Trade-Environment Issues and Korea's Alternatives

Edited by
Taek-Whan Han

KOREA INSTITUTE FOR
INTERNATIONAL ECONOMIC POLICY
KOREA ENVIRONMENTAL TECHNOLOGY RESEARCH INSTITUTE
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FOREWORD

The Rio Declaration and Agenda 21 adopted in 1992 identified the issues to be addressed by countries and international institutions in the area of environmental protection. Subsequently, the Commission on Sustainable Development was established to monitor the performances of those countries and international institutions. The essential elements of the measures to address the global environmental problems include: the deepening and widening of the public’s understanding of the issue; capacity building; the financial mechanism; and technology transfer.

Countries also share the view that the harmonization of policies concerning trade and the environment is necessary to attain sustainable development. The international community, including international institutions such as GATT, UNCTAD, UNEP, OECD and CSD, are examining the relationship between trade and the environment. In particular with the Uruguay Round finally reaching a conclusion, the Subcommittee on Trade and Environment has already started discussions to prepare the framework of negotiations under the World Trade Organization.

This issue is complicated and difficult because of the diversity of individual countries’ viewpoints, methods of approach, and specific interests on the issue of trade and the environment. In particular, the views of the Congress and environmentalist groups in the U.S., of the trade experts including the GATT secretariat, and of developing countries such as China and India, are distinctly divergent. Closing the gaps between the differing views will be a high priority task during future discussions and negotiations. Korea, as an outward oriented economy, is deeply concerned with the discussions on this issue.

It was in this light that the Korea Institute for International Economic Policy (KIEP) co-hosted the international seminar with the Korea Environmental Technology Research Institute on “Trade-Environment Issues and Korea’s Alternatives,” on April 25, 1994. Three foreign
speakers discussed the issue of trade and the environment with special emphasis on the views of the three groups I mentioned. Two Korean speakers discussed the domestic and international aspects of the issue from Korea's perspective. In the roundtable discussion, there were lively exchanges of views and thoughts among the discussants, speakers, and other participants. I believe their presentations and subsequent discussions will be a valuable input to the policy formation of the Korean government and to the strategy of the private sector.

These proceedings are a collection of papers and discussions presented by the speakers and discussants and other participants in the seminar. I would like to express my gratitude and appreciation to the participants. I also express my thanks to Dr. Il-Chyun Kwak and Dr. Tack-Whan Han for their dedication to the successful organization of this seminar.

Seoul, 1994

Jang-Hee Yoo
President
Korea Institute for
International Economic Policy
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Trade, Environmental Issues, and Asian-Pacific Economic Growth

Kym Anderson*

Widespread public interest in environmental issues first surfaced in Western countries in the late 1960s/early 1970s. At that time concern focused mainly on industrial pollution within and between neighbouring advanced economies. The foreign trade and investment issues raised at that time were confined mainly to the concern of industrial capitalists and workers in rich countries that the imposition of stricter pollution standards at home than abroad would lower their international competitiveness, from which they sought protection.¹

Following a lull in interest brought on by the economic disruptions of the 1973–82 oil-shock period, the current wave of public concern for the natural environment, leading up to and following the United Nations Conference on Environment and Development held in Brazil in June 1992, is much more intense, more widespread, and likely to be sustained and to affect a much broader range of countries than was the case in the 1970s — and not least through its effects on foreign trade and investment.

This phenomenon is worthy of the attention of those concerned with trade policies affecting Asia-Pacific countries not only because environmentalism has already become a non-trivial influence on policy within their economies but also because, like regionalism, environmentalism poses a threat to the liberal multilateral trading system — and that is something on which the future of small open economies like Korea’s

* University of Adelaide, Australia.
1) See, for example, Baumol(1971), GATT(1971), Siebert(1974) and Walter(1975, 1976). Such protection from import competition is not warranted on economic efficiency grounds, because the environmental policy is aiming to eliminate an unjustifiable(implicit) subsidy rather than add an unjustifiable tax(Snape 1992).
(and Asia-Pacific dynamism generally) depends heavily.

This paper seeks to address four sets of questions concerning this development. First, in what ways and why are environmental issues having a more pervasive influence on public policy? Second, how is this greater impact of the natural environment on policy going to affect trade specialization in various groups of countries as the world economy grows over time? Third, what impact will new trade liberalization initiatives have on the environment? And fourth, what are the implications for Asia-Pacific countries, and Korea in particular, and how might they respond to these changes?

While the greening of world politics has the potential to boost Pacific and global welfare broadly defined (although the gains will not be spread evenly and some communities could be made worse off), the paper concludes that there is a considerable risk that the policies adopted in response to environmental concerns will be so far from first-best as to worsen welfare in many countries through eroding the global trading system. And in the process they may even to add to, rather than reduce, environmental degradation.

1. **Why environmental issues are becoming more pervasive**

The list of environmental concerns has grown rapidly in recent years, and it has taken on more of a global orientation. Air, water, soil and visual pollution at the local or national level is increasingly being seen as emanating from the production or consumption of not only industrial goods but also primary and service sector products. Some of that pollution is believed to be also damaging the environment on a global scale, for example through climate change and ozone depletion. Hence people are worried by the use of CFCs and the emission of CO$_2$, etc. not just at home but also abroad, particularly as economic growth and industrialization spread to poorer countries with laxer environmental policies. Likewise, more and more people are concerned about deforestation, species extinction and animal rights at the global level, regardless of national boundaries. And ongoing integration of the world economy brings with it concerns for consumers about the safety of imported products. Since personal values play an important role in international
debates on these issues, the scope for friction between countries is considerable.

Fluctuate though it might with the business cycle, this heightened concern for the environment and for product safety is likely to keep growing. One reason is that, even though uncertainties remain, the scientific basis for many of these concerns is perceived to be more solid now than was the case twenty years ago. Another is that the world’s population and real per capita income have each increased by about 40 per cent since 1970 and the annual volume of output and consumption has doubled. These increases are adding continually to the demand for the goods and services provided by the natural environment (including essentials for human health such as clean air, potable water, filtered sunlight and natural medicines; raw materials; the capacity to absorb wastes; and aesthetic and recreational services such as those obtained from visiting or even just knowing of the existence of unspoilt wilderness areas with a diverse abundance of plant and animal species).

Unfortunately, the supply of these environmental goods and services is not unlimited, and markets for many of nature’s services are incomplete or absent. Markets are under-developed because of disputed, ambiguous or non-existent property rights, or because of the high cost of enforcing those rights.

It is true that the more advanced economies have established institutional structures to help handle the tasks of arriving at a social consensus on what are appropriate environmental policies for that society, of allocating property rights, and of enforcing policies. The same is true in some traditional societies before they begin to ‘modernize’. But the creation of appropriate new institutions is often slow in ‘modernizing’ poor economies where population and consumption growth will be

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2) This does not apply equally to all environmental resources of course. The doomsdayers such as Meadows et al., (1972) have been proved spectacularly wrong in predicting the exhaustion of minerals and energy raw materials, for example, because they have failed to take into account economic feedback mechanisms. Beckerman (1992) and Crowson (1992) note that the cumulative world consumption of many minerals during the past quarter century exceeded 'known reserves' at the beginning of the period and yet today's revised 'known reserves' exceed those of twenty five years ago!
concentrated for the foreseeable future (notably China); and they are largely absent at the international level where cooperation among sovereign governments is required for efficient solutions. Hence the growing interest in rich countries — particularly on the part of proposers and drafters of international environmental agreements — in using one of the few instruments currently available to them, namely trade policies, to influence environmental outcomes in other countries.

Already we have seen the use of trade provisions on affected products (e.g., in the Montreal Protocol on CFCs), but as well there are proposals to use trade sanctions on unrelated products in the hope of persuading poorer countries to adopt stricter environmental policies (e.g., threats to provide less access to textile and other markets of industrial countries unless logging is curtailed). 3)

2. The relationship between economic growth, environment, trade and welfare

The standard theory of changing comparative advantages in a growing world economy, which has been developed without consideration of environmental concerns, can readily be modified to incorporate at least some of those concerns. As espoused by Krueger (1977) and Leamer (1987), this theory suggests that when a poor country opens up to international trade, its exports initially will be specialized in primary products. This is because its stocks of man-made capital relative to natural resources are comparatively low. Should those non-natural capital stocks per worker expand more for this country than globally, the country’s comparative advantage will gradually shift from primary products to manufactures and services (except for those primary products in which competitiveness is retained through the development of new technologies involving sufficient factor intensity reversals).

As Korea, Taiwan and Hong Kong have shown, this shift will begin at an earlier stage of economic development, and the non-primary

3) This is not unlike the US using the threat of withdrawal of MFN trade privileges for Chinese goods unless China improves its human rights situation as perceived by the United States.
exports will tend to be more intensive in the use of unskilled labour, the more natural resource-poor or densely populated the country. Should the country continue to expand its stock of man-made capital per worker relatively rapidly (as Korea has done), its exports will tend to become steadily more capital intensive over time. In the case of manufactures not subject to factor intensity reversals, this process then leaves room in international markets for later-industrializing countries (e.g., Thailand and China recently and Vietnam prospectively) to follow suit in exporting their way out of poverty.

With the help of the Leamer triangle depicted in Figure 1, that theory can provide a rough idea of different countries’ comparative advantages as of 1991. The triangle illustrates countries’ relative endowments of three factors, denoted N for natural resources, L for labour time and C for man-made capital (human, physical, knowledge, etc.). Proxies used here to represent the natural resources to labour ratio and the capital to labour ratio are land area per capita and gross domestic product per capita. (Crude though these proxies are, more sophisticated indexes are unlikely to change greatly the relative positions of the country groups shown in Figure 1.) These ratios are measured in log terms along the NL and LC sides of the triangle, respectively, the mid-point of each being the world average which is taken as the numeraire. Thus point W represents the global average endowment of all three factors. Countries located in space WAN — which includes Africa and Latin America — have below (above) average per worker endowments of man-made capital (natural resources), and so would have a comparative advantage in primary products and a comparative disadvantage in skill-intensive manufactures and services, and conversely for Western Europe and Japan which are located in the WBC space. Korea is located mid-way across the bottom of the triangle and Taiwan somewhat closer to C.

If national boundaries were such that there were no international environmental spillovers, this story need be complicated only slightly. The complication required is simply to allow for the fact that as the country’s per capita income and industrial output grow, the value its citizens place on the environment increases and with it their demands for the implementation of costly domestic pollution abatement policies — at least after certain threshold levels of income and/or pollution are
reached. Beyond those threshold points the severity of such abatement policies is likely to be positively correlated with per capita income (as depicted in Figure 2), with population density, and with the degree of urbanization.\textsuperscript{4} If all economies were growing equally rapidly, the progressive introduction of national environmental policies would tend to cause pollution-intensive production processes to gradually relocate from richer and/or more densely populated countries to poorer and/or more sparsely populated countries.\textsuperscript{5} They would also slow or reverse the growth in demand for products whose consumption is pollutive, and more so in rich and/or densely populated countries. If more-advanced economies are net importers (net exporters) of products whose production (consumption) is pollutive, these countries' optimal environmental policies would worsen their terms of trade to the benefit of poorer economies, and vice versa (Siebert et al, 1980: Anderson 1992a). Thus even countries without (or with unchanged) environmental policies will be affected through trade and investment by the development of environmental policies in other countries.

Given that the natural environment is part of the stock of natural resources, that it provides services that are valued increasingly as incomes rise, and that national environmental policies may need to be introduced to ensure the optimal use of the services of the environment, then a country's comparative advantage will be affected also by the distribution of environmental resources globally and the pattern of environmental policy interventions.\textsuperscript{6} In terms of Figure 1, this amendment is easy to accommodate if there are no international environmental

\textsuperscript{4} Three recent papers reporting evidence in support of the claim that the demand for implementing and enforcing pollution abatement policies is income-elastic are Grossman and Krueger (1991), Radetzki (1992), and Grossman (1994). See also Deacon and Shapiro (1975) on the correlation between income levels and voter attitudes toward environmental priorities.

\textsuperscript{5} The term 'pollution-intensive production processes' should be broadly interpreted to include activities such as mining in pristine areas or leisure services that may attract undesired local or international tourists.

\textsuperscript{6} This inclusion of environmental policies as a determinant of comparative advantage is in the spirit of Clarida and Findlay's (1992) analysis of trade in which the government plays an active and potentially positive (rather than inactive or negative) role in development.
spillovers, given the proxies used to measure N, L, and C, namely, land area, population and GDP: the closer are countries located to point N and the further away they are from point C in the Leamer triangle, the weaker will be their density of economic activity (GDP per hectare) so the stronger will tend to be their comparative advantage in goods and services whose production is pollutive, ceteris paribus.7)

The story becomes more complicated, however, when account is taken of policy reactions to international environmental problems such as the global commons, species depletion or animal rights. The ban by the Convention on International Trade in Endangered Species (CITES) on ivory trade provides an extreme example: the strong comparative advantage that southern African nations had in elephant products virtually disappeared when the ban was introduced in 1989. Another example is the proposed limitation on imports into high-income countries of tropical hardwoods, the aim of which is to discourage deforestation. This too would reduce export growth and specialization in those products by developing countries still well endowed with hardwood forests (while improving the terms of trade of net importers of hardwood such as Korea). A third example is the Montreal Protocol on phasing out the use of CFCs and halons which, through trade provisions, effectively limits both the relocation from signatory to non-signatory countries of industries producing or using CFCs, as well as encouraging non-signatories to accede to the Protocol.8) And there is the infamous tuna example, involving the United States' ban not only on the use of dolphin-unfriendly nets by its own tuna fishermen but also on the

7) The extent of international relocation of productive activities due to the enforcement of environmental standards should not be exaggerated, however. Recent studies suggest the effect of such policies on comparative costs may be quite minor. See, for example, Leonard (1988) and Low (1992). As well, Tobey (1990) finds little evidence of actual changes in patterns of trade specialization in response to the imposition of environmental regulations since the 1960s. However, as noted by Leidy and Hoekman (1993), the absence of changes in trade patterns may simply be because import barriers were raised to offset any decline in competitiveness in affected industries.

8) For details of the Montreal Protocol see, for example, Benedick (1991) and Enders and Porges (1992). A list of the other major international environmental agreements with trade provisions is provided in GATT (1992, Appendix 1).
importation of tuna which US authorities deem to have been caught in
dolphin-unfriendly nets. The domestic US ban alone would have boost-
ed Mexico’s comparative advantage in tuna fishing, but the subsequent
US ban on tuna imports instead reduced it.

In the latter two examples especially, the motive for trade policy
action is a mixture of national competitiveness concerns and a concern in
rich countries (typically not shared to the same extent by poorer
countries) for the global commons. The clear conflict of interest be-
tween the two groups of countries, and the fact that trade measures are
being used to achieve the first group’s environmental objectives, in-
crease the likelihood of trade disputes between the two parties. And
these are but minor examples of a large and rapidly growing number of
international environmental issues on which countries will have dif-
ferent views.\footnote{9}

This increasing use of trade measures to address environmental issues
should concern the world at large, and Korea and other dynamic Asian
economies in particular, for at least three reasons. First, trade policy
measures typically will not be the first-best instruments for achieving
environmental objectives. Their use in place of more-efficient instru-
ments thus reduces unnecessarily the level and growth of global econom-
ic welfare as conventionally measured, and may even add to rather than
reduce global environmental degradation.\footnote{10} Despite this, producer in-

\footnote{9) For a discussion of other environmentally related trade measures in use or under
consideration, see GATT (1992, Part III).
\footnote{10) The ban on ivory trade again provides a case in point. By lowering the value of
elephant products, the ban reduces the incentive for rural Africans to tolerate
elephants trampling their crops and so ultimately could result in fewer rather than
more elephants in some areas. In other areas, the value of the animal has fallen so
much that it is no longer profitable to cull the herd. An unfortunate consequence is
that bushland in national parks is being decimated by the increased number of
elephants, which is of course endangering other species.

Even the threat of trade restrictions can be environmentally counterproductive.
The talk of European import bans on tropical hardwood logs has encouraged
Indonesia to ban log exports. But since felling has been allowed to continue, this
policy has lowered the domestic price of logs and thereby raised effective assistance
to Indonesia’s furniture and other timber-using industries to extremely high levels
(GATT 1991, p.127). At that lower timber price it is not surprising that less of
each tree is now used.}
terest groups and some environmental groups are finding it mutually advantageous to use environmental arguments to support claims for import restrictions, particularly when stricter environmental standards are imposed on domestic producers.\(^\text{11}\) The second concern, then, is that the environment will provide a convenient excuse to raise trade barriers. And third, should this lead to an escalation in trade disputes, it could be followed by retaliatory and counter-retaliatory action, the end result of which would be an undermining of the global trading system on which Asian-Pacific dynamism depends.

But there is also another important sense in which environmentalism is putting at risk the global trading system. It is closely related to the second concern mentioned above, and has to do with the claim by some environmental groups\(^\text{12}\) that liberalizing trade will harm the environment. It is to that which we now turn.

3. Effects of trade liberalization on the environment

The actual trade patterns of countries have been affected not only by the determinants of comparative advantage discussed above but also by the pattern of distortionary policies introduced by national governments. A distinctive feature of that global pattern of distortions is that poor countries have tended to discriminate against their primary and labour-intensive export manufacturing sectors in which they have a comparative advantage and to favour their import-competing industrial sector, while in advanced economies those industries losing comparative advantage that are significant employers (agriculture, coal mining, textiles, cars) are the ones assisted most, especially via protection from import competition.

Economic policy reform, and particularly trade liberalization, would lead to (a) higher incomes in both sets of countries and (b) an international relocation of production and consumption. Both of these effects worry some environmentalists. With respect to higher incomes,

\(^{11}\) See the discussion in Hillman and Ursprung (1992) and Hoekman and Leidy (1992a), as well as the empirical evidence analysed by VanGrasstek (1992) of voting behaviour of U.S. senators.

\(^{12}\) See, for example, Shrybman (1990), Ritchie (1990) and Arden-Clarke (1991).
they simply assume that there will be greater demands on the environment due to increased spending. This ignores the fact that income growth also brings with it at least three pertinent changes in behaviour patterns.

The first one, already alluded to above, is that as economies open up and incomes rise, more stringent environmental policies are put in place. This is partly because the demand for such policies has a high income elasticity after middle-income status has been attained. At the same time, more resources are available to spend on improving the environment. As well, the political cost of supplying such policies falls with the opening up of the economy to trade and investment. It falls because liberalization expands the opportunities to acquire more environmentally benign production processes and consumer products and thereby lowers the cost of (and hence the opposition to) implementing stricter standards.

Secondly, higher incomes in poor countries inevitably lead in time to lower population growth rates. This, along with the increased employment opportunities resulting from trade liberalization, is likely to have a major effect in reducing the rate of environmental degradation due to population pressures in developing countries. In rural areas it means fewer people denuding hillsides to eke out a subsistence income, while in urban areas it means fewer squatters in shanty towns with poor sanitation and water (World Bank 1992).

And thirdly, the increase in the value of poor people's time in developing countries will raise the relative price of wood and charcoal as sources of household fuel. Since four fifths of the timber harvested in developing countries is used as household fuel, this alone could have a major beneficial impact in reducing deforestation and CO$_2$ levels.

