

## **On the Environmental Impact of Trade in Pollution-Intensive Goods**

Mitsuo Honda

This study is the report of a research group whose aim is to combine both the sociological approach and the cultural science approach to environmental issues. This particular paper focuses on the economic aspects, examining the impact on the environment of Japan's pollution-intensive goods. In this paper, I will demonstrate the level of impact that so-called pollution-intensive goods exert on the world through the process of trade.

First, I define types of pollution-intensive goods and, on the basis of this definition, select 60 categories of goods from the approximately 250 classifications used in the SITC3 System. Next, I use OECD figures for the 25-year period from 1976 to 2000 to perform an empirical analysis of the value of Japanese exports and imports worldwide in the selected pollution-intensive categories and in the remaining categories (which correspond to non-pollution-intensive goods). The analysis of the trade figures involves the use of measured indices such as the intra-industry trade index and the RCA (revealed comparative advantage) index in each category. Pollution-intensive goods are further divided into a number of industry classifications in order to analyze the relationships between the trade characteristics and the abovementioned indices within each classification. The intra-industry trade index is used as a substitute variable for the potential to cause transboundary wide-area environmental destruction, while the RCA serves as a substitute variable for the internationalization of environmental destruction. Using these variables to set up the hypothesis, I examine trends in each category of pollution-intensive goods as well as trends for non-pollution-intensive goods, and compare the two sets of trends.

The results of the empirical analysis suggest that the environmental impact (i.e., pollution) in the world caused by Japanese imports and exports of pollution-intensive goods is not as great as previously estimated.

## **Environmental and Resource Issues and Economic Ethics**

**Yoshiki Kato**

Traditional economic analysis is of limited value and very inadequate for addressing environmental problems. Environmental problems should be addressed as a more general area of scholarship. The real economy is comprised of not only private, institutional, social overhead, and natural capital, including ecosystems, but also social capital, or value and social norms which include religion. Until a few decades ago, it may have been possible to ignore the latter two types of capital, natural capital and social capital, in the study of economics, but conditions now are greatly changed. With production happening on a global scale, the impact of economic activity on natural capital must be considered. And the economies focused on in economics as it was formerly perceived were those of the leading industrial countries, where the social capital easily supported economic development, so economic analysis could be pursued without paying special attention to elements of this kind. America, in particular, formed its own individualistic brand of social capital, incorporating the Protestant morals of Western Europe, in an expansive new continent blessed with abundant natural capital. Indeed, it has implemented a radical neoclassical/liberal (or neo-liberal) economic experiment based on methodological individualism.

The countries that led the world were generally able to think of social capital as a free good, but it was America's good fortune to be able to ignore limitations on both natural and social capital even as it was developing its economy. America was also a society in which economics based on methodological individualism could be developed and forcefully applied (also in order to reject the diverse values of a multi-ethnic society). However, in recent years, the depletion and degradation of natural capital has become an undeniable fact. And America's individualism was created with the benefit of a special environment.

There are now doubts in methodological individualism-based economics. One of these doubts is that the hypothesis of infinite increase of total utility is no more appropriate even in developing countries, particularly in the analysis of environmental problems. And another important doubt has to do with the frequent failure of modern economics to justly deal with regions and nations that have developed in particular historical, social and cultural contexts. While environmental problems are global, they simultaneously have a very local character. It is, therefore, necessary to reconsider both natural and social capital from a moral perspective.

**Poverty and Resource Management in Regional Development—  
Policy Issues and Environmental Education:  
An Examination of Sabah State in Multiracial Malaysia**

Hideki Uehara

This paper studies the impact of globalization on developing countries and looks at environmental resource management issues that arise in conjunction with the process of development. In particular, I examine the problem of income differentials among the poverty-stricken and vulnerable sectors of society who have missed out on the benefits of economic progress, as well as the closely related issue of destruction of environmental resources, based on the example of the state of Sabah in Malaysia. While the central economic entities are in a position to enjoy the full benefits of globalization, the vast majority of rural and regional farming communities, by contrast, experience only the direct negative effects of globalization, and the resultant conditions of chronic poverty. In this paper, I look at strategies that are designed to promote economic development in farming communities, particularly those afflicted by poverty, while at the same time ensuring the conservation of environmental resources. I critically examine existing policies that attempt to address these problems, identifying the underlying systemic flaws and policy issues, and consider new approaches for resolving the problems.

In terms of the framework of analysis, I consider environmental degradation and the related issue of food security from two view points: the basic concept of environmental destruction rooted in poverty, and the systemic flaws generated by ignorance and lack of awareness on the part of government, particularly with respect to the value of environmental resources and the importance of ecosystems. This “ignorance and lack of awareness” is essentially attributable to a failure of markets in the sense that there is no market capable of illustrating the external economic value (externality) generated by forest resources and related ecosystems as environmental resources. Thus, I show that the issues can be considered in terms of not only “market failure” but also of “government failure” arising from inadequate systems and policies. Finally, I argue that environmental education designed to reduce this ignorance and lack of awareness is vital in order to better understand the connection between the role of environmental resources and the diversity of ecosystems.

## International Trade and Eco-Labeling

Nobuto Iwata

Eco-labeling in international trade is a means of providing end user information on the characteristics of goods (including food and industrial products) and services and the associated production processes and methods. The eco-labeling scheme is designed to promote environmental conservation in the originating country or region and throughout the world while also protecting the health and safety of consumers. It has the further benefit of helping to resolve the issue of asymmetric information<sup>1</sup>.

The main WTO agreements concerning labeling are the TBT Agreement on technical barriers to trade<sup>2</sup>, and the SPS Agreement on the application of food safety and plant quarantine measures (which applies to food and agricultural produce).

In terms of the two-country model (large and small) used in international economics, if the importing country is the larger and the exporting country is the smaller of the two, then the exporting country will try to maximize trade profits by conforming to the labeling standards and specifications of the importing country. On the other hand, if the importer is the smaller and the exporter is the larger of the two, then the labeling standards and specifications will not change. The market mechanism applies in both cases. Note that the compliance costs referred to by the WTO would be incurred only in the first case.

At present, the only eco-labeling requirement related to production processes and methods (the subject of the TBT Agreement) to have been agreed upon by the WTO member nations is that concerning Product-Related PPMs (PR-PPMs). Agreement has not yet been reached on requirements for Non-Product Related PPMs (NPR-PPMs)<sup>3</sup>.

The primary aim of this paper is to analyze complex relationships pertaining to eco-labeling such as those described above, and to identify the salient issues. This paper does not seek to recommend any given eco-labeling measures or propound theoretical conclusions.

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<sup>1</sup> Asymmetric information refers to the situation where purchasers are unable to distinguish between good and poor quality articles because product information known to the seller is not conveyed properly to purchasers; consequently, the better quality articles do not make it into the marketplace, producing a so-called "market for lemons."

<sup>2</sup> Articles 2, 3, 10, and 14 of the TBT Agreement.

<sup>3</sup> The WTO (CTE) has not even begun considering the question of whether, in the case of NPR-PPMs, if a producer country (country A) emits harmful substances that are considered likely to spread into a neighboring country (country B), a third country (country C) would be permitted to impose import restrictions on the offending goods from country A under the WTO rules.

## **Preservation of the Forest Environment in the Shirakami Mountain Range, a World Natural Heritage Site**

Sachiko Takahi

The Shirakami Mountain Range area is typical of the new beech forests that appeared in the East Asia region after the Ice Age. It is well known throughout the world as a beautifully preserved beech forest in virgin condition boasting a remarkable diversity of plant and animal life. This richly endowed forest has long provided the local populace with resources such as water, food, fuel, timber, and cribbing for mine tunnels. The Shirakami Mountain Range state forest is a cool temperate zone deciduous broad-leaved forest of primarily beech trees which are distributed from low down on the mountainsides almost up to the mountain summits, from altitudes of 100 meters to more than 1,200 meters. This area of around 65,000 hectares situated on the border between Aomori and Akita prefectures is recognized within Japan and around the world as an extremely valuable forest asset. On December 11, 1993, an area of nearly 17,000 hectares in the center of the Shirakami Mountain Range was formally registered as a World Natural Heritage site.

