

# **Case Study on the Relationship Among Trade, Food/Agriculture and Environment Sept. 1994**

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## **✘ Trade and the Environment**

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### **Case Study on the Relationship Among Trade, Food/Agriculture and Environment**

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**Koyu FURUSAWA**

In today's world, all kinds of natural resources are being exploited, while a variety of commodities are sold on a global scale. In food and agriculture as well, the world is becoming incorporated into a single global market and a dynamic international division of labor is taking shape. Free trade is often touted as the road to abundance since food can be cheaply obtained from around the world. Only recently Japan's public opinion was divided into two by the debate concerning the opening up of the rice market.

Many consumer groups were against opening up the rice market because of Japan's extremely low self-reliance in food or from concern about the dangers of post-harvest pesticides used for long-distance transport. Meanwhile, the majority of those in industry and business were in favor of the market liberalization. In many typical households, the white-collared husband supported liberalization, while the wife, generally more concerned about life, environment or food safety, opposed it. This seemed to symbolize today's society, where there exists a conflict between the view that places priority on the economy and that which places emphasis on life and environment. The author's discussion below is made from the latter viewpoint.

(1) International division of labor in food production and expanding trade: moving toward instability

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The world currently produces more grain than can be eaten by humans, and about 40% is consumed as livestock feed. If we look at the trend in the world's grain production after World War II, we see that production has increased at a greater rate than the growth in population. In recent years, however, production is showing signs of leveling off, and particularly since the late 1980s, there have been some major up-down swings. The 1988 drought in North America in particular brought to the forefront concerns about global climate change (or global warming). The world's per-capita grain production, which had been on the rise ever since 1950, began to decrease in the mid-80s, while the total cultivated land area has been shrinking as well since 1981. Meanwhile, the cultivated area per capita has seen a continuous decline due to population growth. ( See figure.1 )

If we look at the situation on Asia's agriculture and food, the overall situation has seen an improvement as countries such as India, China or Indonesia, which had previously suffered from chronic food shortages, were able to increase their food production after World War II. But since the late 1980s production in these countries seem to be reaching a ceiling as well. We can thus say that the period of ever-increasing food production has come to an end, with the world shifting from production growth to decline. For instance, the practice of irrigation is acknowledged as having greatly contributed to production increase, but its harmful effects are now becoming apparent; in widespread salt damage (i.e. increased salt concentration in soil) or in the depletion of soil nutrients and general environmental degradation caused by the over-reliance on synthetic fertilizers and pesticides.

With Asia's rapid economic growth, a greater threat exists as more and more lowland farms, which traditionally grew rice, are converted for industrial and housing use in the process of urban development. Every two years the population of Asia grows by 100

million, and the total is expected to reach 4 billion by the year 2025. While south Asian countries, including Bangladesh, and Japan rely on food imports today, if China or India's self-sufficiency in food collapses and make them importers of food as well, the world's balance in supply and demand will be destroyed. Asia thus harbors elements that have potentially destructive results for the world's overall balance in the supply and demand of grain.

If we look at the world's trade situation, the volume of goods imported by Asian and African nations has increased rapidly particularly since 1970. As for grain, the trend toward centralization is evident, as most nations are importers, while the major exporters are concentrated in North America. ( See figure.2 ) Such an imbalance in the agriculture and food sectors, created by the international division of labor, is highly dangerous from the viewpoint of global food security. If we are to heed the warning sounded by wild production swings taking place within the context of irregular climate changes and global environmental degradation, we must make efforts to lessen the risks by steering away from the trend toward centralization. We are now at a juncture where we must prepare various means to avoid the centralization (i.e., instability) of the food production system.

There is yet another aspect of man's efforts to increase food production that leads to instability. Namely, the fact that, in the pursuit for higher productivity, food sources were narrowed down in a short period to a limited number of species and varieties. This trend toward uniformity can be seen most evidently in corn, wheat, or potatoes produced in the United States, the nation with the most developed commerce in the world. While this country was able to greatly improve productivity and become the world's largest producer of food, in this process the variety of crops was drastically curtailed, substantially narrowing down the genetic base. According to a recent study, of the commercial crops registered with the U.S. Department of Agriculture in 1903, 96% have become extinct. 86% of the more than 7000 varieties of apples and 88% of the 2683 kinds of pears, which were consumed then, can no longer be eaten today.

Along with production increases and improved outward appearance, this process of simplification has brought with it an instability. If we take the U.S. production of corn, for instance, which is the world's highest in volume and productivity, the harvest per unit area in the 1980s had increased five- to six-fold when compared to before World War II.