But, in addition to not appreciating these behavioural changes, environmentalists are often misguided also in terms of the environmental impact of trade liberalization through its effects on the international location of production and consumption. Two of the world's most distorted commodity markets are those for coal and food: both tend to be priced well above international levels in advanced economies and well below them in developing countries (particularly the former centrally planned economies). Yet it is not difficult to demonstrate that
liberalizing trade in these commodity markets is more likely to improve than to worsen the global environment. Consider the case of coal, the burning of which damages the environment.

An illustration: the case of coal

Coal, which supplies nearly one-third of the world’s energy, is a major contributor to local and international environmental problems, including global warming and acid rain. Since liberalizing trade in a commodity typically leads to an expansion in its global consumption, one might expect coal to be an example where trade reform would worsen the environment. But in fact this need not be the case. On the contrary, provided domestic taxes on coal consumption are introduced or adjusted to ensure the coal price to consumers does not fall when trade is liberalized, both economic welfare and the environment would improve.

Coal import restrictions imposed by numerous industrial economics, together with their subsidies to domestic coal mining, ensure that industrial countries as a group (which account for one-third of global coal consumption) import less coal than they would if their markets were unrestricted. This has depressed the international price of coal (and hence of other energy sources). If those domestic producer subsidies and import restrictions were to be replaced by a tax on coal consumption which kept the consumer price in those industrial countries at its present level, coal production would decrease and imports would rise but consumption and hence domestically generated pollution from coal use would remain unchanged. Moreover, greater demand by those countries for coal imports would raise the international price of

13) This section draws on Anderson (1992b). The food case is examined in Anderson (1992c). Another important case of particular importance to East Asia, but which has been studied less, concerns trade in logs and timber products (see GATT 1992, p.38, Box 6).

14) Data from Steenblik and Wigley (1990) and Jolly et al. (1990) suggest that the combined effect of import protection and direct producer subsidies was to cause the domestic producer price of coal to be above border prices in 1986 by about 100 per cent in the United Kingdom, 240 per cent in West Germany and 290 per cent in Japan.
coal (and other energy sources), thereby reducing energy consumption and hence pollution in the rest of the world.

While industrial country reform alone would lower global pollution, it represents only half the story. This is because coal is priced at only a small fraction of the international price in many developing and former centrally planned economies (the latter accounting for about half the world’s coal consumption). Should these countries reform their coal markets their domestic prices would rise substantially, leading to less coal being burnt and hence less pollution from these countries. While the increase in their exports would depress the international coal price, more or less offsetting the increase that would result from liberalization by industrial economies, this would not cause pollution in other countries to rise so long as the latter’s tax on coal consumption was adjusted so as to prevent their domestic consumer price from falling below the pre-reform level.

Hence coal trade liberalization in poorer countries — especially the former centrally planned economies — could add substantially to the positive global environmental effects of liberalization in advanced industrial economies (not to mention the beneficial effects it would have on acid rain and on visual pollution in downwind neighbouring countries, as Korea is all-too-well aware of with China so close). And since such reform would at the same time add to economic welfare as conventionally defined, for the usual gains-from-trade reasons, it contrasts marked-

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15) According to data published by the International Energy Agency (1992), during 1988–90 the domestic price of steaming coal used for energy, as a proportion of the West European import price, was 15 per cent in Czechoslovakia, 20 per cent in Poland, 32 per cent in Hungary and 27 per cent in India. Prices in the former Soviet Union may have been even lower, especially when valued at the shadow exchange rate. Prices for steaming coal in China vary a lot by region, but even at the overvalued official exchange rate the Plan prices (which apply to about two thirds of all coal) were well below half the US export price in 1989 (Albouy 1991, p.5). Burniaux et al. (1992, p. 55) suggest the user price of coal in 1985 averaged less than 55 per cent of border prices in all of Eastern Europe, the former Soviet Union, China and India.

16) In fact the welfare gains would be even greater than the above single-commodity, partial-equilibrium analysis suggests. This is because there are substantial opportunities for substitution in consumption among coals of different quality (in terms of their pollutiveness) and between coal and cleaner fuels.
ly with the various proposals to reduce global warming by imposing carbon taxes globally — proposals on which international agreement in any case would be extremely difficult to reach.\(^{17}\)

**Global versus regional trade liberalization**

The above discussion provides but a case study of global trade liberalization and it cannot be inferred that global liberalization of trade in other goods and services, of the sort negotiated as part of the Uruguay Round, would necessarily be beneficial for the environment, ceteris paribus. But what we do know from economic theory is that, in the absence of other distortions or market failures, radial reductions in all trade barriers will improve welfare as conventionally measured (Hatta 1977). Indeed, *so long as optimal environmental policies are in place*\(^{18}\), welfare will improve even after taking into account any adverse effects of liberalization on the environment (Anderson 1992a).

Can the same be said about regional integration arrangements such as the NAFTA or the EC’s 1992 single market program and its evolving accords with EFTA and the reforming economies of Central and Eastern Europe? The global economic welfare effects (not counting the effects on the environment) are less clear-cut than with global trade liberalization because trade diversion may offset trade creation following regional agreements, and the environmental effects are even less certain because, in addition to the usual impact of production relocation and changes in relative prices faced by consumers, the regional agreements typically will have explicit or implicit provisions for harmonizing environmental laws to some extent.\(^{19}\) On the one hand, one might expect

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17) Evaluations of the costs and distributional consequences across countries of such proposals can be found, for example, in Nordhaus (1991), Burniaux et al. (1992), Cline (1992) and Winters (1992). The Burniaux et al. study models the effects of reducing carbon emissions both with and without current energy user price taxes/subsidies in place. The results — consistent with the above conclusion — show that the level of emissions by the year 2050 would be 20 per cent lower if present distortions in energy user prices were to be removed.

18) This is of course a non-trivial proviso, and more so the more an environmental problem spills over to other countries or involves the global commons.

19) Harmonization provisions such as minimum standards tend to be written into
standards to become stricter when new members have higher standards than existing members (EFTA versus EC-12). On the other hand, environmentalists fear that standards may be harmonized downwards when a bloc admits members with lower standards (Mexico versus the United States and Canada; Eastern versus Western Europe). The latter risk is small for the cases mentioned, however, given the relative political strengths of the existing and joining countries. In those cases, then, the effect on the environment of creating or expanding a regional bloc is likely to be positive for the same sorts of reasons (and with the same provisos) as they are for global trade liberalization.

There are two differences between regional and global trade liberalizations that may be of some significance, however. The first is that if regional liberalizations become a substitute for global liberalizations, then to the extent that they apply only to a subset of the world economy they will boost global income less and thus cause less greening of world politics (for the reasons mentioned above at the beginning of Section 3). And the other is that comparative advantages will change differently if the regionalism route is adopted instead of multilateralism. Specifically, suppose Mexico or Eastern Europe were to adopt environmental policies much closer to those of the US or EC than other middle-income countries. Then the former’s competitiveness in pollution-intensive industries would tend to be lowered to some extent, to the benefit of otherwise similar economies outside those blocs — unless those blocs, as a consequence of enlargement, become sufficiently more powerful in imposing their standards on other countries.

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20) Such adjustments can happen even without changes in environmental laws in the poorer new members of a bloc. For example, the lowering of trade barriers may result in some producer and consumer equipment from the richer countries being more competitive and less pollutive than local substitutes. An obvious case in point is second-hand cars which have catalytic converters moving south from the U.S. or cast from Germany.
4. Implications for Asian-Pacific countries

This paper has sought to clarify a number of points concerning the nature and some of the trade effects of the greening of world politics. The first point is that the current wave of concern for the environment is much more intense, more widespread, and likely to be sustained and to affect a much broader range of countries than was the first wave around the early 1970s. This is partly because more is now known about the nature and the considerable extent to which we are degrading the natural environment. But the demand for many of nature’s services is increasing also because of rapid population and income growth. The growth in the supply of environmental services, by contrast, is limited by their non-renewability and/or by incomplete markets for them, particularly in poorer economies and at the global level where cheap-rider problems are especially acute.

Second, because of genuine national differences in the demand for and supply of services from nature, countries will necessarily have different optimal environmental policies. In cases where there are no international environmental spillovers, attempts to harmonize domestic environmental policies across countries will be costly because they deny the existence of one of the determinants of comparative advantage. But it is necessary also to acknowledge that some environmental problems do spill over to neighbouring countries and the global commons, both physically (acid rain, ozone depletion, global warming) and psychologically (species depletion, deforestation, animal rights). Since countries will differ also in their financial capacity and preparedness to reduce the overseas environmental impacts of their activities, the scope for friction between countries, brought about by this challenge to national sovereignty, is considerable. It is especially great when there are interactive environmental problems, as with global warming and deforestation: poor countries see global warming as caused by rich countries’ earlier deforestation and continuing high levels of carbon emissions, while rich countries see tropical deforestation as reducing the world’s capacity to absorb more carbon emissions as well as reducing its stocks of plant and animal species and of pristine wilderness areas. Since rich countries can better afford to worry about these problems, poor countries feel
their citizens should be paid to contribute to rich-country welfare through curtailing tropical deforestation activities.

Third, one of the few ways in which countries with a preference for strict environmental standards can influence the environmental policies of other countries is via trade measures. This should worry Asian-Pacific countries, partly because trade instruments are almost never going to be first-best policies for achieving global environmental objectives (their stick and/or carrot role in international environmental agreements being the main potential exception), and also because they are open to abuse by traditional protectionist groups seeking covert government assistance. They are thus likely to cause trade disputes and retaliation, which could ultimately undermine the global trading system on which Asian-Pacific dynamism depends, and that system is further undermined by the misinformation being circulated by some environmentalist groups in rich countries concerning the effects that multilateral and regional trade liberalization would have on the global environment.

How might individuals and governments of Asian countries respond to these developments? Opportunities, as well as challenges, present themselves. The main opportunities involve altering domestic production and consumption in response to changes in the terms of trade brought about by changes in other countries' environmental policies and preferences. As well as the traditional smokestack industries, this could affect service industries (e.g., promoting eco-tourism exports), primary sectors (e.g., marketing food exports as being relatively low in chemical additives), and high-tech activities (e.g., exporting anti-pollution equipment). But in addition there is the opportunity simply to set an example within the Asian-Pacific region by not using trade measures for environmental purposes (e.g., adopting dolphin-friendly labelling provisions for tuna cans or monitoring the nets used, instead of banning imports of Mexican tuna into the United States; or limiting production rather than exports of logs from ASEAN), and by giving higher priority to liberalizing trade in cases where it would have the additional benefit of reducing local, regional and global pollution (e.g., freeing more of the market for coal in China, perhaps in return for greater access to developed country markets for light manufactures).
The challenges that present themselves include minimizing not only the extent to which individual countries use the environment as an excuse to raise import barriers but also the tendency for this trend (toward greater use of trade measures for environmental purposes even though they are far from first-best) to erode the global trading system. The GATT process itself offers one obvious channel whereby contracting parties could notify and ask the World Trade Organisation (once it replaces the GATT Secretariat, hopefully next January) to monitor trade-related environmental measures (probably soon to take on the acronym TREMs in GATT-speak!). Another obvious channel is during negotiations leading directly to international environmental agreements. And a third is through the APEC process. Given the wide range but small number of economies represented in APEC, it may well prove to be a valuable forum for exploring this issue further before it is taken up more comprehensively by the WTO. A critical examination of the environmental side-agreement in the NAFTA would be a good starting point for APEC.
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The distance along NL from N measures the population density as a ratio of the world average (0.40 people per hectare of land). The distance along LC from L measures gross national product per capita as a ratio of the world average ($4040). Both scales are in logs. Along any ray from C to the NL line the population density is constant, and similarly for rays from the other two corners of the triangle, W is the world’s endowment point. Countries are represented as follows: ANZ Australia and New Zealand; CE Czech, Hungary, Poland, Slovakia; CH China; EE Albania, Bulgaria, Romania, Yugoslavia; JA Japan; LA Latin America excluding Mexico; NA North America including Mexico; NIE Hong Kong, Singapore, South Korea, Taiwan; NME North Africa and Middle East; OCA Cambodia, Laos, Mongolia, Myanmar, North Korea, Vietnam; OEA Brunei, Indonesia, Philippines, Malaysia, Thailand, Pacific islands; RU Russia; SA South Asia; SC Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan; SSA Sub-Saharan Africa; TU Turkey, Cyprus, Malta; WE Western Europe; WC Belarus, Estonia, Latvia, Lithuania, Moldova Ukraine.

〈Figure 2〉 The environmental transition

Environmental damage per person

Income per person

Pollution if no abatement Policies

Pollution with abatement policies
Trade and Environment in U.S. Politics and Policy: Implications for the Korean Economy

Gareth Porter*

The use of unilateral trade measures for environmental purposes is rapidly becoming a central issue in the politics of trade and environment. Two variants of this issue figure in the debate. The first is the use of unilateral trade measures to influence the policies of other countries toward an environmental issue involving the "global commons" or natural resources that are considered to be of global importance, such as tropical forests and biodiversity. The second is the use of unilateral trade measures to influence other countries' domestic environmental standards for competitiveness reasons.

The United States has been at the center of the newly emerging set of trade and environment issues because of its unique market power and its willingness to use unilateral trade measures for both environmental and economic objectives. The U.S. Congress, influenced primarily by economic rather than environmental interests, has been deeply involved in trade policy and will certainly play a major role in U.S. policy toward trade and environment in the next few years. And environmental organizations in the United States have put trade and environment issues on the agenda of U.S. trade policy. Their relationships with the executive and legislative branches of the U.S. government are a major factor in the direction of U.S. policy toward issues involving the environment nexus.

This paper describes and analyzes the treatment of trade and environment issues in U.S. policy and politics. It deals with the roles of the executive branch, the U.S. Congress, the environmental and consumer organizations and other economic interest groups. It will then make some brief observations on the implications of the analysis for the

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Korean economy and economic and environmental policies.

1. Rise of Unilateral restrictions in U.S. Trade Policy

Until sometime in the 1970s, the United States viewed all tariff and non-tariff barriers to trade as bad for both the United States and other countries. The U.S. commitment to an ideology of free trade left little room for the use of trade restrictions either as an instrument of environmental policy or of protectionist interests.

But political and economic trends in the United States have weakened U.S. support for trade liberalization and given impetus to a tendency to restrict trade in conjunction with environmental objectives. The linkage between environment and trade has been made in U.S. politics by different political forces for quite different reasons. On one hand, the environmental community has aggressively pushed for the use of trade measures to conserve natural resources. On the other hand, some business interests, organized labor and members of Congress have advocated unilateral trade measures in response to differences in environmental standards, which can affect the shares of U.S. industries in the world market.

(1) Aggressive Unilateralism in Recent U.S. Trade Policy

The evolution of U.S. trade policy toward protectionism can be traced through the changes in trade law passed by Congress beginning in the mid-1970s: the Trade Act of 1974 introduced the questionable practice of defining the export of products at costs below average total costs of their production as “dumping”. The Trade Act of 1979 added a new set of government actions to be regarded as domestic subsidies for the purpose of anti-dumping action. It also took the implementation of anti-dumping and countervailing duty laws out of the hands of the relatively liberal Treasury Department and put it into the more protectionist Commerce Department. The Trade and Tariff Act of 1984 was notable for using averages in calculating both U.S. prices and the foreign market value in anti-dumping cases for the first time, thus making it easier to arrive at a finding of dumping. The net result of the evolution
of U.S. laws on dumping and countervailing duties was that goods from certain developing countries which had rapidly increased their penetration of U.S. markets — Korea, Taiwan, Thailand, Brazil and China in particular — were the object of most of the anti-dumping complaints.  

Equally important in the U.S. march toward unilateral trade restrictions was the shift from Section 301 of the U.S. Trade and Tariff Act of 1974 to the “Super” and “Special” 301 policies that were passed by Congress in 1988. The original Section 301 authorized the U.S. Trade Representative (USTR) to determine whether a foreign trade policy or action violated a trade agreement or was unwarranted and burdened or restricted U.S. trade. It required the Trade Representative to take measures to achieve the elimination of the offending policy or action. That law was compatible with GATT, because it exempted any action that GATT had ruled was not a violation of a trade agreement or of U.S. rights. But by the mid-1980s, that authority was regarded by import-sensitive industries as too weak. Consequently in 1988 new legislation called “Super 301” was passed that added new weapons to the U.S. trade policy arsenal. That legislation authorized the Trade Representative to establish a list of trade practices that are considered “unreasonable and discriminatory” and to set deadlines for the termination of those practices. Countries that fail to end the practices are to be identified as unfair traders and subjected to retaliatory and punitive tariffs.

Another section of “Special 301” was used by the United States to target countries that fail to protect the intellectual property rights (IPR) of U.S. companies or that deny U.S. companies market access. In the view of some analysts, this provision was passed specifically to assist major U.S. pharmaceutical companies, which had been losing world market share. Once named as having inadequate intellectual property protection, the country in question has six months to demonstrate progress either by changing its laws or negotiating a bilateral agreement.

on IPR. The provision has been used by the United States to put pressure on other countries to adopt patent protection laws similar to its own. Korea, Taiwan, Indonesia, Chile, China and Mexico have been forced to pass legislation on IPR to avoid trade sanctions.\(^4\)

Still another new provision of the “Super 301” legislation requires the USTR to take into account the extent to which trading partners respect labor rights, which are defined in the law as the right to collective bargaining and to strike, to minimum wages and to adequate health and safety conditions. Although the law also permits the USTR to take into account the level of development of the country in question, it opens the door to using low wages as an excuse for retaliation against the exports of developing countries.\(^5\)

Meanwhile, the United States has narrowed the benefits provided to developing countries under the U.S. Generalized System of Preferences (GSP) program. When the law was reauthorized in 1984, worsening U. S. trade imbalances and the success of countries benefitting from the GSP program in increasing their markets in the United States created pressures for changes in the law favoring U.S. business. The result was that the “competitive need” limits were lowered to 25 percent of total imports of a given product. In addition, the limit could be waived by the President only if he determined that a country was proving “equitable and reasonable access to its markets.” Thus a program that had been aimed at benefitting developing countries was turned into a form of leverage on developing countries to open their markets and guarantee intellectual property rights protection.\(^6\)

Economic protectionism and environmental activism are the two major political forces impelling the United States to restrict trade for


social or political purposes. Those forces are operating in 1994 with greater strength than ever before, and they are exerting influence primarily through the U.S. Congress, where protectionist interests are extremely well-represented. Efforts to apply these same instruments (anti-dumping laws, Super-301 provisions, and GSP) to environmental objectives are a logical extension of recent trends in U.S. trade policy.

(2) The Environmentalists Discover Trade Restrictions

The activism of the United States on trade and environment issues can be explained in large part by pressures from environmental organizations to take tough positions to protect the environment through trade policy. In a paper presented at a conference in December 1990, Melinda Chandler of the U.S. State Department Legal Adviser’s office noted that pressures on the administration to resort to trade measures in pursuit of environmental objectives were building. She cited an investigation of environmentally-inspired trade measures by the U.S. International Trade Commission, which was carried out at the suggestion of the Senate Committee on Finance, and a resolution passed by the 1990 General Assembly of the International Union for the Conservation of Nature and Natural Resources (IUCN) which called for the addition of a provision for protection of natural resources to the GATT Articles. This pressure has involved as a central demand the use of trade restrictions for environmental purposes.

The authority to restrict international trade has been a dimension of global environmental policy since the early 1970s, when the Convention on International Trade in Endangered Species (CITES) was negotiated and the U.S. Marine Mammal Protection Act was passed. But it was not until the late 1980s and early 1990s that several developments converged to direct the attention of environmental NGOs to the importance of trade sanctions as a key instrument for environmental protection. The single most important development in this regard was the implementation of trade embargoes against Mexico and other Latin American

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countries over dolphins killed in fishing for tuna and the subsequent GATT panel decision on the tuna-dolphin controversy. The embargoes were mandated by the Marine Mammal Protection Act (MMPA) of 1972, which included language known as the “comparability provisions,” requiring that foreign countries wishing to export tuna to U.S. markets implement dolphin conservation programs in their tuna fishing fleets and achieve a dolphin mortality rate comparable to that of the U.S. tuna fleet or face embargo of their tuna exports.

The original law gave the Commerce Department discretion in whether or not to impose an embargo, and the department systematically refused to use its authority until 1988, when the discretion previously given to the Commerce Department was eliminated by Congress. At the same time, the requirement for dolphin mortality rates was fixed at 1.25 times the rate incurred by the U.S. fleet, beginning in 1990. Significantly, the Bush administration still failed to act on the issue, despite evidence that several countries were exceeding the limit, indicating the low priority of environmental objectives in the administration’s trade policy. At that point a coalition of environmental organizations brought suit against the Commerce and Treasury departments and obtained rulings that those agencies had to enforce the comparability provisions of the MMPA through tuna embargoes against the offending countries. The Bush administration twice appealed the district court decision in 1990, but it lost the appeals and imposed the embargoes on Mexico and several other Latin American countries.8

Panama and Ecuador changed their policies to come into compliance with comparability provisions on dolphin kills. But Mexico resisted them and instead challenged the U.S. embargo against Mexican tuna before the GATT as a protectionist measure on behalf of the U.S. tuna industry. The GATT panel found that the ban was a violation of the GATT, because it was concerned only with the process of tuna harvesting rather than with the product. It further ruled that Article XX of the GATT cannot be used to justify the exception, because the article does

not have application beyond U.S. jurisdiction.\(^9\)

The Bush administration responded to the GATT panel decision first by trying to end the tuna ban through an amendment to the Driftnet Moratorium Enforcement Act, but backed off when it was strongly opposed by the House subcommittee dealing with fisheries. Then it proposed to end the ban if Mexico and Venezuela agreed to lower the number of dolphins killed by their fishing vessels gradually over three years until a five-year moratorium on the use of purse-seine nets for tuna fishing would go into effect.\(^10\) The final result of the negotiations was an agreement in the Inter-American Tropical Tuna Commission that would reduce the number of dolphins killed by tuna fishing from the 1991 level of 25,000 to less than 5,000 by 1999.\(^11\) Even so, Congress refused to rescind the language of the act requiring embargo, and it still continues today. Meanwhile, Mexico, which badly wanted the American Free Trade Agreement (NAFTA), agreed not to present the panel decision to the GATT Council, averting any decision that would be binding on the United States.

Even though the entire episode demonstrated that U.S. market power can outweigh a GATT panel decision on trade restrictions, the panel decision highlighted for U.S. environmental organizations the significance of dispute resolution provisions in the draft GATT Uruguay Round agreement, which include automatic adoption of a GATT dispute panel decision 60 days after its publication unless all 108 GATT parties agree to reject it or an appeal is filed. A number of environmental NGOs in the United States were mobilized by the threat that the GATT panel ruling posed to U.S. laws protecting marine mammals to press harder for changes in the GATT itself. Nearly one-third of the organizations that came out for rejection of the Dunkel draft of the GATT Uruguay Round agreement in December 1991, for example, are devoted primarily to marine mammal or animal welfare issues.\(^12\)

\(^10\) Inside U.S. Trade, March 6, 1992, pp. 1,9.
\(^12\) “The December 20, 1991, GATT Uruguay Round ‘Final Act’ Text Must Be
The second development that galvanized the environmental community in the United States into active participation in trade policy was the NAFTA. Environmental organizations adopted a strategy of pressing the Bush administration to minimize the damage to the environment from increased bilateral trade.\textsuperscript{13} Because early drafts of the NAFTA forced the U.S. to accept the lowest common denominator within the trinational trading area, one of the major concerns of environmentalists was to protect the right of each nation to maintain higher standards than those acceptable to its trading partners.\textsuperscript{14}

But a second concern was that lower environmental standards in Mexico would provide a competitive advantage to firms located in Mexico over those in the United States. Many environmentalists demanded the inclusion of tough trade sanctions in the NAFTA text and rejected the final text in part because it would not permit the United States to take unilateral trade measures against Mexican firms that did not implement adequate environmental standards. A large coalition of environmental organizations, including a number of groups that had been active on marine mammal protection and had been mobilized by the GATT panel decision, sent a letter to the Clinton administration in March 1993 insisting that “sanctions, including both trade and non-trade measures, must be available to ensure compliance [with environmental standards].”\textsuperscript{15}

A number of environmental groups, including Sierra Club, Greenpeace and Friends of the Earth, as well as consumer groups like Ralph Nader’s Public Citizen, joined with labor unions and other interest groups in an anti-NAFTA political coalition. One of the grounds on


\textsuperscript{15} Letter to U.S. Trade Representative Mickey Kantor from 21 environmental and animal welfare organizations, March 4, 1993.
which these organizations opposed the NAFTA was that the mechanism in the agreement for enforcing compliance with existing environmental standards was too weak. The insistence on having available the authority, whether in domestic law or international agreements, to carry out trade restrictions in response to lower environmental standards or non-compliance with existing standards thus had become a fundamental position for a significant fraction of the environmental community. 16)

Another trade and environment issue in the late 1980s and early 1990s that focused the environmental community on the rules of the GATT was whether a country had the right to restrict exports of natural resources in order to conserve them more effectively. The issue was raised by the threat by Japan to challenge an Indonesian ban on log exports and a similar ban on log exports from the Pacific Northwest by the United States. Japan argued that such log bans violated GATT’s Article I, which requires that foreign and domestic industries be treated equally. Indonesia had instituted the ban in 1985 to build up its domestic wood products industry and to export value-added products rather than raw logs, just as Northwestern states tried to keep processing at home to maintain employment in forestry. Some environmentalists, in particular the World Wildlife Fund International, viewed such log bans as a positive contribution to conservation of Indonesia’s tropical forests. WWF cited the Japanese and EC threats to challenge the Indonesian policy in the GATT as an example of how the GATT was inconsistent with the needs of environmental protection. 17)

Meanwhile, environmentalists and logging interests, at odds over the spotted owl and old growth forests, were united in opposing the Japanese position on export restrictions. The Bush administration supported the Japanese position that the log bans were violations of GATT, prompting the governors of the states of Washington, Oregon and Idaho to issue a joint statement condemning the U.S. position for taking away their power to control log exports to protect the environment and jobs. 18)

2. U.S. Trade and Environment Policy in International Negotiations

(1) The United Nations Conference on Environment and Development (UNCED)

The UNCED negotiations on the Rio Declaration, the forest principles and Agenda 21 presented several opportunities to address the issue of trade restrictions for environmental purposes. Developing countries hoped to establish the principle that developing countries should not be forced to accept the environmental standards of industrialized countries, which would most likely be done through trade measures. India introduced into the draft of the Rio Declaration the principle that “Environmental standards which are valid for the most advanced countries may be inappropriate and of unwarranted economic and social cost for the developing countries.” The United States initially objected to that principle, but it was not one of the four which it refused to accept at the end of PrepCom IV. So it was included without change in the final text of the declaration. A second principle, based on proposals by India and the Republic of Korea, stated that unilateral actions to deal with environmental problems outside the jurisdiction of the importing country “should be avoided.” It called instead for measures addressing transborder or global environmental problems to be based, “as far as possible,” on “international consensus.” That principle was rejected by the United States, but became Principle 12 in UNCED Preparatory Committee Chairman Tommy Koh’s draft, which was forwarded without square brackets to Rio. The United States tried unsuccessfully to soften the language but finally recorded an interpretative statement that, “in cer-


19) “Principles on General Rights and Obligations: Chairman’s Consolidated Draft,” A/CONF.151/PC/WG.111/1.8/Rev.1, August 30, 1991, p. 5. The Indian proposal also called for “common international standards” to be applied on the basis of “provision of full incremental costs to the developing countries concerned,” but that point was later dropped from the text.

tain situations,” such unilateral trade measures might be an “effective
and appropriate means” of addressing environmental concerns beyond
the jurisdiction of the importing country, including forest management. 21

(2) The GATT Uruguay Round “Final Act”

After all of the substantive negotiations on trade liberalization in the
Uruguay Round had been completed, the GATT contracting parties
negotiated on the question of how to deal with the trade and environ-
ment issue in the “Final Act” of the agreement. The key countries
involved in the negotiations were the United States, India, Brazil and the
European Union. Although some members of the European Union
were sympathetic to the idea of creating a GATT committee on trade
and environment, the United States was alone in insisting that a per-
manent committee be established as part of the Uruguay Round itself.
The agreement reached at the end of 1993 included only a reference to a
“work program” on trade and environment, with the institutional
mechanism for carrying it out still to be worked out. But the comprome-
ise also failed to include the prohibition on unilateral environmentally-
related trade actions that India had wanted. That prohibition, included
in the first draft of the statement, was replaced at U.S. insistence in the
final version by a paragraph simply calling for “avoidance of protection-
ist trade measures” and reference to “effective multilateral disciplines”
on trade and environment, including Principle 12 of the Rio Declaration.
22) U.S. officials argued that the reference to Principle 12 incorporated
the U.S. interpretive statement on the principle as well, thus making it
compatible with a U.S. policy of keeping its freedom of action in regard
to trade restrictions in response to environmental issues beyond U.S.
jurisdiction.

22) Multilateral Trade Negotiations, The Uruguay Round, “Communication from the
Chairman: Decision on Trade and Environment,” Restricted, MTN.TNC/W/141,
March 29, 1994; briefing for NGOs by Chris Marcich, Office of the U.S. Trade
Representative, December 23, 1993.
3. Unilateral Trade Restrictions for Environmental Purposes

Despite an activist orientation toward trade and the environment, the Clinton administration, like the Bush administration before it, has been far more cautious about the use of unilateral trade measures for environmental purposes than the environmental community and many Members of Congress would prefer. After months of studying the problem of unilateral trade sanctions over environmental issues by an inter-agency task force, the State Department’s Counselor, Timothy Wirth, testified before a Congressional committee in March 1994 about the administration’s policy. Wirth outlined a relatively narrow basis for environmentally-related trade restrictions. He cited four circumstances in which the administration would consider use of trade measures:

- An international environmental treaty requires it,
- The environmental impact of an activity is partially within U.S. jurisdiction and there is reasonable scientific basis for concern,
- A species is scientifically considered endangered or threatened,
- The effectiveness of a scientifically-based international environmental or conservation standard is being diminished.

Wirth explained that these were the only circumstances in which consideration of trade sanctions would be appropriate. The actual use of such sanctions would depend on other factors, including whether there are any alternatives to such trade measures, such as multilateral negotiations.23

Meanwhile, members of Congress and environmental organizations have been developing more ambitious proposals for unilateral environmentally-related trade measures. Ever since the NGO community began to highlight the role of trade restrictions for environmental purposes, Congress has been increasingly interested in linking U.S. market access to environmental conditions. One of the foremost proponents of this link in Congress, Senator Max Baucus, the Chairman of the Senate Committee on Environment and Public Works and Chairman of the Subcommittee on International Trade of the Senate Finance Committee, said in a 1991 speech, “Trade policy is one of the few levers that the U.S.

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can use to push other nations to protect the environment. There is great pressure to employ trade sanctions to achieve environmental objectives.\textsuperscript{24}

The most prominent demand in this regard is for protection of the existing U.S. laws from challenge by other countries through the GATT dispute resolution process. Some Members of Congress, with support from the environmental community, have pressed the Clinton administration to call for a moratorium on challenges through the GATT to U.S. environmental laws that involve trade sanctions. Eighty members of Congress asked President Clinton to push for a suspension of such challenges until the world trade organization had completed its work on making the trade system more environmentally sound. But U.S. Trade Representative Mickey Kantor and his assistant for trade and environment publicly rejected that position, arguing that it could backfire and could lead to demands by other countries for moratoria on environmental laws with unilateral trade sanctions.\textsuperscript{25}

Members of Congress and environmentalists also have called for unilateral levies of countervailing duties against goods when their production involves lower environmental standards and thus lower environmental costs. Under the GATT Articles, countervailing duties are to be used to counter explicit subsidies, while anti-dumping duties are used to respond to exports of products at prices that are below the cost of production. The failure of a producer to internalize environmental costs could be construed as either “dumping” or as a implicit subsidy. A number of environmentalists and specialists on trade law in the United States have viewed the export of goods from lower-standard countries as both dumping and a subsidization.

A number of environmentalists and specialists on trade law have embraced the concept of “environmental countervailing duties” as a means of offsetting the unpaid costs of lower environmental standards.\textsuperscript{26}


\textsuperscript{26} See, for example, Charles Arden-Clarke, \textit{The General Agreement on Tariffs and Trade, Environmental Protection and Sustainable Development}, A WWF Discussion Paper (Gland: World Wide Fund for Nature, 1991); Thomas K. Plofchan, Jr., “Recognizing and Countervailing Environmental Subsidies,” \textit{26 International}
Proponents of this concept argue that firms operating in countries with lower environmental standards are receiving a subsidy for their export products, just as much as firms who sell products abroad at prices below the costs of production. This practice is also sometimes referred to as "ecological dumping," which is considered as a form of "social dumping"

the practice of exporting goods whose price has been deliberately reduced by maintaining social standards, including health and safety of workers as well as wage rates, that reduce the costs of production for competitive advantage. Proponents of the ecological dumping concept argue that countries that "internalize their environmental costs" must either impose import tariffs to equalize the costs that are not paid by exporters from lower-standard countries or lose competitiveness and, in extreme cases, suffer the loss of industries to lower-standard countries. In practice, of course, this approach would incorporate some of the same practices included in the past in anti-dumping legislation for estimating costs — practices that have arguably been used in the 1980s to force foreign competitors to accept "voluntary restraints" on their exports. Thus the eco-dumping/green countervailing duties approach could open the door further to unilateral measures for protectionist objectives.

One variant of the concept that has attracted both NGOs and some


members of Congress is that revenues collected from import tariffs levied on products that fail to incorporate the full environmental costs to the exporting country would be returned to the exporting country for the specific objective of helping to meet higher environmental standards.  

Several legislative proposals based on this “eco-dumping” approach have already been advanced in the U.S. Congress, and more are likely in the future. Republican Senator Slade Gorton of Washington introduced an amendment to the Clean Air Act in 1990 that would impose an import fee equal to the difference between U.S. pollution control costs and those of foreign producers. In 1991 Democratic Senator David Boren introduced the International Pollution Deterrence Act, which authorized environment countervailing duties based on the cost the foreign firm would have to pay to comply with U.S. environmental standards, with half the revenues from such tariffs going into a “Pollution Control Export Fund” to assist countries in purchasing U.S. pollution control technologies. A Global Clean Water Incentives Act, also proposed during the 102nd Congress, would have required the imposition of fees on imported products whose manufacturers were not subject to standards as high as those of the U.S. Clean Water Act.

Still other members have been considering legislation along similar lines in the current Congress. And Senator Baucus called for eco-duties on imported goods “to offset any economic advantage gained by producing the product under less stringent environmental protection regulations.”

The primary reason for proposed trade restrictions in each of these cases was to protect import-sensitive domestic producers from foreign competitors who were assumed to be gaining cost advantage from lower


32) S.984, the “International Pollution Deterrence Act of 1991,” was introduced in the U.S. Senate by Senator Boren on April 25, 1991.


34) Statement in the Congressional Record, September 17, 1991, cited in Dan Esty, Greening the GATT (Forthcoming).
environmental standards, Some industrial firms have already expressed support for the idea of green countervailing duties as an approach to differences in environmental standards. But the eco-dumping approach to trade restricting legislation represents a convergence of protectionist and environmentalist political forces in contemporary trade politics.

Despite the political attractiveness of “environmental countervailing duties” to Members of Congress and environmentalists as an approach to the problem of disparities in environmental standards, it has a number of practical and political drawbacks. The one which has caused the greatest concern for proponents, however, is that the GATT does not permit different tariff rates on imports on the basis of production methods, but only on the basis of characteristics of the product itself or of its end uses. Some advocates of the idea of environmental countervailing duties acknowledge that unilateral imposition of such duties in the absence of GATT authority is impractical, but they propose the negotiation of a “GATT environmental code” — changes in the GATT rules — that would allow trade discrimination against imports based on production process methods that involve less cost than those of higher-standard countries. Senator Baucus has called for the creation of a “GATT environmental code” that would permit importing nations with higher environmental standards to apply higher tariffs if the lower standards are causing economic injury to competing domestic firms, although he has not yet proposed legislation to that effect.

Another approach, which has been broached in the U.S. Congress but not yet formally proposed, is the application of the “Super 301” trade law mechanism to environmental standards. The idea would be to

identify countries whose environmental standards allegedly give their exporters an unfair trade advantage as unfair trading countries and to subject them to retaliatory and punitive duties in the same way that has been done under the current Super 301 legislation. Senator Baucus wrote in an article in 1993, "[A]s debate continues on congressionally mandated action to retaliate for unfair trade practices (the so-called 301 provisions...), environmental practices and their economic effects will be a central concern." A "Green 301" provision in U.S. trade law was proposed by House Majority Leader Richard Gephardt in a speech in May 1993. Gephardt still contemplates a legislative initiative in 1994 that would combine both labor and environmental standards in a single "Super Green and Blue 301."

A number of U.S. environmental organizations, including both those that were most supportive of the NAFTA and those that were opposed, are ready to throw their weight behind a legislative proposal along these lines. The National Wildlife Federation (NWF), which was pro-NAFTA in 1993, was also intrigued by Gephardt's "Green 301" proposal. While they are aware of the unpopularity of Super 301 with developing countries, environmental organizations generally regard it in a positive light and believe it should be adapted to environmental objectives. In an analysis of future reform of U.S. trade law, an NWF trade specialist noted in 1993 that such a Green 301 mechanism, if properly drafted, "could deter our trading partners from using environmental degradation as an unfair means of gaining a trading advantage." The author suggested that it might be "necessary to encourage more environmentally sound trade from our economic partners." Sierra Club also has indicated that it would support inclusion of "Green and Blue 301"

provisions in legislation on the reform of trade procedures.

Some U.S. environmental organizations have reservations about the soundness of forcing developing countries to accept higher environmental standards through a Super 301 mechanism, but even they support having the threat of trade sanctions as leverage on developing countries on environmental issues. The environmental community has not yet discussed what kind of conditionality should go into such a mechanism, however, and there is a wide range of views on how stringent it should be.

Finally, the U.S. GSP program has been viewed by both lawmakers and environmentalists as a means of pressuring developing countries to raise environmental standards. The existing GSP program contains workers' rights provisions which theoretically could provide the basis for eliminating GSP benefits for a country found guilty of violating international standards, although it has not yet been used for that purpose. Democratic Senator Frank Lautenberg of New Jersey introduced legislation in 1990 and again in 1992 that would take away GSP benefits from countries whose environmental standards are too low. The Lautenberg legislation would have added as eligibility requirements not only whether a country has complied with international legal obligations on the environment, but whether it has enacted and implemented "appropriate and effective standards and programs to ...abate and control pollution of air, water and land," protect natural resources and promote sustainable development. The bill was supported by Sierra Club, National Wildlife Federation, Greenpeace, Friends of the Earth and the Natural Resources Defense Council.43)

The expiration of the U.S. GSP program in 1994 and the need to reauthorize it has revived discussion of environmental conditionality attached to that program. A Clinton administration source has indicated that the addition of some environmental standards have been discussed "in general terms," but that they would probably be general and "non-binding." But some Members of Congress and environmental NGOs

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support a tighter and tougher linkage between GSP benefits and environmental policies and standards. Representative George Brown, Jr., Chairman of the House Committee on Science, Space and Technology, has written to House Members seeking support for a letter to the President calling on the administration to add environmental standards as “mandatory eligibility criteria” that must be met by developing countries to take advantage of GSP benefits. 44)

A few environmental organizations, including Sierra Club, would support language in the GSP reauthorization that would cover purely domestic environmental standards of other countries. Nearly all the environmental organizations working on trade and environment have signed a letter to U.S. Trade Representative Mickey Kantor that calls for the consideration of whether or not a country is complying with “relevant international agreements and resolutions” (defined as those involving resources or activities for which the country in question has a substantive responsibility) among the criteria for receiving benefits. However, the letter also calls for expanding market access for the majority of developing countries by widening the product coverage of GSP as well as waiving “competitive need” limits when such waiver would lead to the protection of vital natural resources and environmental services. 45)

4. Conclusion: Implications for Korean Economic and Environmental Policy

This analysis has assembled evidence showing that, while the U.S. executive branch has continued to be relatively liberal in its approach to trade and environment, it has come under increasing pressure to adopt restrictive trade measures for environmental purposes. Environmental interests in an aggressive U.S. role in influencing the environmental policies of other countries have converged with rising business interests in government protection against lower-cost competitors on the world

45) Letter to U.S. Trade Representative Mickey Kantor from 10 environmental organizations, April 5, 1994
market to make trade restrictions on environmental grounds an extremely popular issue in Congress.

It may be asked whether the legislative proposals referred to above, even with the support of environmental groups and some business and labor interests, would necessarily result in new measures to restrict trade for environmental purposes. After all, the administration clearly prefers to maintain a more liberal stance on trade and environment issues, even as it seeks to keep environmentalists happy. And Congress has not yet passed major new legislation adding environmental standards to its arsenal of unilateral trade weapons, despite repeated proposals in recent years.

It should be noted, however, that the political struggle over NAFTA created new political alliances in favor of trade restrictions that could be brought into play in support of such legislation in the future, and that the entry of key members of the Senate and House (like Senator Baucus and Representative Gephardt) into the issue also increase the likelihood of such legislation getting serious attention by Congress. Indeed, the question now is no longer whether new legislative authority for environmentally-related restrictions will be added to U.S. trade law, but how aggressive and intrusive that authority will be. There is as yet no consensus among environmental organizations or Members of Congress on that issue.

As a rapidly-industrializing country with a large current account surplus with the United States, Korea has been one of the main victims of unilateral restrictions in U.S. trade policy since the early 1980s. These trade restrictions on grounds of unfair trade practices or inadequate protection for intellectual property rights were accompanied by pressures on Korea's exchange rate policy in order to reduce Korea's current account surplus with the United States. As of 1989, 20 percent of Korea's exports to the United States faced some kind of trade restriction, 90 percent of which took the form of voluntary export restraints agreed to under threat of trade retaliation.\(^{46}\)

The major threat to the Korean economy among these new forms of trade restraints related to the environment would be some form of

\(^{46}\) Krueger, *Economic Policies at Cross-Purposes*, p. 175-76
“Super 301” authority that would target environmental standards as a basis for retaliatory tariffs. An eco-dumping law that would permit additional tariffs on a product-by-product basis would be subject to a challenge under new World Trade Organization’s dispute resolution process and would certainly be found to be a violation of GATT Articles. Efforts to rewrite the GATT Articles to accommodate such legislation, which could conceivably be mandated by the U.S. Congress, would almost certainly fail. A new “Super Green 301” also might be challenged, but it could conceivably be written in a way that would make it necessary to challenge each individual case rather than the law itself, making it a useful bargaining device to force trade concessions from trading partners as the current Super 301 has been used.

Such environmentally-based trade restraints would come into play just as Korea’s comparative advantage in such import-sensitive sectors as textiles and clothing is rapidly diminishing. Korea clearly has a vital economic stake in averting such developments in U.S. trade law if possible.

But the options for influencing the political process are obviously limited. Korea could work with India and other leading developing countries to get a statement by the new WTO calling on all WTO members to avoid trade restrictions such as the “Super Green 301”. But as the above account shows, the United States has the ability to dilute such statements and retain its freedom of action. Trying to persuade legislators by hiring Washington lobbyists would have little or no chance of success.

For Korea and other rapidly industrializing countries, the most effective strategy for averting such legislation in the future may well be to promote a multilateral alternative to aggressive unilateralism by the United States on trade and environment. That would mean supporting multilateral negotiation of international standards for various industrial sectors or pollutants. Multilateral negotiations on minimum industrial pollution standards would make it far more difficult for Congress to argue for unilateral trade measures based merely on the argument that standards in the country in question are lower than those in the United States. It would strengthen those in the administration (especially in the Office of the U.S. Trade Representative) who are reluctant to add
environmental conditionality to provisions of U.S. trade law. And because it would establish minimum standards rather than harmonizing standards downward, it would appeal to most — though not all — environmental organizations as a reasonable alternative to the more contentious unilateral approach.

Multilateral negotiations on minimum standards would give the developing countries a measure of control over this international political issue, allowing them some veto over where minimum standards are set. Fortunately for Korea, its environmental standards are generally above those of other rapidly-industrializing countries.47 Moreover, its own public opinion has begun to express rising concern for environmental protection since the beginning of the 1990s.48 In short, support for minimum standards, negotiated in a multilateral context, is a strategy appropriate to Korea's present economic and political circumstances.


Annex: The EESI Proposal for Multilateral Negotiations on Minimum Environmental Standards

The idea of multilaterally negotiated minimum standards has been raised often in recent years, but it has lacked any substantial elaboration. The Environmental and Energy Study Institute has drafted a detailed proposal for such an agreement and is now seeking support for it from both OECD countries and rapidly industrializing countries. The EESI proposal begins with a "framework agreement" on minimum standards that would create certain mechanisms as the bases for negotiating specific protocols on minimum standards.

The first mechanism would be the environmental or waste audit, a management tool for waste reduction which is already widely used in some highly industrialized and developing countries. The environmental/waste audit evaluates the performance of a given industry in its release of wastes per unit of production and highlights inefficiencies and areas of poor management, thus facilitating the development of the least-cost or most cost-effective ways to reduce emissions of pollutants.

India is the first government to require an annual waste audit by all of its industries, according to a common format, beginning in mid-1993. If an international agreement established a system of environmental/waste audits by industries in each participating country, administered by environmental ministries, it would provide the basis for companies to improve their own performance in meeting or exceeding minimum pollution standards and for the regional centers to provide technical assistance to industries or individual companies. It could launch a new wave of competition in manufacturing efficiency that would foster economic growth and export competitiveness among developing coun-

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try industries. The regional centers for technical assistance set up by the agreement might work with each environmental ministry to ensure that the audits are administered in a uniform manner, and that environment ministries have systems in place for deterring fraudulent audits through spot checks and heavy fines against deliberately inaccurate audit reports.

Other mechanisms that could be established in the agreement for helping industries in developing countries make their manufacturing processes more efficient and thus reduce their emissions of wastes per unit of production are: (1) regional waste reduction technical assistance bodies located in each developing country region and (2) a special fund for loans to purchase technologies at concessional rates for meeting minimum pollution standards that coordinates the existing funds in both OECD and rapidly industrializing countries for upgrading environmental technologies.

The regional waste reduction centers created by the agreement would have the capacity to:

- work with industrial associations in each country to develop the lowest-cost and most efficient options for meeting the minimum standard agreed to under the convention,
- advise individual industries upon their request on ways that they could meet the minimum standards through process efficiency changes,
- assist individual industries in applying for a concessional loan for new technologies required to meet the standard whose cost would exceed an agreed percentage of gross receipts of the industry in question.

The minimum international standards established under the agreement should be defined in terms of amount of specific pollutants emitted per unit of production for each industry, because that is the standard on which industries can be most easily compared across national boundaries, and, more importantly, because improving industrial performance in regard to waste generation per unit of production also means improving efficiency and profitability. So it is the only standard that forces industries to optimize the efficiency of their production processes.

Negotiating minimum pollution standards would necessarily be a multi-stage process. The first stage of the process would be the negotia-
tion of a framework convention for international cooperation to reduce industrial pollution similar to the framework conventions on ozone layer, climate change and biodiversity loss. In that framework convention, the parties would agree to adopt national environmental audit systems for all their industries participating in international trade, based on a common model, and to share the data gathered from the audits with other parties through the conference secretariat. The framework convention also would set up the regional technical assistance centers and the conference fund for concessional loans to comply with minimum standards.

In the next phase, protocols could then be negotiated on minimum standards for industries regarding various pollutants, based on the data gathered from the environmental/waste audits. The data available to the parties to the negotiations should show where industries in various countries fall in regard to their efficiency in waste minimization. They should help determine what the options are for setting minimum standards for each pollutant and for each industry. The agreement also would specify the period of time once the agreement itself has gone into effect during which each industry would be able to take advantage of technical assistance provided under the agreement to reorganize its production processes and make technological changes before being held to the new minimum standard.

The protocol negotiations might focus on one relatively small group of industries in each "round" in order to make the task of technical assistance for those industries by the regional centers manageable. The parties might want to take advantage of the fact that UNEP has already established working groups on cleaner production in several industries, including leather tanning, textiles, solvents, metal finishing, pulp and paper and petroleum in its choice of industries to be included in the first protocol.
3 The Uruguay Round and Trade-Environment Issue: A Chinese View

Zhong-Zhou Li and Yanxia Zhao*

1. Overview

The Uruguay Round is the most ambitious round of multilateral trade negotiations in GATT’s history. The results achieved so far represents a major break-through in expanding GATT’s mandate. Traditionally, GATT only deals with tariffs and non-tariff measures on trade in goods. The major concerns used to be related to border measures. Now as a result of the Uruguay Round, GATT’s terms of reference has extended to new areas it has never before dealt with. They include trade in services, intellectual property right protection and foreign investment. It has gone beyond the traditional concerns over border measures and extent its rules to cover right of establishment notably by way of initial commitment on commercial presence in trade in services. It implies that contracting parties have demonstrated flexibility on certain issues which are normally considered non-negotiable national sovereignty of increasing interdependence in the world economy and GATT’s prompt response to structural changes in the world economy. Trade interweaves with other economic, social and development issues. If GATT is to achieve its objective of rational allocation of world resources and raising the living standard of the people of all contracting parties, then it may be called upon to address still more issues beyond its existing mandate. Environmental protection and restrictive business practices have already been put on the agenda for international actions.

Can GATT or the future World Trade Organization manage to

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operate such an ambitious action program? Will it be truly a major success? Problems may not rest with the system itself. It very much depends on the good faith of contracting parties to implement the rules. One can only take a cautious optimistic views. Most damaging would be unilateral actions in defiance of established rules, It would topple the system overnight. Without the good faith of the major players in this game of international trade, this expanded system for which contracting parties fought so hard, will remain fragile. Very often, policy makers in the major economic powers take decisions not on the basis of economic rationale and international rules, but on concession by virtue of economic power. Trade negotiations may abuse their power to exact unrealistic concessions from weaker partners in disregard of the possible exacerbation of imbalance of the world economy which may eventually lead to the ultimate breakdown of the system. Developing counties pin their hope on the effective implementation of the dispute settlement mechanism to be established within the framework of the world Trade Organization.

China takes a strong view in favor of the strengthened multilateral system as envisaged in the Agreement on the establishment of a World Trade Organization. China adopted a new economic strategy reflected in the open policy and economic structural reform in the late 1970s. After 15 years of experiment, we have achieved reasonable success in the transition toward a socialist market economy system. The initiative of the whole population has been fully mobilized to create wealth and earn a better living. The dynamism has just begun to gain momentum. An open multilateral trading system will serve as a spur to this momentum. This assumption can be traced back to the decision in 1986 to request for resumption of GATT contracting party status. That decision reflected a fundamental change of economic development strategy in favor of greater integration with the world economy. Such integration would considerably accelerate domestic economic growth by allowing China to build upon its comparative advantage in international trade. This policy shift has given substance to the open policy and economic reform which culminated in the decision on the establishment of a market economy system. The economic growth resulting from economic reform and open policy has in return, made a modest contribution to the world
economic growth. The growth pattern has shown a high import propensity, which has to be matched by commensurate access to the world market. In 1993, imports rose by 28%, accounting for nearly 20% of the GDP. If this trend is to continue, China’s access to the world market has to accelerate in order to keep pace with imports. Otherwise, China will be forced to return to import control, foreign exchange control and import substitution. Currently, China’s access to the world market is under constant frustration by uncertainty in most-favored-nation treatment, discriminatory trade practices e.g. in anti-dumping, countervailing measures and discriminatory quantitative restrictions. Such practices constitute a major obstacle to the optional utilization of China’s resources and the maximizing of its comparative advantage in international trade. This suffocates a very dynamic factor of the world economy which is in no one’s interests.

The participation in the multilateral trading system based on the principle of unconditional most-favored-nation treatment could provide China with an opportunity to allocate its resources in an optimal manner. China’s objective in joining GATT and the forth-coming World Trade Organization is to obtain universally applicable treatment of trade which will benefit both China and its trading partners. This is particularly true in the present circumstances of market situation in the industrialized countries. The world economy need to find new growth factors. The fast-growing Chinese economy is one of such factors.

2. Achievement of the Uruguay Round

The most remarkable achievement of the Uruguay Round is the reaffirmation of commitment by all contracting parties to multilateralism and rejection to unilateralism and the establishment of World Trade Organization with a stronger legal binding force than the contractual arrangement of the former GATT. The strengthened dispute settlement mechanism built in the WTO will certainly improve the functioning of the multilateral trading system. The contractual nature of the former GATT, to some extent, places weaker trading partners particularly the developing countries at the mercy of the economic powers. The major players dictated the rules and bent the rules when their own interests
called for e.g., the discriminatory quota restrictions on textiles and clothing against developing counties suppliers. While we should not have too much complacency in the good faith in implementing the multilateral rules. We can safely say that in the new system one country can no longer dictate the rules. Neither can one party block the rulings by investigation panels as in the case in the past.

(1) Liberalization of market access

Both developed and developing countries have made substantial contribution to the liberalization of market access. It is estimated that participants will commit an average tariff cut of 40%. Developed counties commit to increase tariff binding from 78% to 97% of the total tariff lines: developing countries from 21% to 65% of the total tariff lines. Hopefully, China as a developing countries will be able to bind 90% of the total tariff lines at 40% rate to be reduced subsequently to 35%. Products lines with current tariff rate below 15% will be bound at 20%. That will bring China’s binding ratio close to that of the developing counties.

Trade liberalization of interests to developing countries includes the phase out of quota restriction on textiles and clothing within 10 years. The tariffication of non-tariff measures and reduction of tariff by 36%, and reduction of export subsidies and internal support for agriculture products and tariff cut on tropical products. However, one has to treat the agreement on the phase out the MFA carefully, as the transition period covers 10 years. These may not be substantial liberalization in the near future because importing countries are likely to reserve the sensitive products for the last stage. At that point of time, they may find it impossible to eliminate all quota restrictions on all sensitive product at one stroke. Developing countries should make the best use of these liberalization commitment to promote their exports.

(2) Strengthened disciplines

Disciplines under all the MTN agreements have been strengthened by clarifying and specifying in concrete terms, specific rules. The
strengthened disciplines may not always be to the advantage of developing countries. It may actually increase the burden on developing countries. However, it would be worthwhile if it leads to a stable international trading environment and effectively prevent unilateral trade retaliation without proper GAIT justification. Notably, the new dispute settlement mechanism could serve to strengthen the effectiveness and integrity of the GAIT system. The new system will not allow one particular country to block the adoption of panel reports in dispute settlement cases. It ensures that panel members to make independent judgement on any case on its merit with a view to preserving the integrity of GAIT rules.

(3) Differential and more favorable treatment for the developing countries.

In this connection, the developing countries have to large extent, achieved the objective of translating the “more favorable treatment for developing countries” into operative use. In most of the agreements, these are operative clause in favor of developing countries. For example, in the subsidy agreement, developing countries are divided into different categories. Countries with per capita GNP below US$1000 are not required to phase out export subsidies, TRIM agreement requires developing countries to phase out investment performance requirement (e.g. local content and foreign exchange balancing requirement) within 5 years while developed countries are obliged to phase them out within two years. The TRIP agreement provides for a transitional period of 10 years for developing countries to being their national legislation into conformity with the agreement while developed countries have only 5 years of transition. However such clearly set out developing country clause also places a constraint on developing countries to prevent their from becoming free riders permanently. Consequently, no country can enjoy favorable treatment forever.

3. New Issues

The greatest achievement of the Uruguay Round for the industrial-
ized countries is the incorporation of the new issues in the framework of GATT or the WTO to be born soon. This introduce reform of international trade rules to keep in pace with industrialized counties' domestic economic structural adjustment. Take the United States for example, the US economy is increasingly shift toward the service sector in terms of national income, employment and export earning. The manufacturing industries are declining. The United States is targeting developing country market for its banking, insurance, telecommunication and professional services. The conclusion of the General Agreement on Trade in Services opens up new horizon for US service sectors to enter into international market, particularly in the developing countries. This is the area in which US enterprises enjoy comparative advantage. U.S. trade negotiator are likely to apply strong pressure on developing countries to liberalized their service market whom developing countries are not yet prepared to make substantial liberalization of the service sector. Developing countries have to redoubled their efforts to strengthen their service sector in order to compete with service providers of industrialized countries.

The TRIP agreement provides for very high standard of protection of intellectual property rights. While these have been international conventions providing for protection of intellectual property right for more than 120 years. Yet these has never been international enforcement of legal protection as provided in the TRIP Agreement. Industrialized countries hold the overwhelming majority of the world intellectual property rights and therefore are the main beneficiaries of protection. On the positive side for the developing countries’ high level protection of intellectual property right may play an important role in encouraging foreign investment in high technology. However, developing countries should be very vigilant against abuse of protection to monopolize market access or other anti-competitive practices. TRIP agreement leaves this issue to national laws. In other word, countries may address the issue of anti-competitive practices by competition law. All developed countries already have such law. Many developing countries are yet to develop such laws.

The TRIM Agreement is again reflecting the interests of the developed countries. Their main concern are the incentive-related invest-
ment performance requirement such as local content requirement, export requirement and foreign exchange balancing requirement. Now for the developing countries in the early stage of development, such requirement may help to upgrade their industrial level and product standard. It also facilitate the diversification of developing countries economy. By accepting this agreement, developing countries have made a major concession to the developing countries. They have to make great efforts to catch up with industrial level of other countries in order to meet obligation for phasing out investment performance requirement.

4. Strengthened Institutional Structure

The establishment of the World Trade Organization has institutionally enhanced the legal status of the organization which had functioned for more than 40 years merely as a contractual arrangement. First of all, its membership has enlarged and will continue to enlarge to make it truly universal trade organization. Its mandate extends to intellectual property right protection, trade in services and foreign investment measures which were traditionally in the domain of national sovereignty. Therefore, the World Trade Organization shoulders an unprecedented heavy responsibility. Its working method has to change. If the major players attempt to dictate the rules, the organization will embark on a tortuous road. The new institutional set up introduces greater political level involvement in trade policy issue by having frequent ministerial meeting.

It is hoped that the new institutional set up will lay a good foundation for successful functioning of the international trading system. However, the system will work only if members of the organization have good faith to make it work.

With the successful conclusion of the Uruguay Round, some contracting parties are encouraged to attempt to pursue further expansion of the mandate of the future World Trade Organization into areas such as environment protection, labor standard and competition policy. While all these are important issues on the agenda of the international community, one has to think carefully whether the organization has already grown to unmanageable size. We might need time to allow the WTO to embark on the right track in implementation of such a large number of
new agreements.

5. Comments on Proposed New Agenda

(1) Trade and the Environment

At the late stage of the negotiations, a number of contracting partes proposed to include the protection of environment in the future negotiations of the GATT. One of the justification for inclusion was that liberalization of cross border road transportation as a result of the service negotiation may cause serious environmental pollution to transit countries because excess pollutant emission. This argument appears to be quite reasonable, although such issue can be better discussed in the context of environmental protection, not in the context of trade. Now these is a lot of discussions about a possible green round of multilateral trade negotiations. The importance of environmental protection can never be overstated since we have only one globe to live in and we are witnessing increasing environmental damages to our planets. However, we should be careful in setting a link between trade and environment. One special concern is the attempt to set too high environmental standard to become unwarranted trade barriers.

Environmental protection is basically an issue of economic development. The problem is caused by industrial development and will be solved in the process of economic development. For less developed countries, development has been the first priority over environmental protection. Without adequate financial and technological resources, environmental protection programme is out of the question. Therefore, to set artificially high standard of environmental protection does not solve the problem, but end up by raising trade barriers.

China attaches great importance to environmental protection and have launched nation-wide drive to enhance environment protection. The government made great efforts to increasing budgetary resources for environment protection and trying hard to phase out the production lines that produce pollution. To renovate pollutant industries require huge investment. The problem is being aggravated by the prohibition of products considered to be below environmental standards by industrial-
ized countries.

Careful consideration should be given to the question of making environmental protection a trade issue, a trade issue is to be resolved by trade measures. And trade measures may not solve an environmental problem.

(2) Restrictive Business Practices

The 1947 Havana Charter contains a chapter on restrictive business practices. This is a truly relevant issue of trade, at the preparatory stage of the Uruguay Round, the developing countries pushed hard for inclusion of restrictive business practices in the Uruguay Round negotiations without success. It is high time to raise the question again because removal of tariff and non-tariff barriers will not lead to fair competition without effective control of restrictive business practices, RBP is an anti-competitive corporate behavior. Most industrialized countries have competition law to control such practices. Only few developing countries have such laws. International action to control restrictive business practices is long overdue, The WTO may be an appropriate forum to discuss the issue.

(3) Protection of Workers’ Rights and Social Clause

There are two euphemistic concepts for the protection against products from “low cost countries”. The “workers’ rights” concept speaks for the workers in low cost countries. It is essential that these countries have low cost because they pay less to the workers. The social clause concept probably speaks for the workers of high cost countries. They need restrictions on products from low cost countries in order to protect the welfare of their workers which receive much higher pay. Both concepts do not make economic sense. Production cost depends on economic development level. It is generally a corporate behavior, It is possible for the government to interfere in the level of pay. But such interference is likely to reduce efficiency. The best way to bridge the gap in pay between high cost and low cost countries is to allow freer trade. The expansion of exportation from low cost countries to high cost
countries will automatically narrow the pay gap between these two groups of countries. The social clause concept is more straightforward. However, it neglects the welfare benefits of imports from low-cost countries for the workers of the high-cost countries who are generally the consumers of such products. Furthermore, it provides opportunities to upgrade their industries. It is most damaging to introduce such concepts into the GATT system based on free-market principle. In practice, it will effectively discourage international trade. Morally, it is unfair to nip the developing countries whose only advantage is low labor cost.
New World Trade System and Trade-Environment Issues: A Korean Perspective

Taek-Whan Han**

1. Introduction

The Uruguay Round negotiations were successfully closed in December 1993. The agreement includes the establishment of the World Trade Organization, a new trade organization replacing and extending the GATT system, which sets regulations concerning not only merchandise trade but also trade in agricultural products, services, and other new trade related issues. WTO is expected to assume the task of arranging a new series of negotiations on "new trade agendas," including trade and the environment, competition policy, labor standards, etc. Among others, the issues of trade and environment will be an agenda of the highest priority.

Recently, the term "Green Round" is being widely used in Korean society. This word, however, has a dubious meaning. It covers both the upcoming multilateral negotiations within the GATT/WTO and the overall trends of more stringent international environmental regulations since Rio. This paper will only use the term "trade and environment issues" instead of "Green Round". There are several reasons for not using the expression "Green Round." Firstly, since "Green Round" has no clear boundary of coverage, it is difficult to have a well focused discussion on it. Secondly, when the word "Green Round" is used, the normative statement on global environmental protection and the legal and political issue centering on the sovereignty of internal policy,

* The opinions contained in this paper are exclusively the author's and do not represent the position of KIEP in any regard.

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jurisdiction problems, and the efficiency of optimal allocation of resources could be dangerously entwined. The existence of environmental problems and on international consensus on environmental protection does not warrant the legitimacy of using trade measures. Thirdly, when the expression "Green Round" is used, it may have the undesirable connotation that the internal environmental endeavor of our country is a passive response to the pressure from the outside. ¹)

This paper reviews the developments of trade-environment issues and contrast the views of major controversial subjects and provides an overall evaluation on the issue from the perspective of a Korean observer.

2. Historical Background and Recent Developments in Trade-Environment Issues

(1) Trade-Environment Issues within GATT/WTO

It was the early 70's when trade and environment issues initially emerged as a major international issue. To meet the international demand inspired by the UNCHE (United Nations Conference on Human Environment) in 1972, GATT published the report entitled *Industrial Pollution Control and International Trade* and organized the Working Group on Environmental Measures and International Trade. ²) Since

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¹) As most readers have already noticed, this is a result of the Uruguay Round, where Koreans feel a sense of loss, no matter how economists preach the gains from trade liberalization.

²) The trade-environment issue was initiated as a competitiveness issue when the issue came into the forefront in 1972. A principal concern was that a country, when it vigorously pushes environmental protection through pollution taxes, effluent and emission standards, will suffer in international competitiveness of its products. However, it was only industrial pollution, not natural resources conservation, that was under consideration. Relating to the competitiveness issue, OECD developed the concept of the Polluter Pays Principle. The Polluter Pays Principle is a cost allocation principle, which requires the cost of abatement to be borne by the private sector rather than by the government sector. It has, therefore, an important trade implication in that lower prices of products of firms that do not pay appropriate abatement costs constitute violations of the Principle.
then, however, other international economic issues such as oil shocks have put trade-environment issues in the back seat. The Working Group on Environmental Measures and International Trade, which is summoned only by a call from GATT signatory countries, had never met until the late 80's.

Following the rise of various environmental issues from the late 80's to the early 90's, the European Free Trade Area (EFTA) adopted a resolution that environmental issues must be included in the Uruguay Round negotiations. However, due to the strong objection from developing countries, GATT decided not to include environmental issues in the Uruguay Round negotiations in 1991. GATT member countries, however, agreed to reactivate the Working Group on Environmental Measures and International Trade. The task of the working group includes: trade measures included in international environmental agreements, transparency of national environmental measures that affect trade, and the problems related to packaging and labelling.

Since the Uruguay Round negotiations started before environmental issues were brought to stage, the topics related to trade and the environment not appear in the Uruguay Round as separate subjects. However, there are provisions explicitly or implicitly related to the environment in UR agreements. First of all, the preamble of the World Trade Organization explicitly refers to the objective of sustainable development and the need to protect and preserve the environment. Also, a decision was adopted to establish a WTO Committee on Trade and Environment, although whether it will be permanent or ad hoc is not decided.

With regard to the TBT measures, the UR Agreement encourages countries to use international standards, but it does not require them to harmonize their domestic regulations and standards upwards or downwards as a result of international standardization activities. The new SPS Agreement has some environmental elements, relating to the protection of animal and plant health, including wild flora and fauna. The new SPS Agreement explicitly recognizes the right of governments to take measures to protect human, animal and plant health. But where trade restriction results, these measures should be taken only to the extent necessary for health protection, on the basis of scientific principles and evidence. The Agreement on Subsidies and Countervailing Duties covers assis-
tance to modify existing facilities in respect to new environmental laws and requirements that result in greater constraints and financial burdens on firms. Subject to certain conditions, up to 20 per cent of the cost of adaptation would be considered a non-actionable subsidy. For the improvement of market access, which helps alleviate poverty in developing countries, the Uruguay Round enhanced developing countries’ export opportunities through the reduction of tariff escalation and removal of non-tariff barriers of their main trading partners, and specifically in areas such as textiles and clothing. The GATT Secretariat evaluated that this can make a real contribution to reducing the dependence of so many developing countries on natural resource exploitation, and assist them in moving factors of production into environment-intensive activities. It is tentatively estimated that world merchandise trade will reach a level in 2005 about 12 per cent higher than without the Agreements. The largest increases in trade is projected to be in textiles and clothing, agricultural, forestry and fishery products, and processed food and beverages.

The negotiations on trade-environment issues is expected to start this year, 1994. Although the GATT ministerial meeting adopted the decision to establish a Committee on Trade and the Environment under WTO, which is expected to have its first meeting in January 1995, its mandate and status is not yet clear. In the short term, the picture of the prospective evolution within the GATT/WTO is uncertain. The resistance from developing countries seems to be strong. However, since there is a consensus that the issue of trade and environment should be handled by the GATT/WTO, it is expected that developing countries will also actively participate soon.

The Second Meeting of the Commission on Sustainable Development, which will be held in May 1994 in New York, will also discuss the trade-environment issue as an important agenda. International organizations, including the GATT, will submit reports to the CSD on their performance and future programs in implementing Agenda 21 on this issue.
(2) The Viewpoints of Developed and Developing Countries

The concerns of developed countries trade-environment issues are well represented by the discussions in the OECD. The OECD results, although it is written in an "analytical and descriptive" language, are oriented toward the use of trade measures for environmental purposes while trying to improve transparency to minimize the risk of friction among countries. Recent OECD discussions on PPMs measures included all possible trade measures, even including unilateral measures, although many of the participants questioned its legitimacy and the effectiveness.

The responses from developing countries are not so well organized. Developing countries, as shown in an UNCTAD statement, prefer using an incentive mechanism to trade measures and also emphasize the importance of multilateralism. The government of Malaysia also stressed GATT's role toward the realization of Agenda 21 and the consistency of GATT's work with the other fora in environmental issues. The Group of 77, the alliance of developing countries, which has been active in the area of financial resources and mechanism and technology transfer in implementing Agenda 21, is expected to speak out soon in trade-environment issues, especially in the First Meeting of CSD in upcoming May.

3. Major Controversial Subjects in Trade-Environment Issues

Trade-environment issues basically stem from the interaction between environmental measures and trade measures. Therefore, the issue can be roughly classified into two categories: environmental concerns on trade measures and trade concerns on environmental measures. Therefore, usually there exist two parallel points of view, one from the environment side and the other from the trade side, on almost all trade-environment issues. It seems that a reconciliation is not feasible in some cases.

This paper examines the major subjects and highlights the controversial points from the viewpoint of a Korean observer. The important issues include: a) local environmental problems vs. transboundary
spillover, b) the fair trade issue and environmental regulation, c) the effect of environmental regulation on the competitiveness of products, d) unilateralism vs. multilateralism, e) countervailing duties, f) trade measures on process and production methods, g) eco-labelling and international environmental certification (ISO 18000).

(1) Local Environmental Problems vs. Transboundary Spillover

The GATT agreements preclude the legitimacy of using trade measures to regulate firm behavior which does not affect the environment within the jurisdiction of the importing country. However, if an activity generates an environmental problem that spills over to the importing country’s environment, there is room to justify the use of trade measures for environmental problems. An economist, with no difficulty, will predict that a local environmental problem is addressed best when regulatory measures are imposed by local regulatory authority, if the local authority presumably effectively represents the preference of local people. The preference of local people, in a democratic country, will be represented by due political and/or administrative processes. If one judges that a country’s environmental regulation is not optimal, it would imply either that the country is not a democratic country or that the country’s administrative and institutional capacity is not working well. If trade measures are used for local environmental problems, it implies not only an intervention in internal affairs, but also a deviation from the optimal allocation of resources. When a country is not capable of managing efficient environmental policy tools, the best measures are to assist in the capacity building of this country.

When an environmental problem has spillover effects, the downstream country may have the right to ask the upstream country to refrain

3) The trade measures for the product on environmental grounds are usually allowed by TBT rules. Trade measures for products are considered as an extension of domestic environmental measures, if they do not discriminate against foreign products.

4) A paper submitted in an OECD workshop, although it was written and presented by an NGO member, openly initiated this idea. It argued that the “democratic” countries should take the leading role in environmental issues by using trade measures including unilateral ones. See Ferretti (1994).
from emitting pollutants. The spillover case is again classified into two categories: regional transboundary environmental problem and global environmental problem. For a regional transboundary environmental problem, the polluting (upstream) countries may have responsibility to compensate for the damages in polluted (downstream) countries, according to the Polluter Pays Principle. However, even in a regional transboundary spillover case, trade measures are not allowed by GATT rules. Actually, there is no trade provision for trade in international agreements for transboundary air pollution problems.

For the case of global commons, such as ozone layer depletion or global warming, trade measures can be justified when a multilateral environmental agreement specifies so.

(2) Fair Trade Issue

The fair trade issue is most vocally advocated by the United States. Mr. Geza Feketekuty, in his book titled *The New Trade Agenda*, well summarized this issue.

According to Mr. Feketekuty, the United States has the most stringent and well organized legal system for anti-trust, environmental protection, and labor standards in the world. Since American firms take the disadvantage due to the regulatory standards higher than the ones for competing firms in developing countries, there arises the need to flatten the uneven playing field, thus making the game fair. In the new multilateral negotiations after the Uruguay Round, Mr. Feketekuty argues, this issue should be dealt as a major topic.

He finds the justification for his fair trade argument in the globalization of production. That is, since the world’s economic activity is now closely linked to each other, there should be common rules that govern the economic activities. In other words, “a global firm must abide by the global rule to compete in the world market.”

Practicality, economic efficiency and competitive fairness are the three grounds for the necessity of common game rules. The practicality argument is that international harmonization is necessary to cope with unnecessary difficulties arising from different standards and laws and regulations. The economic efficiency argument is that harmonizations of
policies are necessary to accomplish economies of scale by integrating production facilities in each country into a single system. The competitive fairness argument is that there should be a rule of game for which each competitor accepts the results as a fair one. Without such a fair rule which every participant is willing to comply with, the whole system would not work smoothly.

Although the first and the second grounds seem to be reasonable, they cannot justify the enforced harmonization of national rules. If there are needs for practicality and efficiency, the rules will evolve so that the operation of international economic activity is optimized. The problem is the competitiveness fairness argument. The “fairness” relies on several assumptions. It assumes that some regulatory standards regarding labor or environment in developing countries are set unfairly low so that the people in those countries suffer from them. This assumption is reinforced by another assumption that a lower standard results from a non-democratic political system where the need of the people is lightly considered. However, the reality is different from the assumption. First, many of the developing countries are democratic countries. Even when this assumption is valid, the competitive fairness argument will automatically escalate to international political debate or even to an interference of internal affairs. Second, the people in developing countries suffer much more from poverty and underemployment than from lower regulatory standards. If lower standard is the price for less poverty and more employment, they would, at least in an ex ante sense, willingly pay.

Therefore, the competitive fairness argument seems not to be free from the suspicion that it is simply a rhetoric to justify disguised protectionism, or political interventionism. Bovard(1991) pointed out that the concept of competitive fairness is ambiguous and most of the argument in the United States government, especially in the Congress, lacks logical validity.

Because of the weak legitimacy of using trade measures on competitiveness grounds, there is little possibility that WTO would adopt any decision to allow trade measures to “rectify” uneven playing fields created by the difference in environmental regulations. However, we are informed that lawmakers of the United States are trying to legislate laws such as “Green 301.” In this regard, the role of WTO, especially dispute
settlements, deserves special attention.

(3) The Effect of Environmental Regulation on Competitiveness

Economists have been concerned with the effect of environmental regulations on the competitiveness of products in the international market. However, many of the empirical results suggest that stringency of environmental regulations has no serious impact on competitiveness. This result may have two policy implications. If the result holds, since lower environmental standards do not give significant incentives to industrial relocation, regional free trade agreements or global free trade agreements do not harm the competitiveness of existing industries in developed countries. The second implication is very different from the first one. If the difference in environmental standards does not much harm industrial competitiveness, then the use of trade measures could be introduced without much resistance.

In some cases, empirical studies on the competitiveness effect of environmental regulations do not have any meaningful policy implication. The study of Tobey (1990) concluded from his study that the degree of stringency of environmental regulations has no effect in determining the trade pattern of a country. It tested whether the explanatory power increases when the variable of environmental regulation stringency is added, using a Heckscher-Ohlin-Vanek model. The result was that the explanatory power of the regression did significantly increase when the stringency of environmental regulations was added to the explanatory variables. However, when we consider the stringency of environmental regulations of a country as an endogenous variable that is determined by other factor endowments, not as an exogenous variable, the result that it does not additionally explain the trade pattern is simply obvious. In other words, it seems that Tobey’s empirical study answered a question that is not questionable. Therefore, the result does not imply that the stringency of environmental regulations is not a determinant of trade pattern. Rather, it can be inferred that the environmental policy of each country is appropriately determined considering all factor endowments. Or, it can be even argued that the environmental policy is one of the single most important indicators that effectively summarizes all
other factor endowments.

Vossenaar and Jha (1994) criticizes the empirical studies in that they underestimate the current and future cost and consider only part of the environmental costs. Most of the studies only focus on industrial pollution control costs, which is just a small portion of environmental cost. Also, most empirical studies use aggregated data and failed to isolate the effect of environmental compliance cost. The low cost is mainly due to some dynamic gains, such as technological lead induced by the regulation.

(4) Unilateralism vs. Multilateralism

The use of trade measures not allowed by GATT rules or other multilateral agreements are termed unilateral trade measures. The use of unilateral trade measures are urged by environmentalist groups to protect the environment, especially marine living resources in the high sea.

The United States government recently announced that it may use unilateral trade measures for specific cases. Unilateral trade measures can be used when a multilateral environmental agreement recognizes the necessity of trade measures, when it is required to protect endangered species, when there is an environmental spillover to the U.S., or when there is an activity violating international environmental preservation agreements. This list does not yet include unilateral trade measures on industrial products which generate domestic environmental problems in their production process.

Although unilateral measures seem to have some grounds, it should be noted that the use of unilateral measures may open the way to the proliferation of unilateral trade measures, possibly sliding into commercial anarchy. Therefore, a GATT consistent legal basis should precede the use of trade measures. The new WTO system would take the role in this area.

(5) PPMs Issues

The UR Agreement on TBT rules do not permit the use of trade
measures on the process and production methods (PPMs) on environmental grounds. Under the current TBT rules, PPMs trade measures are allowed only when related to the products. However, most important environmental problems, such as greenhouse gases or air pollutants, arise from PPMs, not from the product itself. Therefore, one may argue that trade measures for PPMs is essential for global environmental protection. This is good for national environmental policy. The problem is whether the PPMs trade measures can be justified when it is applied to local environmental problems. In this regard, the PPMs issue boils down to the jurisdiction subject of local environmental problem versus trans-boundary spillover.

(6) Countervailing Duties

Countervailing duties are measures to rectify the trade distortion induced by using subsidies which are deemed to be actionable. There are requirements for imposing countervailing duties: the verification of the existence of an actionable subsidy, the verification of industrial injury, and the verification of a causal link. The subsidy should be provided through financial contribution. Therefore, countervailing duties on lax environmental standards are not permitted under GATT rules.

There is a growing sentiment in the U.S. that countervailing duties should be used to compensate for the difference in the stringency of environmental regulations. Countervailing duties, however, do not conform to GATT rules and are considered a major threat to the GATT system if actually implemented by some countries.

(7) Ecolabelling and ISO 14000: Non-violent Measures

Since ecolabelling and international certification on PPMs and other environment related matters are not strictly trade measures, these are not much related to GATT rules. However, ecolabelling is not completely free from GATT rules. When an ecolabel is imposed by governments, it should be notified to GATT, and when it is set by a private institution, it should be notified to the International Standard Organization. For developing countries, ecolabelling could be detrimental to their industry
since the ecolabel factually enforces the use of specific technology for specific products, hence limiting their entry to the market.

The ISO 14000, which is now discussed by around 30 countries only, will have substantial effect on international trade when it is established as an international norm.

These two "non-violent measures," a term used in the sense that they do not involve any border measures, are in fact trade restrictive and would have serious impacts on the industry of developing countries. Therefore, these issues deserve more attention and require more extensive discussion and a more open and representative forum rather than the small club of developed countries.

Since the ecolabel and ISO 14000 have trade restrictive effects, their trade implications need to be reviewed thoroughly by global multilateral organizations at the intergovernmental level. WTO, in cooperation with CSD, would be the proper institution to effectively handle this issue.

4. A Korean Perspective

(1) Sustainable Development and Trade-Environment Issues

Sustainable Development implies a state of non-decreasing social welfare over the whole time span, where "social welfare" is determined jointly by physical capital and the environmental stock. If there was only one country in the world, global environmental problems may be resolved in a simple manner. Resources will be allocated to dynamically optimize the social welfare over a time span. Since each country has its own specific welfare function, the shadow price of environmental stock with respect to physical capital differs across countries. This gap could be partially filled as the institutional capacity of each country is developed and the knowledge of the global environment spreads. However, there remain the intrinsic discrepancies in their economic status and natural endowments.

International environmental cooperation should be based on the understanding of the differences, including economic factors. The problem lies in determining the allocation of burdens among the countries. An environmental measure can have quite a different impact on a
national economy, depending upon each country's specific circumstances. Some countries, like Korea, have economic structures highly dependent on fossil fuels. In other countries, timber export is the principal source of income. In developed countries, people seek quality in life, while in some countries, subsistence level consumption is the norm.

The cooperative result must be Pareto-superior to the non-cooperative result. Also, the welfare gain from cooperation should be fairly distributed. If the cooperation scheme fails to consider the difference in the change of each country's welfare, it may not work properly.

The issues of the environment, development, and trade are closely related. After the Uruguay Round, the interface between international trade and the environment is expected to be one of the most important and controversial topics in the world economy. The problem is twofold: environmental measures are related to trade and trade measures are related to the environment. Thus far, the latter has been the issue, as was demonstrated in the Montreal Protocol. Recently, the former issue is emphasized and actually has been one of the hottest topics in the NAFTA negotiation. Often, the cause of environmental protection seems less emphasized than 'fairness' in international competition. An apparent environmentalistic argument is often merely disguised protectionism, or has the interests of specific groups behind it.

A country may exploit its environmental capacity, in the sense that it specializes on 'pollution-intensive' goods in the international market. Free trade is criticized for accelerating the migration of pollution-intensive industries from countries with a lower environmental capacity to countries with a higher environmental capacity, thus increasing the total pollution in the world. However, it is not the difference in regulatory intensity among countries, but the average level that determines the total pollution of the world. Rather, if the difference in regulatory intensity correctly represents the difference in assimilative capacity, then the international division of resource utilization, augmented by free trade, will certainly increase total welfare.

Above all, for local environmental problems, if the individual citizen's preference is duly represented, the right to exploit each country's environmental capacity should be respected as far as it does not harm anyone beyond its jurisdiction.
Each country must pay its fair share for better global and regional environment. An incentive-penalty mechanism is necessary to secure the effectiveness of international environmental cooperation. However, this mechanism must be based on agreements among the countries. At the same time, the principles must be clear, transparent, and well-defined. If it allows misuses or abuses, the entire mechanism may collapse, and additionally, this will hinder the growth of the world economy.

The New Round, including the trade and environment issues, would be distinguished from the previous eight Rounds negotiated since the establishment of the GATT system after World War II. The previous Rounds, carried mainly to abolish or moderate border measures, resulted in a substantial increase in international trade and brought about a rise in income in almost every country. The New Round under the WTO system, however, is exposed to the risk of imposing trade-restrictive measures. It is allegedly intended to provide global rules for trade-related domestic issues. Since some of the "global rules" are biased toward the existing rules in developed countries, it can possibly create a "level playing field," thus nullifying the source of the gains from trade itself. The result, as far as a simple comparative statistic shows, is clear: it will reduce the efficiency of the world economy as a whole.

5) Of course, in this argument, the global environmental problem is not included, because the environmental capacity of the earth is not defined for each country, but only for the earth as a whole.

6) For this issue, an ESCAP report (ESCAP(1992)) clearly states as follows:
"...purely local environmental problems would be most efficiently handled through national policies, whereas regional problems may require cooperative solutions that may entail some standards harmonization. ...countries may be capable of achieving similar levels of environmental quality at different costs. In that case, a country levying countervailing duties against products from a country with lower abatement costs could be protecting an inefficient domestic industry. Further, when environmental effects are local and standards and abatement costs differ, such measures may be seen as encroaching on national sovereignty...."
(2) A Korean View on Trade-Environment Issues

Until the 1980s, the Korean public was not fully aware of the seriousness of international environmental problems. For the majority of Koreans, it was the Montreal Protocol of 1987 that led them to realize the urgency of the global environmental problem. However, it was the economic damage incurred by the international regulation, not the global environment *per se*, that affected the ordinary people and bureaucrats of Korea at that time. The general attitude now, however, has changed remarkably. In response to the activities of the media, non-governmental organizations, academicians, and schools, most Koreans are now environmentally aware.

Presently, a popular environmental issue is the transboundary pollution problem. Koreans are concerned about the “yellow dust” and the acid rain, which are believed to be transported from neighboring countries. Also, Koreans are deeply concerned with the issue of trade and the environment. Korean people now understand that an individual country’s environment is not isolated from the rest of the world, and international cooperative measures are necessary to preserve the environment.

The Ministerial Committee on Global Environment headed by the prime minister, established in 1991, plays a catalytic role in combining each sector’s efforts to form a more effective and harmonized operation. It also takes initiatives to establish policy objectives, develop policy tools, and mobilize resources to implement the programs of Agenda 21. The Ministerial Committee is engaged in reformulating Agenda 21 into a hierarchial system of program agendas with up to 5 digit numbers. The Committee will review each item and designate a relevant implementation subject for it. By doing so, all Agenda 21 items will be systematically integrated into national socio-economic policies under the auspice of the Ministerial Committee on Global Environment. This work will unquestionably affect the country’s resource allocations so that sustainable and internationally cooperative policies are established, implemented, and evaluated.

To some observers, the environmental policies of the Korean government may not seem to fully reflect what is considered as international norms and what is demanded by the Korean people. However, as far as
we believe that the preference of Korean people is represented by the current democratic political system, the domestic environmental policy should be assumed to be close to optimal, when the lack of institutional and financial capacity is taken into consideration. The domestic measures required to address global and regional environmental problems are extensively reviewed and operationalized following the direction of Rio Declaration, Agenda 21, and multilateral environmental agreements.

It should be emphasized that the use of trade measures is one of the many tools (sticks and carrots) that can be considered to operationalize the imperative of global environmental protection. The other important tools include, of course, financial resources and mechanism and technology transfer. Various tools will be most effectively utilized when they are considered in an equitable and optimal mix of tools, rather than being dealt separately and contaminated by other interests. The confusion over the jurisdictional problems or multilateral legitimacy, which seems to be intentional on some occasions, is the major sources of this impurity.

The imperative of environmental protection is evident for both global environmental problems and domestic issues. The policy of the Korean government is clearly oriented toward aggressive participation in the global partnership for sustainable development. For domestic issues, urgent tasks of improving air quality and waste management are daily subjects for top ranking public servants and politicians. Korea is embarking into the era of environmental reform. However, the trade-environment issue contains impure elements that are not quite related to the environmental protection and sustainable development per se. I would emphasize that the imperative of environmental protection and some subjects of trade-environment issues should not be confused. Massive discussions on the trade-environment issue the international fora, you may call it “Green Round” or whatever, is desirable in that it will naturally sort out impure elements from the agenda.
References


Bovard, James (1991), The Fair Trade Fraud: How Congress Pillages the Consumer and Decimates American Competitiveness, St. Martin’s Press.


Feketekuty, Geza (1992), The New Trade Agenda, Group of Thirty, Washington, D.C.


1. Introduction

Today, global and transboundary environmental problems have emerged as the main environmental challenge confronting policymakers. Global warming, ozone depletion, and biodiversity loss are at the forefront of environmental issues for all countries. These issues, along with acid rain, pollution of shared water bodies, and cross-border air pollution, are environmental problems that need to be addressed by countries acting together. Commerce in hazardous wastes, dangerous chemicals, and endangered plant and animal species demonstrates how trade between countries can itself contribute directly to environmental degradation. Globalization of environmental problems has paralleled the globalization of the world’s economy: it is just as difficult to place national labels on environmental problems as on merchandise and multinational corporations. Increasingly, the global and transboundary environmental actions and behaviors of one country have extraterritorial effects on environmental assets shared with other countries. In general, global environmental problems are those relating to the protection of the global commons and those resources that are necessary for the continued functioning of the globe as an environmental unit. Transboundary environmental problems are those in which pollution, hazardous substances, migratory species, and other environmentally sensitive features cross national borders or have transborder effects. Increasing environmental consciousness at the grassroots level combined with the perception of a real threat to one’s own environment and health have led to increased public pressures to combat transboundary ecological

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menaces. Countries have sought to use extraterritorial trade measures as part of the policy arsenal to redress global and transboundary environmental problems.

Trade-environment issues first surfaced in the early 1970s, partly as a consequence of the first United Nations Conference on the Human Environment, held in 1972 in Stockholm. A principal concern at that time was that if one country moved vigorously to establish strong environmental protection through pollution taxes, effluent and emission standards, or other measures, its international competitive position would suffer. This is known as the competitiveness effect. The emphasis of both national environmental legislation and trade-environment analysis was on industrial pollution control, not on environmental effects in natural resource sectors. Despite the subsequent empirical studies suggesting that the aggregate trade effects from different pollution abatement regimes have been minimal, the competitiveness issue that captured considerable attention in the early 1970s still remains a concern today.

As environmental policies have focused on the life cycle of products, and as trade liberalization has progressed at the regional and multilateral levels, the trade and environmental debate has re-emerged and has taken on new dimensions as environmental problems have become more global in scope. The thorniest problems relate to the direct use of trade measures at the national and international levels to achieve environmental goals, the life-cycle management of trade products, and the “greening” of trade policies and trade agreements. Policy adjustments in both the trade and environment areas are necessary to head off potential conflicts. Trade objectives and principles such as nondiscrimination, national treatment, and legitimacy must be more fully taken into account by environmental policymakers. Environmental objectives and principles - such as sustainable development, the precautionary principle, and the Polluter Pays Principle - must be more fully taken into account by trade policymakers. The improved integration of trade and environmental policymaking will help promote their mutual compatibility in the long term and contribute to the balanced resolution of conflicts that do arise.

A reason for the resurgence of attention to the trade-environment
intersection is an increase in interest in sustainable development, which broadens environmental concerns from industrial pollution to natural resource conservation. There are many connections between international trade and sustainable development that are just now being explored. Clearly, trade liberalization in the absence of adequate domestic environmental protection policies can add environmental stress. It does not necessarily follow, however, that trade restrictions improve environmental quality. Indeed, some studies show that economies that are relatively closed to trade and investment are burdened with higher pollution levels than countries well-integrated into the trade system. Also, policies that protect agriculture in the EC and elsewhere may result in excessive use of agricultural chemicals and environmental degradation. In that case it is trade restrictions, not trade liberalization, that causes environmental degradation.

Virtually all current trade-environmental issues fall within one of four categories:

- The trade effects of environmental regulation of production (the competitiveness issue);
- The trade effects of environmentally-related product standards;
- The use of trade measures to secure international environmental objectives; and
- The environmental effects of trade and trade liberalization.

Among these issues related to the trade-environment linkage, the issue of competitiveness arising from differences in environmental regulations must be one of the most basic and important areas to be reviewed by Korean environmental policymakers.

In this aspect, this paper reviews environmental regulatory measures in Korea in light of raising the effectiveness of those measures.

2. Environmental Regulatory Measures in Korea

(1) Status of Environmental Regulatory Measures in Korea

Description of environmental measures is categorized into economic instruments, technical regulations and standards and quality control
measures. The Korean government has a tendency to replace pipe-end measures such as punitive measures, and administrative orders with market-oriented approaches such as pollution-inducing charge system and deposit-refund system. Korea has been making efforts to improve environmental regulations and measures, but some of them do not meet the international standard, Korea still needs to review domestic environmental regulations and measures to prepare for the recent developments in integrating trade and environment. The environmental regulatory measures in Korea are shown in Table 1, Table 2 and Table 3.

(Table 1) Economic Instruments

<table>
<thead>
<tr>
<th>Item</th>
<th>Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product charges or taxes</td>
<td>Environment improving charges</td>
<td>Charges on facilities and vehicles for pollutants</td>
</tr>
<tr>
<td></td>
<td>Waste disposal charges</td>
<td>Charges on environmentally damaging products</td>
</tr>
<tr>
<td></td>
<td>Container deposit</td>
<td>Deposit on recyclable bottles</td>
</tr>
<tr>
<td></td>
<td>Plastic waste charges</td>
<td>Charges to collect and dispose plastic wastes</td>
</tr>
<tr>
<td>Emission charges or taxes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy taxes</td>
<td>Energy use consultation</td>
<td>Control of energy use in advance</td>
</tr>
<tr>
<td>Administrative charges</td>
<td>Effluent or emission charges</td>
<td>Charges excess</td>
</tr>
<tr>
<td>Tax differentiation</td>
<td>Deposit-refund scheme</td>
<td>Deposit of the costs to collect and dispose of environmentally damaging wastes</td>
</tr>
</tbody>
</table>

Source: KETRI (1993a)
(Table 2) Technical Regulations and Standards

<table>
<thead>
<tr>
<th>Item</th>
<th>Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product standards</td>
<td>Composition standards</td>
<td>Standards for fuels and additives</td>
</tr>
<tr>
<td></td>
<td>Quality standards</td>
<td>Emission standards for vehicles</td>
</tr>
<tr>
<td></td>
<td>Performance standards</td>
<td>Recall system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grading energy consumption efficiency</td>
</tr>
<tr>
<td>Emission standards</td>
<td>Emission standards for in-use vehicles</td>
<td>Permissible standards by fuels and a type for in-use vehicles</td>
</tr>
<tr>
<td>Prohibited products</td>
<td>Agrichemicals use control</td>
<td>Control of agrichemicals for toxicity</td>
</tr>
<tr>
<td></td>
<td>Toxic chemicals use control</td>
<td>Control of toxic chemicals by test</td>
</tr>
<tr>
<td></td>
<td>Ozone-depleting substances control</td>
<td>Control of ozone-depleting substances</td>
</tr>
<tr>
<td>Deposit-return obligation</td>
<td>Collection/disposal obligation</td>
<td>Obligation to collect and dispose of the wastes</td>
</tr>
<tr>
<td>Packaging requirements</td>
<td>Regulations on packaging</td>
<td>Regulation on packaging method and product materials</td>
</tr>
<tr>
<td>Labelling requirements</td>
<td>Labelling for sorting system</td>
<td>Labelling of plastics packages &amp; aluminum cans to promote recycling</td>
</tr>
<tr>
<td>Eco-labelling programmers</td>
<td>E-mark system</td>
<td>Labels informing the public that certain products are environmentally more friendly than others</td>
</tr>
</tbody>
</table>

Source: KETRI (1993a)

(Annex 3) Quantity Control Measures

<table>
<thead>
<tr>
<th>Item</th>
<th>Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensing</td>
<td>Ban on yellow/blue asbestos</td>
<td>Import prohibition from Nov. 1989</td>
</tr>
<tr>
<td></td>
<td>Ban on toxic chemicals</td>
<td></td>
</tr>
<tr>
<td>Quotas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prohibition on the basis of origin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: KETRI (1993a)
(2) Reform of Environmental Regulation

There is widespread agreement about some prominent features of the regulatory system. Emphasis remains on treating pollution rather than on preventing it. A single media approach to pollution predominates, with separate laws, regulatory offices and enforcement procedures for air, water, hazardous waste and other media. Rather than setting an overall emission limit for a facility, regulations and permits often separately specify emission rates for individual sources within the plant. The system is characterized as command and control. The system is adversarial, with frequent challenges taken by all sides long after laws are first passed. Finally there is little emphasis on technology development and innovation or on technical assistance to help industry meet pollution control requirements. Much progress has been made to control industrial pollution under this regulatory system. But, there is considerable interest in finding ways to adjust the regulatory system so that comparable or even higher levels of environmental protection could be achieved at lower costs and with less adverse competitive impacts on industry.

There are three areas that Korean environmental policymakers may look into for such adjustments. These are:

1) General Regulatory Reform
2) Combining Regulation with Economic Incentives
3) Regulation-induced Technological Change

1) Regulatory Reform

i) Formulation of Environmental Regulations

The adversarial process encourages polarization, which makes achieving effective solutions more difficult. Industries often initially overestimate the costs of compliance and the technical difficulties in achieving it, while environmental organizations often promote solutions with little evaluation of costs. Involving related parties more fully in developing regulations is one option. Because issues of technological feasibility, compliance deadlines and cost are taken into account at an early stage, it is less likely that decisions will be challenged legally or politically by industries. However, these systems are usually less open and less accessi-
ble to environmental groups or other non-governmental organizations (NGO) outside of industry.

All affected interests (including environmental organizations) can be involved in more cooperative approaches. For example, negotiated rulemaking processes use informal bargaining among affected groups and regulators that may culminate in an agreement that becomes the basis for the rule. In theory, these processes may have several advantages over more adversarial processes. First, better outcomes are possible because all views are heard and can be woven together as parties become more aware of the needs and constraints of the other stakeholders. Second, negotiated rulemaking may increase rule acceptability and make implementation easier, since parties involved in making the rule are less likely to oppose its implementation. Third, negotiation may speed acceptance of new technologies and approaches once a law or regulation requiring an outcome is in place. But these systems also have drawbacks. Not all issues are subject to negotiations. Moreover, negotiated rulemaking and other cooperative approaches can be time-consuming and costly for stakeholders and regulatory agencies, especially on the front-end of regulatory development.

ii) Multi-media Regulation

The one-pipe-at-a-time focus makes it difficult to take an integrated approach with multimedia benefits. The media-specific organization of regulatory agencies has been a barrier to moving more towards lower cost pollution prevention approaches.

An alternative would be to seek to develop multimedia regulations and rules, perhaps organized around particular industrial sectors. Greater emphasis on industrial sectors might offer several advantages. Permit writers and inspectors could focus on a narrower range of industries and processes in order to develop more in-depth knowledge of the nature of the pollution problems in those industries and the regulations covering them, including through pollution prevention. Regulators would be more knowledgeable about the industry in controlling and reducing pollution. Officials would better understand pollution prevention and industrial process technology since, unlike treatment technology, pollution prevention technology is often specific to particular sectors. More-
over, a sectoral orientation could stimulate new opportunities to experi-
ment with cooperative interaction among industry, environmentalists,
and government. Finally, because all parties would be examining the
workings of regulation on an industry, it might be clearer to recognize
inconsistencies among proposed requirements.

Yet, there are several potential drawbacks to such an approach. Regulators might be more easily captured by industry interests if they
dealt exclusively with that industry. Moreover, some industries might
argue that others are not as heavily regulated.

iii) Regulatory Flexibility

Manufacturing firms differ greatly in their level of environmental
awareness, ability to meet environmental objectives, and commitment to
pollution prevention. However, the same regulatory procedures govern
both firms seeking exemplary solutions to environmental problems
resisting regulations. As a result, companies have little leeway to try
solutions that are potentially riskier, yet more environmentally and
economically sound, including pollution prevention. In view of this,
there are several approaches which regulators could take to increase
regulatory flexibility without reducing environmental protection. Regu-
lators could employ fail-soft strategies to go easy on innovators who
come close to standards but fail. Similarly, firms could be granted
innovation waivers that allow limited noncompliance while developing
new approaches. These waivers and greater flexibility might be granted
to those firms with good records.

2) Regulations and Economic Incentives

The marginal costs of pollution control usually differ between firms
and between processes within the same firm. These variations in com-
pliance cost stem from differences in size, age and kind of technology, cost
of substituting inputs, location, management practices, and other factors.
Therefore, requiring equivalent pollution reductions by both high-cost
and low-cost sources can be an expensive way to control pollution.

The argument is that market incentives, while theoretically produc-
ing the same aggregate amounts of pollution control, would do so more
cheaply by achieving more reductions from the sources that can do it for less and fewer reduction from the sources that face higher marginal control costs. While incentive systems offer the opportunity to lower compliance costs and in doing so reduce the competitive impact of regulations on industry, they cannot be applied in all cases, and hence are best seen as a supplement, rather than a replacement, of the present regulatory system.

i) Types of Incentive Systems

There are two major incentive approaches that apply principally to pollution from industrial sources: marketable permits and taxes or fees. With marketable permits, firms are allocated permits to release a certain amount of pollution, specified by statute or regulation. Firms that wish to release more pollutants than the level of their permits are able to buy allowances from firms that have reduced their releases below the level of their permits. In theory, firms facing high control costs could buy allowances from firms facing low control costs and comply more cheaply than they could buy to reduce the pollutants themselves.

With fees, firms are charged for each unit of pollution they release. Ideally, the fee would be set at a level equal to the marginal costs caused by the pollution. Theoretically, this would lead firms with low-cost control options to cut emissions and firms with high cost control options to pay the fee, while achieving sufficient overall reductions to meet environmental objectives.

There are several overall incentive systems. Deposit-refund approaches have been used to ensure recycling or proper disposal of certain products, such as batteries or packaging materials. They have also been proposed to reduce the generation of hazardous waste. Buyers of a toxic chemical would pay a deposit at the time of purchase and receive it back when they take the chemical to a certified recycler or, in cases where recycling is not possible, to a certified disposal site. Making information on discharges public can lead to public pressure on polluters, which induces them to reduce pollution. Liability rules encourage polluters to reduce wastes, since they may be held liable for future clean-up. Finally, remission of government subsidies for practices such as below-cost timber sales and agricultural price supports are often advo-
cated as a way to increase economic efficiency.

ii) Advantages of Incentive Systems

There are several potential advantages of incentives in the regulatory system.

Cost savings: Many studies suggest that the total savings from using incentives rather than traditional regulations alone could be considerable, primarily because differences in compliance costs between sources can be substantial.

But a theoretical model may overstate the savings from incentive approaches, in part because theoretically pure incentive schemes are unlikely to be workable in practice. First, many firms with high control costs have already invested in abatement and therefore cannot reap savings available if they buy credits. Second, perfect markets for tradable permits may not develop. Third, transaction costs, particularly with tradable permits, may be high. Finally, environmental safeguards and other regulator constraints can diminish the workability of incentives.

Greater operating flexibility: The development and implementation of new pollution controls or prevention methods entails certain regulatory risks for the business. One advantage of incentive approaches is that if firms choose to invest in a new control technology or a clean process solution that is of low cost, but falls slightly short of meeting the regulation, or requires additional time to work out problems, they can buy credits (or pay a fee) to make up for the shortfall.

Incentives for innovation in pollution control: Under command-and-control, firms have little incentive to reduce releases below the required level since they receive no economic benefit. Moreover, regulated firms have limited interest in developing more efficient technologies for pollution control since, once developed, these technologies are likely to be mandated by regulators as standards for other sources in the future. Finally, designation of technology standards make it more difficult for firms to get alternative approaches accepted. As a result, command-and-control systems, particularly technology-based standards, can freeze the development of technology that could provide control at greater levels or lower costs.

A potential benefit of incentive approaches is that they could provide
firms with financial rewards for developing and adopting new pollution abatement and prevention technologies and other innovative control strategies that reduce releases below required levels. Firms adopting innovative technologies that reduce pollution more than required would benefit financially, either through lower pollution taxes or saleable pollution rights.

While incentives may stimulate new ways of controlling pollution, these may not always lead to development of new technology. For example, firms may decide to use more straightforward approaches, such as fuel-switching or substitution of materials. Thus in some cases, in contrast to a technology-based standard that may force the development of a new technology, incentives could produce less technological innovation, even though they produce lower cost means of control.

iii) Limitations and Disadvantages of Incentive Systems

There are limits to incentive systems. Incentives seldom eliminate the need for regulations. Indeed, incentive systems must generally be implemented within a clear regulatory framework. An incentive-based approach, however, may offer more compliance options than a traditional regulatory system.

One key to incentive approaches is accurate and timely monitoring and enforcement. Unlike many conventional command-and-control standards where adoption (and proper operation) of a certified control technology ensures compliance, incentive systems normally require accurate monitoring of emissions over a period of time. While current monitoring procedures and technology appear adequate for some types of processes and pollutants, they are less so for others. As a result, the application of incentives may be limited to cases where adequate monitoring and enforcement are feasible. Incentive approaches will generally increase the need for and complexity of detailed modeling, monitoring and enforcement, which could increase the administrative cost to government and industry. Monitoring is more complex when emissions output is regulated and less complex when materials input is taxed. Geographical constraints can limit applicability of incentives. For some pollutants the market may have to be defined quite narrowly, so that trades do not significantly deteriorate the environmental quality in an area. Safeguards
would be necessary under a tax or trading system to protect the interests of persons living in a place where polluters chose to pay the fee or buy the rights, rather than control pollution. However, even with small trading areas, potential savings might be significant.

In cases where environmental damage is severe, there may be a need to use all feasible means of control and to limit the ability of firms to buy pollution rights. In this case, the cost advantage of market-based approaches over command-and-control will be less, but still may be significant. Taxes or fees make it difficult to predict the amount and pace of pollution reductions. More importantly, as discussed below, because managers may not optimize and choose low-cost options, firms may choose to pay the fee and continue to pollute, even if reducing pollution would save them money. Unlike fees and taxes, tradable permits allow regulators to ensure an overall level of pollution reduction. It is difficult for government to set fees at the correct level to produce the desired change at the lowest cost. Moreover, taxes and fees or the auctioning of permits could raise total compliance costs for industry, even if abatement were reduced. However, fees and auction income can be rebated back to industry to be revenue neutral. Assignment of credits or allowances can be inequitable. Depending on how these rights are allocated, firms that cleaned up early may be penalized. Similar to the current command-and-control system, a marketable permits program may penalize new firms and reward existing firms by making the former buy permits to enter the market. In addition, marketable permit systems may exacerbate industrial relocation, since firms moving out of areas with marketable permits may be able to sell their pollution permits, making it more profitable for them to leave. One way to deal with this would be to have closing and moving firms hand over credits to the local government, which can sell them or give them to firms relocating to the area.

Some oppose incentive systems because they feel that industries should not be given the right to pollute, and that every single reduction on releases possible is necessary, particularly in nonattainment areas. But, the incentive system can be designed to permit no more pollution than an equivalent command-and-control system.

Incentive approaches promise much in theory, but their application in the real world suggests that their use is more limited. Notwithstand-
### Table 4: Advantages and Disadvantages of Different Regulatory Approaches

<table>
<thead>
<tr>
<th>Types of Regulation</th>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>Uniform technology-based standards</td>
<td>- Easier to ensure compliance</td>
<td>- More difficult to focus efforts on low-cost sources within or between plants</td>
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<tr>
<td></td>
<td>- Able to set overall release targets for facility and region</td>
<td>- Reduces incentives for pollution prevention and technology development</td>
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<tr>
<td></td>
<td>- Ensures large market for producers of best available technology</td>
<td></td>
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<tr>
<td>Source-based performance standards (sources within a plant)</td>
<td>- Some incentives for pollution prevention and technology development</td>
<td>- More difficult to focus efforts on low-cost sources within or between plants</td>
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<tr>
<td></td>
<td>- Able to set overall release targets for a facility and region</td>
<td>- Monitoring may be difficult</td>
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<tr>
<td></td>
<td>- Greater flexibility to urge low-cost approaches on regulated sources</td>
<td></td>
</tr>
<tr>
<td>Plant-based performance standards (facility bubbles, no trading)</td>
<td>- Can focus efforts on low-cost sources within a plant</td>
<td>Monitoring may be difficult</td>
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<tr>
<td></td>
<td>- Moderate incentives for pollution prevention and technology development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Able to set overall release targets for a facility and region</td>
<td></td>
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<tr>
<td>Tradable pollution permits</td>
<td>- Can focus efforts on low-cost sources within facility or between facilities</td>
<td>- Monitoring may be difficult</td>
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<td></td>
<td>- Stronger incentive for pollution prevention and technology development</td>
<td>- Can lead to regional/local pollution concentrations</td>
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<tr>
<td></td>
<td>- Greater flexibility regarding when and to what degree reductions are made</td>
<td>- May not be appropriate for emissions with threshold damage functions</td>
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<tr>
<td></td>
<td></td>
<td>- Early reducers can be penalized</td>
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<tr>
<td></td>
<td></td>
<td>- Potentially large transaction costs, which may diminish cost savings</td>
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<td></td>
<td></td>
<td>- If permits are auctioned, can raise total compliance costs</td>
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<tr>
<td>Pollution taxes</td>
<td>- Can focus efforts on low-cost sources within a facility or between facilities</td>
<td>Monitoring may be difficult, if the tax is placed on outputs rather than input purchases</td>
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<tr>
<td></td>
<td>- Stronger incentive for pollution prevention and technology development</td>
<td>- Can lead to regional/local pollution concentrations</td>
</tr>
<tr>
<td></td>
<td>- Greater flexibility regarding when and to what degree reductions are made</td>
<td>- May not be appropriate for emissions with threshold damage functions</td>
</tr>
<tr>
<td></td>
<td>- Require few regulatory approvals</td>
<td>- Difficult to set overall release levels</td>
</tr>
<tr>
<td></td>
<td>- Set marginal costs of control</td>
<td>- Firms may choose to pay tax rather than cut pollution</td>
</tr>
<tr>
<td></td>
<td>- Source of government revenues</td>
<td>- Because of increased taxes, can raise total compliance costs</td>
</tr>
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</table>

ing these limitations, the potential for incentive based approaches to cut costs (and stimulate innovation) has not been reached.

3) Regulation-induced Technological Change

Technological change is now generally regarded as essential to achieving the next major advances in pollution reduction. The necessary technological changes must include: (a) the substitution of materials used as inputs, (b) process redesign and (c) final product reformulation.

The key to success in pollution prevention is to influence managerial knowledge of and managerial attitudes toward both technological change and environmental concerns. Encouraging technological changes for production purposes and for environmental compliance purposes must be seen as interrelated, rather than separable, activities that must be fully integrated. To bring about this integration, management must be committed to expanding the “problem space” of the engineer/scientist/technologist to include environmental and safety concerns so that those concerns are reflected in both design and operational criteria of a firm’s technology. This may require a fundamental cultural shift in the firm. A related cultural shift in the regulatory agencies that influence how firms respond to environmental demands is also essential.

The technology of the firm also influences managerial style and may limit the kind and extent of technological changes that are likely or possible. Thus, the design of governmental (or corporate) policies for encouraging a fundamental shift in the technologies of production must rest on an appreciation of the different kinds of technological change, as well as the dynamics of achieving those changes under a regulatory stimulus.

i) The Dynamics of Regulation-Induced Technological Change

Underlying a regulatory strategy aimed at stimulating technological change and achieving a significant level of pollution prevention is a rejection of the premise that regulation must achieve a balance or compromise between environmental integrity and industrial growth, or between job safety and competition in world markets. Rather, such a strategy builds on the thesis that health, safety and environmental goals
can be co-optimized with economic growth through technological innovation. Although a new technology may be a more costly method of attaining current environmental standards, it may achieve stricter standards at less cost than adaptation of existing technology. The co-optimization can occur because a new dynamic efficiency is achieved. Because end-of-pipe approaches have been used for a long time and improvements in pollution control have probably reached a plateau, it is argued that the new technology curve or frontier will be occupied predominantly by pollution prevention technologies - that is, new products, inputs or production processes.

ii) The Model of the Effects of Regulation on Technological Change
The model structured to assist in designing regulations and strategies for encouraging pollution prevention is presented in figure 1.

(Fig. 1) A Model for Regulation-Induced Technological Change


The Regulatory Stimulus: Environmental regulations control different aspects of development or production, change over time and are
"technology forcing" to different degrees. Thus, designers of regulations should consider that the effects on technological innovation will differ among various forms of regulations. Furthermore, the internal structure of regulations may alter the general climate for innovation. Elements of that structure include: a) the form of the regulation (product versus process regulation); b) the mode (performance versus specification standards); c) the time for compliance; d) the uncertainty; e) the stringency of the requirements; and f) the existence of other economic incentives that complement the regulatory signal.

Regulations relying on detailed specification standards or on "best available technology" may discourage innovation while promoting rapid diffusion of state-of-the-art technology. Similarly, although a phased-in compliance schedule may prompt only incremental improvements in technology, it allows a timely industry response.

The government's initial concern is often, however, an unreliable stimulus to technological change. Both technical uncertainties and application of political pressures may cause uncertainty regarding future regulatory requirements. Regulatory stringency is the most important factor influencing technological innovation. A regulation is stringent either a) because compliance requires a significant reduction in exposure to toxic substances, b) because compliance using existing technology is costly, or c) because compliance requires a significant technological change. Policy considerations dictate different degrees of stringency as well, since some statutes require that standards be based predominantly on environmental concerns, some on existing technological capability, and others on the technology within reach of a vigorous research and development effort. The effect of the regulatory agency's strategy on innovation is not confined to standard setting. Innovation waivers, which stimulate innovation by allowing noncompliance with existing regulation while encouraging the development of a new technology, are affected by enforcement strategies as well. The degree to which the requirements of a regulation are strictly enforced may influence the willingness of an industrial sector to attempt to innovate. The implementing agency ultimately may strictly enforce environmental regulations against those firms receiving waivers or, alternatively, it may adopt a "fail-soft" strategy where a firm has made an imperfect effort but a
good faith attempt to comply. The latter strategy is an important element of the regulatory stimulus to innovate as it decreases an innovator’s risk of incurring severe agency action in the event of failure.

Responding industrial sector: The industry responding to regulation may be the regulated industry, the pollution control industry, or another industry. The regulated industry will likely develop new processes and change inputs: the pollution control industry, new devices: and either the regulated industry or new entrants, reformulated or new products.

Overtime, the nature and rate of innovation in the productive segment (a single product line) will change. Initially, the segment creates a market niche by selling a new product, superior in performance to the old technology it replaces. The new technology is typically unrefined, and product change occurs rapidly as technology improves. Because of the rapid product change, the segment neglects process improvements in the early period. Later, however, as the product becomes better defined, more rapid process change occurs.

The design of strategies: The implications of this model of innovation relate directly to the design of strategies to promote innovation in three ways. First, the model suggests that innovation is predictable in a given industrial context. Second, it asserts that the characteristics of a particular technology determine the probable nature of future innovation within an industrial segment. Third, it describes a general process of industrial maturation that appears relatively uniform across different productive segments.

The regulatory designer must make the following three determinations:

a. What technological response is desirable?
b. Which industrial sector will most likely innovate?
c. What kind of regulation will most likely elicit the desired response?

The first determination requires a technological assessment, the second a knowledge of a variety of industrial segments, and the third an application of the model.

iii) Technical Assistance

While new technologies are necessary for fundamental gains in
pollution prevention, widespread diffusion of existing off-the-shelf technologies will go a long way to reduce pollution, a significant share do not know how to move beyond the simplest measures: some, particularly small businesses, may not even be aware of pollution prevention options.

Technical assistance efforts can help these firms implement pollution prevention and recycling measures. Most importantly, by considering pollution prevention separately from other manufacturing needs, such as productivity and quality improvements, most programs fail to develop the vital synergies and working relationships with manufacturers that are essential to drive both pollution prevention and increased manufacturing competitiveness.

3. National Strategies for the Greening of World Trade Systems

Three basic strategies can be stated as primary policy objectives to prepare upcoming greening process of world trade systems.

These are:

(1) Enhancing Environmental Technological competence
(2) Strengthening of Environmental Information Power.
(3) Promotion of Corporate Environmentalism.

(1) Enhancing Technological Competence

1) Set up National Framework on Setting-up Long-term Environmental Technological

Technology presents both potentials and risks for the environment. Recognition of the need for achieving sustainable development objectives has been accomplished by incorporating the environmental dimension into technology assessment, thereby gradually shifting the emphasis from existing to new or emerging technologies.

Technology assessment should be performed as a system approach to address the effects of technology acquisition in a broader socio-economic and environmental context and within a reasonable time period.

Methodologies of technology assessment in the context of sustainable
development require: a) the understanding of the nature of technological change as a process, particularly the dynamics and diffusion of new technologies that are likely to have widespread repercussions for economic production and social development; b) the integration of the environmental dimension into assessments of technology options; and c) the involvement of mechanisms to insure that assessment results are adequately disseminated and incorporated into decision-making processes.

Any conceptual framework of technology assessment should include: a) the elements of monitoring and forecasting of scientific and technological developments at national and international levels; b) the definition of parameters and time periods covered by assessment performances; c) a certain flexibility regarding different features or elements

(Fig. 2) Analytical Framework of Environmental Technology Development

- Science and Technology System
- Socio-Economic System
- Domestic/International Environment
- Endogenous Capacity

- Objective of Technology Development
- Environmental Standards
  - Technology Needs
  - Demand-supply of Environmental Technology

- Technology Assessment (Priority setting)
  - Technology Property
  - Technology Network
  - Decision-making Model

- Determination of Technology Acquisition Method
  - Technological Level (Domestic/International)
    - Information of International Technology Market
    - Negotiation on Technology Transfer
    - Decision-making Model

Technology Development (Planning, Execution, Valuation)
involved in technology assessment; d) the identification of a set of attributes such as transparency, replicability and credibility, that technology assessment should match to be successful; e) the existence of a large variety of situations and clients/beneficiaries having different interests and expectations; this would alter the approaches to as well as the objectives and output of technology assessment performance, and facilitate the perception of the results by the users; f) an approach to technology assessment on the basis of a participatory process that should include all relevant constituencies in a given society.

2) Integrating Technical Assistance with Regulation

It is essential to provide technical assistance to the firms that are not in a position to innovate. Technical assistance efforts can help firms implement pollution prevention and recycling measures. This includes information transfer, demonstration projects, the education of consultants, and joint ventures. It is necessary to design regulations to get the desired technology. Integrating technical assistance into the permitting and inspection process is one approach to encourage adoption of pollution prevention practices. Government permit writers and inspectors can visit manufacturing plants routinely; some might be able to provide basic technical assistance.

There may exist, however, several institutional barriers to this. First, the regulatory agencies may not actively support combining enforcement and assistance roles. Second, inspectors and permit writers may lack the expertise to provide technical assistance.

3) Promoting Global Technology Transfer

It is in the interest of the world community as a whole to accelerate technology cooperation, because without the transfer of environmentally benign technology, global environmental problems promise to undermine the prosperity and security of even the richest nations.

New technologies have been developed primarily in industrialized countries in order to solve new environmental problems created by mass production and mass consumption, as well as a need for better living
conditions allowed by higher income levels.

Technical cooperation, therefore, should take fully into account the application of technologies and knowledge that already exists in the developing countries, including the promotion of local scientific and technological developments in and by the countries themselves as a major aspect of endogenous capacity building. Such action would gradually reduce the one-sided dependence of the developing countries on imported technologies, and encourage technological solutions that are sustainable under the conditions, needs and priorities of those countries. Successful cooperation also results from consistent positions of policy, by both the suppliers and the recipients of technologies and orms continuity in relationships. Technology transfer covers many activities, commercial and otherwise, involving the international flow of technical research, knowledge, training, studies, processes, equipment and hardware.

(2) Establishment of Information System and Infrastructure

1) Building National Environmental Information Infrastructure

The need for information related to environment and development increases rapidly at all levels of the society, from that of the national policy-makers to the level of grassroots, for the advancement of environmental technology and the scientific decision-making based on sound information. Adequate and timely acquisition of information is one of the important factors to increase national negotiation power.

Therefore, the development of the information network system to link sources and users of information is highly important issue. The proposal to create a national Environmental Information Management system is as follows.

Providing access to information is not a simple process. A variety of entities have information (e.g. government ministries, industry), and a variety of entities need information (e.g. citizens, citizen groups, parliament, other government ministries, industry). To ensure broad and effective access to information, a number of different information access requirements must be instituted.
(3) Promoting Corporate Environmentalism

Environmentally sustainable economic growth is now widely accepted as being the goal for international, national, and regional economies. One of the major consumers of environmental resources and producers of environmental damage and pollution is the manufacturing industry.

Some business leaders now widely acknowledge that environmental protection measures have become, and will continue to be, a growing influence on how companies operate. For some firms, environmental protection and green consumerism will provide new business opportunities; for many, adaptations will improve overall performance, bring savings, and increase profitability. To others, however, meeting tougher environmental standards will be costly, and in extreme circumstances,
may force closure. There is therefore a dynamic tension between maintaining and increasing levels of economic activity and securing improvements in environmental performance.

A number of distinct, although interrelated, environmental pressures are responsible for raising environmental awareness in industry and for stimulating responses. These include: a) Increasing stringent environmental legislation and enforcement, b) Increasing costs associated with pollution control, waste disposal and effluent disposal, c) Increasing commercial pressure from the supply, consumption and disposal of both final and intermediate products, d) Increasing awareness on the part of investors of companies' environmental performance in view of the cost implications associated with liability and the polluter-pays principle, e) Increasing training and personnel requirements, together with additional information requirements, f) Increasing expectations on the part of the local community and the work force of the environmental performance of firms and their impact on the environment.

(Fig. 4) Environmental Pressures on a Firm

Successful companies focus their environmental programs on issues that most affect their business and industry, and seek sustainable environmental opportunities that fit their business strategy. These companies
follow some common “best practices” to effectively execute environmental programs. They integrate environmental concerns throughout their organization and manage their environmental programs at a higher level in the organization. In doing so, environmental leaders are able to satisfy the interests of many stakeholders at once, a proven path to harmony and profitability.

**Table 5 Corporate Environmental Program**

<table>
<thead>
<tr>
<th>Key Elements</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>Set Vision</td>
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<tr>
<td>Clear vision</td>
<td>Provides the guiding principles and policy for all environmental actions</td>
</tr>
<tr>
<td>Corporate Strategy and Programs</td>
<td>Delineates the means by which the environmental vision will be achieved</td>
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<tr>
<td>Design for Excellence</td>
<td></td>
</tr>
<tr>
<td>Planning Processes</td>
<td>Integrates environmental issues into all planning processes (i.e. investments, marketing, R&amp;D)</td>
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<tr>
<td>Organizational Structure and Responsibilities</td>
<td>Supports effective communication and matches environmental goals with corporate culture</td>
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<tr>
<td>Achieve Continuous Improvement</td>
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<tr>
<td>Performance Measures</td>
<td>Focuses management and employee efforts to achieve the environmental goals</td>
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<tr>
<td>Reward and Recognition</td>
<td>Individual and team rewards explicitly linked to accomplishing performance measures</td>
</tr>
<tr>
<td>Strategic Program</td>
<td>Focuses efforts on high priority programs such as risk management, legislative and regulatory proactivity and contractor and supplier involvement</td>
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<tr>
<td>Training and Management Development</td>
<td>Instills the skills required to fulfill assignment responsibilities and increase environmental awareness</td>
</tr>
<tr>
<td>Communication and Information Management</td>
<td>Ensure accessibility to relevant data and enhances decision-making capabilities</td>
</tr>
<tr>
<td>Change Management</td>
<td>Addresses the internal obstacles to implementation</td>
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References


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Discussion

Il-Choong Kim

Since the Stockholm Declaration in 1972, the trade-environment issue has been discussed on a conceptual basis in academic papers and OECD workshops. The basic finding of those studies pre that more stringent environmental regulation weakens international competitiveness and reduces the exports of related goods. At the same time, import of pollution-intensive goods are increased and pollution-intensive industries migrate to less developed countries. Empirical studies tested this thesis that environmental regulation impacts the comparative advantage of each country and world trade patterns.

In general, the result of empirical studies negated this thesis. However, as Dr. Han pointed out, the finding of the studies that the effect of the environmental regulation is quite minimal on the average or a macro effect. The percentage of the environmental cost in total cost of a firm is 1 - 1.5 percent. Considering other elements of production costs and changes in foreign exchange rates, environmental cost is negligible, they argued. What is important here is that environmental costs differ by country and by industry, as Dr. Han said. Therefore, the thesis that environmental regulation affects trade patterns cannot be rebutted.

In Korea, such empirical studies have been done by Dr. Yoo in 1993 and by myself in 1990. The data used in my study consists of 9,000 waste water discharging firms obtained from Ministry of Environment. Regarding the share of environmental cost in total sales, metal mining is the highest, non-metal mining is the second, and lime and dyes follow. The environmental cost contains not only direct costs but also linkage effects to other industries. In the case of metal mining, the indirect effect is 17.9% of the total environmental cost, which is a fairly large share.

Relative Impact Index, defined as a share of environmental cost multiplied by export-import ratio, is used to indicate the degree of sensitivity of export to environmental regulation. The industry-wide order of this index is paper, soap, clay products, and so on. The result shows that the difference among industries is large. It suggests that
environmental regulation affects the performance and international competitiveness of an industry in a differentiated manner. It has a policy implication that industrial structural adjustment is necessary to cope with environmental problems.

In Korea, basic policies concerning global environmental issues are discussed in the Ministerial Committee on Global Environment, established just after the Rio Conference in 1992. Sixteen departments take part in the Committee headed by the prime minister. The Committee's mandate consists of three areas including environmental policy, industrial policy, and international negotiation policy. I think three conditions should be satisfied, to implement these policies effectively. First, domestic environmental standards should be upgraded to the international level and a system to internalize environmental cost should be established. It includes various policy initiatives, as Dr. Kwak mentioned. Second, participation of private sector in international environmental negotiation should be encouraged. Third, more active and systematic framework to deal with international environmental negotiation should be established.

Recently, several laws containing anti-environmental clauses have been passed. I have serious doubts as to the preparedness of our government to cope with new challenges concerning international environmental issues.

On the international negotiation policies, I think the shortage of manpower with negotiation expertise is a serious constraint to our ability. Since the upcoming trade-environment negotiation is expected to proceed more quickly than the Uruguay Round, this constraint would be more binding.

As Dr. Yoo said, we have transboundary pollution problems with China. To address this issue, I think, a multilateral negotiation scheme works better than a bilateral mechanism.

I would like to comment on Dr. Han's paper. He said that the environmental policy of Korea is proper and close to optimal, with which I do not agree. Of course, that argument takes institutional and financial constraints into consideration. In fact, those institutional and financial constraints are the very sources of environmental problems that should be overcome. But can we say that the environmental policy is
close to optimal?

And finally, I would like to add one more comment on Dr. Kwak’s remarks on the institutional arrangement covering environmental issues in Korea. I realize the difficulty in the practical application of incentive mechanisms, however, I do not agree on some points Dr. Kwak mentioned. For instance, he said that direct regulations are necessary for the effective management of the incentive mechanism. Yet I think direct regulatory mechanisms are not necessary if incentive systems are efficiently established. Monitoring systems and effective enforcement, not regulation, is needed.

Young-Che Ahn

I would like to give some remarks as a government official from the Ministry of Environment. Most people are concerned with the impact of international environmental regulation on industrial performance. But what is the real cause of our concerns?

We did not properly address the water quality problem in the Naktong River. We have used tiger bone and rhino’s horn as medicinal material. Korea’s stance on the environment is not what we should have for our economic capability. Environmental aspects should be considered prior to industrial impact and trade issues. In this regard, the government of Korea has a plan to upgrade environmental standards to the levels of developed countries.

I think the issue of unilateral trade measures for environmental purposes is the most important topic either for the environment or trade. Among the four conditions for the use of unilateral trade measures concerning the environment, as announced by the U.S. government, two conditions deserve special attention. These are the case of endangered species and the case of serious threats to international environmental standards. In these cases, the issues will be who sets the rule and who judges. We do not know how serious the U.S. government position is on this matter. If the U.S. government is really serious in pushing these cases, it will be a source of international conflict. However, the unilateral measures, as advocated in the aborted Boren Bill, would hardly work
because of its incompatibility with international trade norms, Dr. Porter suggested an interesting proposal of a 'minimum environmental standard.' I have some reservations concerning this. Is it a feasible option that can be agreed to on a multilateral basis? On which level the 'minimum' standard should be set? Nevertheless, I think it deserves further review, in the sense that it seems more reasonable than the Boren Bill.

For environmental policies, implementation is more important than legislation, Korea's environmental standard is quite close to international level in most areas. In implementation, however, Korea is not so good as in the legal standard. Nevertheless, I am positive that Korea's environmental policy implementation is much better than other comparable developing countries. In many developing countries, the actual implementation is far behind the legal standard.

With regard to trade-environment issues, aggressive environmental reform is the best policy. Korea is on the track. International negotiation, although it is very important, should be considered as supplementary and transitory measures.

**Tan-Il Kim**

I learned much from the presentations today. Especially, Dr. Porter's explanation on the political background of the trade-environment issue was very impressive.

I think the issue has two different aspects. One may consider the ongoing trade-environment discussion as signaling a newly emerging international trade order that properly integrates environmental concerns into trade policies, I cannot but worry about the possibility that the new trade agendas concerning the environment and labor might encourage protectionist abuses. Nevertheless, the trade-environment nexus, as long as it is addressed within the multilateral mechanism of WTO, can function as a suppressing factor to the proliferation of protectionist trade measures in the name of environmental protection. Korea should actively participate in the WTO procedures, that will be the core of the trade-environment multilateral negotiation. Trade meas-
ures for environmental purpose may be used only with multilateral agreements. In addition, it should be noted that least trade restrictive measures should be adopted to prevent environment-related trade measures from being the source of impediments to free trade. However, such a position of our government in the trade-environment area does not imply that the effort to improve our environmental quality may be considered lightly. The government of Korea applies its best efforts to meet the demand of the people for clean water and air. The environmental standard of Korea should be gradually upgraded to the international level. The industrial structure should be adjusted toward a more environmentally sound and sustainable structure. This direction in environmental-economic policies is the most desirable for the environment’s own sake and also for the preparation of upcoming trade-environment linkages. It is very suggestive that in Germany, the environmental industry’s growth rate is higher than that of the automobile industry.

To cope with the trade-environment wave, as Professor Anderson commented, countries like Korea should not only be active in WTO but also utilize multilateral channels other than WTO, such as APEC.

As Dr. Porter pointed out, since Korea’s environmental standard is not so low, Korea can assume a role to reconcile the conflict between developed countries and developing countries.

In April 12, just before the Marrakesh meeting, the Korean government adopted four meaningful decisions. First, Korea’s own Agenda 21 Action Plan will be drafted by the end of 1994. Second, Korean government will take part in the financial contributions to global environmental programs. Third, the Korean government will examine the OECD environmental codes to prepare for the entrance of Korea into the OECD by 1996. Fourth, the Korean government decided to ban domestic circulation of tiger bone and to amend the Pharmaceutical Affairs Law for this purpose.

Closing my comments, I would like to provide some questions. The first question is for Dr. Porter. I read an article in the New York Times arguing that if the Uruguay Round results fail to boost the U.S. economy and employment, then the trade-environment and trade-labor issues would be used as powerful instruments for protectionist purposes. I want to know Dr. Porter’s opinion on this matter. The second question
is for Ms. Zhao from China. According to the International Herald Tribune of April 16, China drew up an ambitious China’s Action Plan for Agenda 21. I sincerely congratulate China for this. Regarding the Action Plan, I would like to know about China’s plan for effective reduction of air pollution. Thank you very much.

**Jae-Hyun Yoo**

I would like to give some questions and comments on Dr. Porter’s paper.

First of all, the countervailing duties against ‘ecological dumping’ raise serious concerns. If the revenue of the U.S. government from countervailing duties can be given back to the exporting countries and used for the improvement of the environment, as some environmentalists suggest, the countervailing duties would be a nice measure to internalize environmental costs. However, we do not anticipate this merciful scenario will really happen. Countervailing duties will hurt an exporting country’s economy, when such a mercy does not come true.

I would like to point out that the trade measures such as countervailing duties would not benefit U.S. consumers. Trade measures will increase the prices of imported goods, which is certainly against the consumers’ interest. I think the U.S. consumers’ attitude on the trade measures deserves special attention and further discussion.

Secondly, the trade-environment linkage would fortify the technological hegemony of U.S. and other developed countries in the markets of developing countries, including Korea. Since the trade-environment linkage would bias the choice of technology toward more advanced ones for which the developed countries own intellectual property rights, the firms in developing countries, especially small and medium firms, will be hurt. Opening of the capital market, protection of intellectual property rights, and the trade-environment linkage combined, would result in the disruption of Korean small and medium firms and the domination of the Korean market by U.S. firms.

Thirdly, the trade-environment issue is not only important for manufacturing products, but also for agricultural products, Multination-
al agricultural companies invest huge amounts of capital in many places in the world and develops high-yield breeds and allocate those around the world. As a result of the activity of agricultural multinationals and international trade in agricultural products, the use of chemical fertilizers, pesticides and preservatives are increased. I think free trade in agricultural products causes the degradation of the environment. Protection of local farming should be encouraged for the sake of the environment and human health.

Finally, I would like to ask Ms. Zhao from China. The Chinese economy is growing as fast as the annual rate of 15-16%. Since the Chinese economy depends on coal as the primary energy source, the environmental damage from coal burning is enormous. The polluted air is transported eastward to Korea because the direction of wind in the region is usually eastward. Since the economic development of China is concentrated to the coastal zone, Korea is more prone to transboundary air pollution from China. I am wondering about how the Chinese government considers this problem that bothers neighboring countries. I think trade measures to address this issue against China will certainly not work, mainly because of the huge gap in the size of countries. An effective multilateral mechanism should be established to deal with this issue.

**Sang-Don Lee**

I would like to make a few comments on Dr. Porter's paper. As is properly remarked, the debate on trade and the environment originated from two sources. One is from the environmentalists and the other is from the protectionists. The environmentalists' position is supported on scientific and ethical grounds. Recently, the U.S. put trade sanction on Taiwan concerning certain Taiwanese practices addressing the situation of tigers and rhinos, two most endangered species in the world. Taiwan is not a party to GATT. If Taiwan is a party to GATT or if Taiwan is to be a member of WTO in the future, such a trade sanction by the U.S. is an obvious violation of Article I and Article XI of GATT. However, as the U.S. measure is supported by scientific evidence that those species
are in great danger of extinction, and also is supported by a strong sense of morality and emotion, it is difficult to challenge the U.S.

Therefore, the environmentalists' position that the trade measure can be utilized to protect the "global commons" has such an aspect which is more than just a matter of international law principle. Environmentalist groups like the World Wildlife Fund, and the two former U.S. Senators who attended the Rio Conference, Al Gore and Timothy Wirth, now Vice President and the Counselor of the U.S. State Department clearly take such a position. Yet, it should be emphasized that a unilateral trade measure would threaten the free trade regime though it was intended to protect "global commons." "Global commons" is a very flexible term which can comprise many things. If it can include endangered species, tropical forest, marine mammals, and even the high sea fishery resources and boreal forest, the world trading system would be in danger. Therefore, we need an alternative. The alternative should be a multilateral agreement. A New Round under the auspices of the WTO is an alternative. But, there are a number of questions. First, it is doubtful whether the trade bureaucrats of the WTO and the major trading nations have knowledge and devotion to environmental issues. Second, the relationship with the existing agreements is also problematic. Probably, the most practical approach should be the reinforcement of the international agreements with the trade measures on non-parties and non-abiding parties, and the modification of GATT/WTO to give legitimacy for such trade measures. The multilateral approach will allow participation of all countries. It will provide open and participatory mechanism, a very important concept of sustainable development.

More problematic are the ideas of so-called Environmental Countervailing Duties and Green 301, which the protectionists such as Rep. Richard Gephardt now embrace. He is well known for his role in proposing the Gephardt Amendment in the preparation of 1988 Omnibus Trade and Competitiveness Act, Green 301, now proposed by such a person is, without doubt, a protectionist idea. If such an idea is to be enacted in the U.S., the next round in the WTO will be in great turmoil. In the past, Korea has been too much concerned about various kinds of 301. Now, Korea's balance of trade with the U.S. is almost even. So Korea should respond to such unilateralism straightforwardly in the
GATT/WTO mechanism. Finally, Dr. Porter makes a few comments on the position of Korea. Korea, a country which will be a member of OECD soon, should not take a stance like the one by India. Thus, making international minimum standards is not necessarily negative. In fact, it is impossible and impractical to set international minimum standards in all industries. