (Household Survey), various years.

Table 4. Structure of Agricultural Labour Force, male by age, 1999

Age	15-39	40-49	50-59	60-64	65-over	Total
Agricultural labour force (thousand):						
Workers engaged in agriculture*	723	740	638	384	1156	3641
Workers mainly engaged in Agriculture**	153	152	193	214	957	1669
Core workers mainly engaged in Agriculture***	89	146	184	188	647	1254
Ratio to the total (%):						
Workers engaged in agriculture*	20	20	18	11	32	100
Workers mainly engaged in Agriculture**	9	9	12	13	57	100
Core workers mainly engaged in Agriculture***	7	12	15	15	52	100

Notes: * Workers engaged in agriculture are those who worked in agriculture at least one day during the year of survey.

** Workers mainly engaged in agriculture are those who worked only in agriculture and those who worked in agriculture and other industries but mainly in agriculture during the year of survey.

*** Core workers mainly engaged in agriculture are those who are engaged in job activities in regular basis during the year of survey among workers mainly engaged in agriculture.

Source: MAFF, Nogyo Kozo Dotai Chosa (Dynamic Survey on the Structure of Agriculture).

Table 5. Estimates of Core Workers in Agriculture and Farm Households, 2010

	1980	1995 (A)	2010 (B)	B / A (%)
Core farm workers* (million)	4.13	2.56	1.47	58
Age less than 65	3.44	1.54	0.74	48
Age 65 or older	0.69	1.02	0.74	72
Farm households (million)	4.66	3.44	2.46	71
Core farm households**	1.83	1.17	0.78	67
Non-corer farm households	2.83	2.27	1.68	74
Ratio of non-core farm households (%)	61	66	68	-

Notes: * Core farm workers are core workers mainly engaged in agriculture. See note *** in Table 4.

** Core farm households are those farm households which have workers engaged in farming for150 days or more a year.

Source: MAFF, Reference data presented to the Investigative Council on Basic Problems Concerning Food, Agriculture and Rural Areas, 1998.

Table 6. Comparison of Labour Productivity between Agriculture and Manufacturing*

	1960	1970	1980	1990	1995
Agriculture (A) (thousand yen)	98	343	1040	1737	1730
Manufacturing (B) (thousand yen)	474	1516	3941	6094	5931
Relative labour productivity (A / B) (%)	20.7	22.6	26.4	28.5	28.3

Note: * Labour productivity is nominal net national product by industry divided by number of workers in each industry.

Source: MAFF, Nogyo Hakusho Fuzoku Tokei-hyo (Statistical Appendix of Agricultural White Paper), various issues.

Table 7. Decomposition of Relative Labour Productivity Growth Rates into Three Factors

Period	1960-95	1960-70	1970-80	1980-95
Growth rate of				
Relative labour productivity (% / year)	0.89	0.88	1.57	0.46
	[100]	[100]	[100]	[100]
Growth rate of contributed factors (% / year):				
Relative price	2.57	6.00	1.35	1.15
	[288]*	[682]	[86]	[250]
Relative physical labour productivity	-0.05	-2.78	1.11	1.03
	[-6]	[-316]	[71]	[224]
Relative value added ratio	-1.62	-2.34	-0.89	-1.72
	[-182]	[-266]	[-57]	[-374]

Note: * Figures in parentheses are percent ratios to growth rate of relative labour productivity.

Source: Calculated from data in MAFF, Nogyo Hakusho Fuzoku Tokei-hyo (Statistical Appendix of Agricultural White Paper), various issues.

Table 8. Composition of Farm Households by Farming Type and by Volume of Sales, 1995, %

Volume of sales (million yen)	Total	Less than 1	1 to <2	2 to <3	3 to <5	5 to <10	10 to <30	30 to <50	50 or more
Total	100	51.0	17.0	9.3	8.2	7.9	5.4	0.7	0.4
Single farming	100	57.4	16.5	8.1	6.6	6.0	4.3	0.7	0.5
Rice	100	66.3	17.7	7.5	5.0	2.7	0.8	0.1	0.0
Greenhouse vegetables	100	6.9	6.8	8.0	13.5	31.7	30.6	1.5	1.1
Dairy	100	2.4	2.3	2.8	4.9	13.3	50.5	18.4	5.3
Poultry	100	6.7	5.5	5.5	8.6	14.8	24.5	12.9	21.4
Semi-multiple farming	100	32.1	19.2	13.2	13.0	13.6	8.0	0.6	0.4
Multiple farming	100	22.5	16.3	13.3	14.8	17.2	14.0	1.5	0.5

Source: MAFF, 1995 Census of Agriculture and Forestry.

Table 9. Comparison of Disciplines between Importers and Exporters in the Agriculture Sector

	Importer	Exporter
I Customs		
(1) Concession	Import custom for all agricultural products	Export tax is not in concession schedule
(2) Tariff reduction rate	Promise to reduce at 36% on the average for all agricultural products (15% at minimum for individual product)	No reduction obligation
(3) Safeguard measures	Custom can be raised by not exceeding a third of the usual custom level to alleviate drastic change at a time of sharp import increase for product for which tariffication is provided (Special Safeguard)	No prohibitions. (Since export tax is not listed in the schedule, it can be freely set or raised.)
II. Export/import restriction		
(1) Numerical restrictions	Implement tariffication for non-tariff measures such as import volume restrictions, in principle.	Export restrictions are newly established or continued, on conditions that obedience to the following: 1) consider the impact of export prohibition/restriction on food security in importers; 2) notify establishment of export prohibition.restriction in advance or consult with importers if required.
(2) Provision of access opportunity	Set minimum access opportunity for products whose import records in the standard period ('86-'88) is less than 5% of domestic consumption, 1st year (1995) 3% → 6th year (2000) 5%	No provisions
III. Export subsidies		
		Allowed to give export subsidies on agricultural products or product group given in the standard period. Should reduce by 36% in financial expense amount, 21% in the coverage volume.
		Flexibility is allowed, for example rollover to the succeeding year.

Source: MAFF, Export regulations in the existing agreement (Reference No.4), June 1999.

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