In 1970, however, an incident took place that sounded a warning bell to the upward trend in corn production. With a mere five varieties, created by inbreeding, comprising 70% of the grown corn, the genetic uniformity had produced monoculture over large areas. That year the corn crop was hit by a disease, which spread rapidly over an extensive area and disastrously reduced the harvest. The most well known case of the dangers of a single-crop dependency is the great potato famine of the 1840s which devastated Ireland and the European continent. Close to two million starved, while an equal number were sent overseas as immigrants (i.e., refugees).

Currently the issues of opening up trade and introducing or expanding the market economy are being hotly debated in many countries. Although promoting trade liberalization is often claimed as being a signpost leading to prosperity and to securing cheap sources of food from around the world, this argument often overlooks a serious issue. In direct contrast to the abundance on the consumers' dinner table and the availability of food selections is the loss of ecological diversity that results. In other words, the world's food and agriculture system is being turned into a global supermarket. We must come to realize the contradiction in which the international division of labor and the centralization and simplification of monoculture are threatening the world's diversity.

I have discussed in a previous paper the three contradictions of free trade; the issues discussed above correspond to the last two, namely, external diseconomies and loss of diversity.

## (2) Food crisis as a North-South issue

We next examine the North-South issue. Behind the developing countries' increased dependency on grain imports is the "structural adjustment" policy promoted by the World Bank and International Monetary Fund (IMF). This is based on a food policy that places priority on the international division of labor and promotion of trade (or comparative advantage). The World Bank and IMF have adopted the structural adjustment policy as a policy guideline aimed to resolve the debt situation of developing nations. Based on the assumption that cheap grain supplies should be imported from abroad rather than promoting food self-sufficiency, it encourages developing countries to produce commercial crops to earn foreign exchange, which is to be channelled into debt payment. One reason why famine in developing countries is getting more critical is that, instead of producing food for self-consumption, vast tracts of land have been set aside for commercial crops destined for the markets of rich industrialized nations.

The world's overall food situation is characterized by the coexistence of both famine and gluttony. While, on the one hand, there are countries where citizens enjoy a high-protein, high-fat diet and maintain affluent eating habits supported by foods imported from around the world, there are, on the other hand, numerous countries where large segments of the population live under absolute poverty and are unable to receive even the minimum nutritional requirements. This is starkly illustrated by the statistics that every year about 1.5 million die from malnutrition.

This corresponds with the first contradiction of free trade, as discussed in the paper mentioned above; namely the widening gap between rich and poor. While the accumulation of wealth through trade profits the powerful, the weaker nations are mercilessly sacrificed.

It is under these circumstances that Japan's role must be examined. Japan, as an economic superpower, enjoys the affluence of being able to obtain vast amounts of a variety of food from

around the world. Every year it imports about 32 million tons of grain, while the self-supply in grain has dropped below 30%. If the opening up of the rice market proceeds as expected, Japan's grain imports are likely to reach 40 million tons. Since the world's total trade in grain amounts to about 200 million tons, Japan alone will account for one-fifth. If the world's supply- demand situation becomes critical, Japan will in effect be taking the food away from famine-ridden countries, for which Japan is surely to be criticized by the world community. By pushing up grain prices, Japan will be excluding the poorer countries from the grain market.

In fact, Japan's rice harvest was extremely low in 1993 and as an emergency measure 2.55 million tons of rice was imported. This caused the world price of rice to skyrocket, posing a threat to people's lives in rice-importing countries such as Bangladesh and African nations, which suffer from malnutrition as it is. Even in the rice-exporting countries, the overshipment of rice for export resulted in aggravating local food shortages, as in Thailand's northeast area and parts of China.

Contradictions in food and trade such as this are surfacing in many food categories, including shrimp which recently has become Japan's top food import item.

### (3) Japan's role in environmental destruction as a major importer: timber trade

Today about 700 million tons of goods and materials are shipped to Japan yearly. This amounts to 20% of the world's total maritime shipment (Transport Whitepapers). Close to one-third of the world trade in shrimp (Japan's largest food import), timber, iron ore, and coal, and 15-20% of grain and petroleum end up in Japan. When this volume of imports is compared with Japan's land area, which is 0.3% of the world's land, and its population, which is 2.3% of the world's population, we come to realize the disproportionate impact that Japan has on the global environment and the accompanying responsibility.

The connection between trade and environment has become a major issue in the agriculture, forestry and fisheries sectors, as well as in the extraction of mineral and other resources. Japan's massive imports of tropical timber in recent years is a typical example. Japan has become heavily dependent on overseas sources for its timber supply (half of which comes from tropical and sub-tropical nations) and is now called the "forest borer" of

Asia. Meanwhile Japan's domestic forestry has been left to decline, its forest resources neglected, and forestry-based communities allowed to disintegrate. This entire process was set into motion when the timber market was opened up in the early 1960s.

In its role as a major timber importer, Japan is causing the destruction of tropical forests overseas, while at home rural forestry-based communities are becoming depopulated and problems such as mud slides are being caused by forest neglect. While a few rural communities have succeeded in revitalizing themselves, they are the exceptions to the rule. In the majority of rural mountainous areas, it has become next to impossible to maintain a

livelihood by engaging in agriculture or forestry, and the villages are rapidly disintegrating. As a desperate act of survival, some have opened up dump sites for industrial wastes, while others have allowed themselves to become resort developments (golf courses, etc.), in both cases resulting in extensive environmental destruction.

A similar situation exists with several other agricultural commodities, as they too become incorporated into the global market. Between 1986 and 1991 Japan's food imports rose by 70% from 20.8 billion dollars to 35.1 billion dollars, and this trend is accelerating. Change can be seen in the imported food type as well. Since 1986 corn, which had been Japan's largest food import item for

years, has been replaced by shrimp, reflecting the consumer trend toward gourmet eating habits. By having available food from all over the world, the Japanese dinner table may boast of being no. 1 in abundance. Yet behind this abundance lies many contradictions.

#### (4) Food imports and environmental destruction: Japan, the world's largest shrimp importer

Here we discuss the issue of shrimp, which recently has become Japan's no.1 food import item. The average Japanese eats 3.9 kilograms of shrimp a year, the highest in the world. Ever since the market was opened up in 1961, the import volume has continuously grown, and now amounts to five times the domestic catch. Almost all of it is imported from Asian countries, such as Indonesia, Thailand, China, India, the Philippines, and Taiwan.

While more natural shrimp was harvested than the raised variety in the 1960s and 1970s, because of diminishing catch and the spread of shrimp-raising technology the situation has since then reversed, with raised shrimp now predominating. Shrimp fishing is done by dragging trawling nets along the ocean bottom, often leading to overfishing. Although any fish large enough is trapped by the net, only shrimp is harvested and the rest discarded, which resulted in damaging many fisheries as well. Because the shrimp stock of Southeast Asia was getting depleted, threatening the livelihoods of local fishermen, Indonesia banned shrimp-trawling in 1981.

Shrimp farming became popular to make up for the dwindling catch of natural shrimp, but since the farms are often made by destroying the coastal mangroves, extensive environmental destruction has resulted. Mangrove swamps are usually extremely rich in nutrients and thus support large plankton populations; as feeding grounds and as protective cover from predators, they provide ideal habitats for the small fry of fish and shrimp. Since mangroves also serve as natural tide barriers, their destruction will lead to an increase in coastal floods. As shrimp farming becomes widespread, the ecological cycle between coastal waters, serving as habitat for fish species, and the coastal mangroves is severed, and this has raised concerns about the harm to fishery resources in the entire tropical waters.

In Taiwan, where shrimp farming became widespread at an early stage, various harmful effects are now surfacing: ground subsidence caused by excessive pumping of groundwater; water pollution caused by the large amounts of feed used in intensive pond-farming; the regular use of antibiotics to counter the spread of disease, etc. The shrimp issue is a typical example of an external diseconomy resulting from free trade.

It was only a few years ago that Philippine banana plantations became an issue in Japan. The major production center, Mindanao, which was once covered with palm groves and fields for growing corn or rice, was transformed by multinational corporations into a production base for exporting bananas to Japan. Thus, beginning in the late 1960s, overseas capital, the Philippine government, and local landowners cooperated to establish vast banana plantations. Many tenant farmers were forced to become plantation workers, with minimal wages and under harsh work conditions. Special banana varieties were introduced for export purposes, and planes were used to spray pesticides over extensive areas, exposing local farmers to health hazards and polluting the rivers. When this was realized in Japan, it resulted in a citizens' movement acting in solidarity with the Philippine plantation workers.

A similar situation exists with pineapples. When grown yearly in the same soil pineapples tend to exhaust the soil nutrients, turning extensive areas into unproductive land. The plantation-owning corporation can afford to use up the land and move on to other places, leaving behind wasteland.

#### (5) What rising imports of agricultural commodities mean

A recent case involves ginger. An increasingly large share of Japan's market for pickling ginger is taken up by imported ginger. Until the early 1980s, most of the imported ginger came from Taiwan, developed and imported by a Japanese pickle company.

It was grown in fields after clearing forests in cool mountainous regions, but since ginger fields yield less and less with years of continued use, they are usually abandoned and new forest clearings are used. The result was deforestation in Taiwan's mountainous regions, and when this came to the notice of the Taiwanese government they began enforcing regulations. Along with the relatively high labor costs, this resulted in withdrawal from Taiwan and subsequent move to Southeast Asian countries. Thailand, in particular, where ginger is grown in the northern hill regions, is Japan's largest source today. Northern Thailand is an area which has suffered from rapid forest depletion in recent years, and flood damage has highlighted the need to protect these forests.

Pork is an item whose imports have grown substantially, with Taiwan being Japan's largest source. In Taiwan, extensive pig farms have been set up to meet exports to Japan, but the absence of strict standards for the disposal treatment of excreta has resulted in severe water pollution. Similar situations abound, where lax or non-existent environmental standards and regulations have caused problems akin to cases of "pollution export".

While the volume of vegetables and fruits that Japan imports from Asian countries is rapidly increasing, traces of highly toxic organochlorine pesticides have been found among green soybeans and broccoli from Taiwan by the Research Laboratory of Public Health of the Tokyo Metropolitan Government. In a recent case overseas, a food-poisoning incident occurred in Hong Kong involving vegetables imported from China (1991).

Similar problems exist around the world. An example that attracted considerable worldwide attention, particularly because of its impact on the global environment, was the connection between inexpensive beef and tropical forest destruction. This was the "hamburger connection" campaign taken up by a U.S. environmental group in the late 1980s. It exposed the fact that the massive amounts of cheap beef from South and Central America, imported by the United States and used in fastfood restaurants, came from cattle that had been raised on ranches made by burning down tropical forests. In the twenty or so years since the 1960s, close to one-quarter of the tropical forests in South/Central America has been converted into grazing pastures, and most of the beef raised there was used by American hamburger franchises.

While banana, coffee, and shrimp have become cheaply available to us in recent years, for better or for worse, the low prices are backed up by the concentrated capital of multinationals and general trading companies; the heavy burden on Third World farmers and workers and the impact on the environment should not be overlooked. The trade in a wide array of primary- sector commodities are concentrated in the hands of a few multinationals today: about 20 giant corporations control most trade of the world's agricultural products. In particular, 60- 80% of the trade in grain, coffee, tea, bananas, and various mineral ores is respectively dominated by three to five giant multinationals.

(6) An international agreement to establish sustainable regional agriculture and support rural communities

Whether in terms of the global environment, viable regional livelihoods or material lifestyles, we seem to have arrived at a critical turning point.

As the external pressure to increase exports and resolve the debt problem mount among developing countries, the traditional lifestyles of their peoples are gradually becoming eroded by the commodity economy. Anything that doesn't satisfy the principle or measure of efficiency is rejected, including

"backward" regional subsistence agriculture, nature that has been categorized as "undeveloped and unused resources", and indigenous societies and cultures.

If in closing we take an overall structural look at the contradictions posed by today's world, particularly in terms of agriculture, it could be described in the following manner. Thus, at the regional level, due to the infiltration of the commodity economy and enforcement of developmental policies, subsistence agriculture and small farmers will be unable to survive economically and become eliminated. As the remaining large-scale farms (i.e. large landowners, big capital, multinational agribusiness) gain in selling power to expand their markets and increase their domination, free trade and the international division of labor will expand outward. While this will necessarily create trade friction crossing national boundaries, in the end the entire world will become incorporated into a global division of labor. In this process, the rural communities (or subsistence economies) will decline, while environmental destruction, the migration of population into cities, and the growth of slums (poverty) will take place all in tandem.

In one sense regional agriculture can be considered to be the first line of defense in each country against the tide of environmental destruction. The across-the-border trade liberalization of agricultural commodities taking place right now is very likely to accelerate a highly unbalanced land use, by ultimately destroying rural livelihoods and communities around the world. Thus, the direction we should take is evident: to adopt an international policy from a comprehensive viewpoint in order to set up a global system in support of the primary sectors (i.e., agriculture, forestry and fisheries).

Each country should make it its top priority to preserve sustainable agriculture, forestry and fisheries on a regional base, and then build up trade relations based on that. It is important to accept on a worldwide level the concept that only this kind of approach will preserve the diversity in each region's nature, culture and communities, and this in turn will guarantee the stability and diversity of the earth's environment (i.e. ecological security). What this means is not the narrow self-interest of each country, but a "new food protectionism" based on a global perspective.

In specific terms, to protect the environment and preserve the diversity in ecosystems and human cultures, the author proposes that an international agreement be signed in support of agriculture and rural communities, with the aim of setting up on a worldwide level a support system for sustainable regional agriculture and rural communities. Since Chapter 14 of Agenda 21, signed at the Earth Summit in Brazil, as well as the chapters on "Food Security" and "Sustainable Agriculture" in the NGO Alternative Treaties concern this subject matter, they could perhaps be used as the basis for the proposed agreement. The agreement should clearly state in principle that with regard to food and agriculture each country possesses the right to maintain a certain self-sufficiency level, that all nations should cooperate in support of this, and that this policy takes priority over free trade.

( More information: Furusawa, K. 1993. Co-operative Alternatives in Japan. In: "A Future for the Land. Green Books, UK . )

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