The prefectures of Aomori and Akita harbor two different schools of opinion regarding the value of the Shirakami Mountain Range as forest resources: one side argues that the natural forests represent an environmental asset and should be utilized as such (utilization value), while the other maintains that the forests still retain their value as environmental assets if unused (non-utilization value). Opinion is thus divided on the approach that should be given precedence in developing conservation strategies for the forest resources of the Shirakami Mountain Range.

An extensive area around the Shirakami Mountain Range, meanwhile, has been replaced with planted forests of cedar and other varieties following widespread harvesting of the original beech forests. Similarly, deforestation of riverhead beech forests has affected downstream river flows and reduced available water supplies for farming. Beech forest conservation strategies in upstream areas have been developed in an attempt to address these problems.

Thus, conservation and management strategies for the whole of the Shirakami Mountain Range area need to incorporate measures for the conservation of forest and water resources in surrounding regions.

## Ecology and the Economy

Kunitsugu Kosaka

It would surely be no exaggeration to say that the global environment issue represents the single largest problem faced by humankind today. It is both an ecological and an economic problem. It is interesting to note that the words “ecology” and “economy” are both derived from the Greek οἰκονόμος, meaning the protector of the house or the person responsible for managing the household. If economics was originally the science of household management, then ecology is the household management of living things. More precisely speaking, though, this approach inevitably throws up ethical and conduct issues, which means that the global environment issue is also an ethical problem of the relationship between humans and the environment we inhabit. Thus, global environmental studies should be concerned with the normative science of human behavior rather than the purely descriptive science of recording the phenomena of life.

Today’s economic system can be described quite simply as mass production, mass consumption, and mass wastage. Such a system is designed to promote economic progress at the expense of the earth’s precious resources while polluting the earth’s environment. It does not concord with the ideal of sustainable development or the principles of intergenerational ethics; it does not accord with the fundamental spirit of ecology, namely protection and preservation of the environment; and ultimately, it does not bring genuine wealth or satisfaction of our lives.

Hitherto we have viewed the world in terms of modern human-oriented Western ideology that seeks to dominate and exploit nature for human ends. But today’s global environmental problems have laid bare the limitations of this selfish and self-centered world view and demonstrated the need for a fundamental change in our attitude towards nature. In a word, we must change our sense of value from quantity to quality of life. Rather than seeking to dominate nature, we should be looking at ways to co-exist with nature. Now is the time we must start working to restore the links with nature that have been lost to us.

We must stop to reflect, frankly and openly, on the true meaning of wealth, and we must reconsider the way in which we should relate to nature.

## **High-Level Radioactive Waste and Ethics — Responsibilities to Future Generations**

Yasuharu Kosaka

Industrial waste accounts for some 80 percent of total waste output. Symbolic of the waste problem itself is the question of how to reconcile high-level radioactive waste from nuclear power stations with the environmental-ethical principle of our responsibilities to future generations. In this paper, I present a brief overview of nuclear power generation and high-level radioactive waste in Japan at present, including government strategies on waste and the diversity of opinions regarding these strategies, as well as legal judgments, the Jonas theory, and relevant papers from the United States. Next, I examine the way in which Japanese people perceive the environmental destruction wrought by past generations. I show how our generation is prepared to accept past environmental destruction in cases where it is considered unavoidable on technical and/or economic grounds, but that we also harbor considerable resentment towards the motives of previous generations when it comes to cases such as Minamata disease, where those perpetrating the environmental destruction were well aware of the outcomes. In other words, the value system of our generation holds that environmental destruction is allowable when every effort has been made to minimize the environmental impact, including the use of available technology.

Every era spawns a different set of values. It would be arrogant of us to try to predict the value systems of future generations. In this sense, then, we should be able to examine the question of high-level radioactive waste and our responsibility to future generations with reference to the ethical standards of our own time. Thus, with respect to the issue of high-level radioactive waste, all we can do is to make every effort to examine all the technical, political, and economic options available to us. Since to all intents and purposes high-level radioactive waste remains harmful for ever, it is difficult to maintain that disposal of such waste is unavoidable. While disposing of all waste immediately may be unfeasible, it is nevertheless appropriate from an ethical point of view to consider means of reducing waste as far as practicable.

## **Environmental Ethics as Social Ethics**

Yoshiyuki Mikoshiba

Ethics can be divided into personal ethics and social ethics. Personal ethics represent the subjective ethics of questioning oneself, while social ethics are the objective ethics enshrined in actual social systems. Environmental ethics and economics have traditionally been opposed to one another, economics arguing that ethics is powerless while ethics stressed the unethical nature of economic ideology. This contradiction stems from the conception of ethics as a purely personal phenomenon. In this paper, I conceptualize a different type of ethics, namely, social ethics. Citing the example of the Quality of the Environment in Japan 2000 (White Paper), I argue that economic techniques can be successfully incorporated into environmental ethics, which is a brand of social ethics. Thus, social policies that make use of economic incentives may run counter to personal ethics, but they do not compromise ethical basis inasmuch as they represent techniques within social ethics. Next, I illustrate an example of social ethics, citing the policies adopted by the city of Freiburg in the Federal Republic of Germany. Freiburg has developed social policies which enshrine the freedom of choice of its citizens by offering alternatives at every juncture. Finally, I argue that the ethical basis of social ethics is developed through public debate including criticism of the role of the individual in society. Overall, by placing social ethics on an entirely different plane to personal ethics, I demonstrate that it is possible to avoid the perception of powerlessness as an individual in the face of major issues such as global environmental problems, and further that ethical principles are not compromised by the introduction of economic incentives. In the process of so doing, I reverse the conventional notion (as espoused in business ethics) of ethics being a component of economics, demonstrating instead that economics is part of social ethics.



## **Private Enterprises and Non-State-owned Financial Institutions in China after Joining the WTO**

Yoshio Kojima

The international economic environment in which China finds itself after joining the WTO is undergoing major changes due to lower customs duties, a better climate for investment, and so on. Now that they are exposed to severe domestic and international competition, domestic enterprises in China, in particular many state-owned companies, are performing poorly and may go bankrupt. Finding new employment for people who have lost their jobs as companies downsized is also a serious problem. Private enterprises are the most promising source of new jobs for such individuals, and the government, in addition to erasing the distinction between domestic and foreign ownership, has even begun to allow privately-owned companies to operate in industries where state-owned companies previously had a monopoly. The government is now actively supporting private companies, most of which are small and medium-size enterprises, and is also promoting indirect financing for them. The impact of these measures is clear, judging from the growing number of private enterprises in 2002.

This was the year when private companies were allowed to operate in a greater range of industries. More private enterprises began doing business mainly in industries from which state-owned companies had withdrawn, partly because of stagnant growth in state revenues. Many areas of business previously monopolized by state-owned companies were opened to private companies in 2002, for example construction and management of expressways, construction and management of urban infrastructure facilities, the right to manage harbors and docks, mining rights for important mineral resources, investment by private companies in government-owned airline operations, and so on. Major changes also took place in the financial industry, previously closed to private-sector capital. In addition to already the existing China Minsheng Banking Corporation, the government now allows the establishment of financial institutions in which the majority of registered capital is private capital, for example the Minsheng Life Insurance Company in the life insurance sector, and the Minsheng Securities Company in the securities industry.

In 2003, China's economy will continue to grow strongly, and with private enterprises being allowed to operate in more areas of business, the number of privately-owned companies is sure to grow.

## **China's Transition Economy and WTO Membership**

Kazuma Egashira

China's shift to a market economy began in the mid-1980s. Its characteristics are most strongly manifested in the money flow, which is increasingly coming from financial institutions rather than the government. Under the former economic system, enterprises remitted profits directly to the government, which then redistributed funds. Today, the system is tax-based, with higher wages going into the household budget, households placing money in banks, and financial institutions lending funds. Naturally, this expanded and energized the market economy but the single-party state continues to exert strong control in government finances, including tax revenues and government bonds, and in building a safety net. This is state-led capitalism. After the Asian economic crisis, China took steps to stimulate its economy to ease government deficits. But on the whole, the economy became increasingly privatized, state-owned enterprises shifted to a joint-stock company structure, and in the coastal provinces, private companies were founded and prospered.

When medium and large state-owned enterprises became joint-stock companies in 1999, it was very important that they take measures similar to those used in Japan for disposing of non-performing loans. The rate of non-performing loans at China's four major banks was reported to be 25 percent of total loans extended, four times the rate of Japanese banks. The People's Bank of China later announced that its rate of non-performing loans to total loans was an even higher 29.78 percent. Investors are avoiding the stocks of government-owned companies. The rapid growth of China's economy in the past few years owes much to the growth of foreign trade and the introduction of foreign capital. This will most likely contribute to the growth of the non-publicly-owned economy. The government has been successful in attracting foreign investment. Although foreign direct investment and technology transfers have increased, these have been directed at the non-publicly-owned portion of the economy, in other words, private- or foreign-owned companies, resulting in the economy's transformation into a market economy consistent with international standards, to meet the conditions of WTO membership.

In his keynote report at the 16<sup>th</sup> National Congress of the Chinese Communist Party on November 8, 2002, Chinese President Jiang Zemin expounded on the theory of the primary stage of socialism and acknowledged the development of multiple types of ownership, with public ownership as the main element, but he emphasized that the party should remain faithful to "Three Represents" thought [according to which the Party represents the development trend of China's advanced social productive forces, the orientation of China's advanced culture, and the fundamental interests of the majority of the Chinese people – cf. Asahina]. Although China claims to be a socialist state based mainly

on a publicly-owned economy, the weight of the planned economy and state-owned enterprises is steadily declining. Market-led competition now predominates, and privately-owned companies are moving into more and more areas of the economy. It was only a matter of time before the Party had to face the issue of allowing entrepreneurs to join. The ideologies of Lenin and Stalin have lost vigor, and since China is not inherently a socialist country, authoritarianism prevails. Party executive members who wield power will become affluent bureaucrats, and the Party's ability to control a market economy system will be limited.

## **Technological Innovation in the Japanese Photo Industry in the 1970s and 1980s**

Yozo Yabe

In the early 1960s, the domestic market for cameras reached the saturation point, with the household penetration rate exceeding 50 percent. A number of companies went bankrupt and faded from the scene, but the Japanese camera manufacturing industry nevertheless continued to grow. By the early 1970s, it had surpassed West Germany and established a monopoly in world markets with its advanced optical and precision technology.

But although highly perfected cameras could be turned out in the production process, thanks to precision processing technology and a skilled labor force, the fact that the Japanese camera manufacturing industry was labor-intensive made it vulnerable as corporate profitability was easily affected by labor costs. In the 1970s, the industry underwent a prolonged slump and faced the need for structural reform. For example, sales of half-size and compact cameras dropped off after the 1970 Osaka World Exposition; export prices rose due to the ending of the fixed rate of 360 yen to the U.S. dollar in 1971 and subsequent yen appreciation; and cameras, film, photographic printing paper and other camera supplies become more expensive after the 1973-74 oil crisis.

As far as domestic and overseas markets were concerned, maturation of the market for cameras meant that without technological innovation, no new demand would be generated. And since demand tended to concentrate in areas where innovation had taken place, the market was characterized by rapid change.

Through the intermediary of new microelectronics technology from the latter half of the 1970s through the 1980s, the camera manufacturing industry began producing lighter cameras that incorporated electronic components and used new materials; through application of optical, precision engineering and electronic technology, the industry diversified into areas other than cameras; manufacturing processes were automated; and production of low profit margin compact cameras was shifted offshore to Southeast Asia. Changes were also made to the distribution process: in the domestic market, sales through wholesalers shifted to direct sales, and in foreign markets, sales subsidiaries were established in North America, Europe and Asia to replace the authorized dealer method.

This paper discusses product development and technological innovation in production processes, based on structural reforms in the camera manufacturing industry in the 1970s and 1980s.

## **Japanese Camera Quality Improvements and the Export Inspection Law**

Junichiro Takeuchi

The export inspection system is one of the reasons why Japanese cameras became high-quality products. The aim of this system was to maintain and improve the reputation of certain strategic exports designated by law by restricting export of products failing to meet certain quality standards.

Over the past 100 years, the Japanese government has imposed quality restrictions on strategic exports to prevent exportation of inferior products through laws such as the Raw Silk Conditioning Houses Law (1895-1911), the Export Control Law for Strategic Exports (1936-48), the Export Control Law (1936-48), and the Export Inspection Law (1948-1997).

After World War II, Japanese cameras rapidly became an export industry, but the first cameras were considered imitations or of poor quality. Later, however, Japanese cameras, surpassed the German cameras upon which they were originally modeled, not only in export volume and value, but also in terms of quality, as substantiated by Japanese export inspection figures and product ratings by the Consumers Union of the United States. Figures show that Japanese cameras had overtaken German cameras in terms of production in 1962, exports in 1967, and quality in 1976.

This paper will describe how the Japanese camera industry incorporated electronics and mechanical and optical engineering to establish product development and volume production methods, and developed overseas sales networks for broadening sales channels and providing after-sales service, and how Japanese camera manufacturers set up direct sales systems in Europe, North America, and Asia.

The achievements of the industry were due primarily to the unstinting efforts of Japanese camera and lens makers to improve their products, and the Japanese government (and the Japan Camera and Optical Instruments Inspection and Testing Institute (JCII)) policies for export promotion. The complementary relationship between the two was responsible for winning over camera users and dealers all over the world during the years from the immediate postwar period to the 1970s.

## **Changes in Industrial Structure and Organization in the 1990s**

Tadakazu Miyake

Through its vulnerability to the effects of the prolonged recession and economic stagnation, the Japanese economy during the 1990s gradually lost various economic characteristics that had developed over the post-war period. Consequently, industrial structure and organization underwent tremendous change during the 1990s. This paper examines the historical characteristics of changes in industrial structure in the 1990s and, based on statistical data, clarifies changes in industrial structure and organization during that decade.

Examined from a historical perspective, the changes in industrial structure that occurred during the 1990s have the following characteristics: (i) Industrial production decreased, particularly in the manufacturing industry, leading to the stagnation and deterioration of the Japanese economy. (ii) Industrial leadership shifted from manufacturing to finance and telecommunications. (iii) The “full-set” industrial structure, which had been created in Japan’s post-war economy as part of government policy, changed to a structure of international specialization. (iv) International mega-competition, together with market fundamentalism and the efficiency principle in the form of American “global standards,” forced changes in industrial structure and led to rapid industrial reorganization, the outcomes of which included major bankruptcies, mergers, and alliances. (v) Japanese production systems and employment practices that supported the expansion of Japan’s postwar economy deteriorated. (vi) The international reputation of Japanese industry declined.

This paper examines changes such as these in industrial structure and organization, with particular focus on the manufacturing sector, through analysis of the relationship between the number of workers and shipment value in each industry. Industrial organization is examined through situational analysis of the six largest industrial groups and the problems involved in the formation of mergers and alliances between industrial groups. Finally, the paper examines whether monopolistic market power strengthened or weakened during the 1990s with regard to the relationship between industrial growth and market share.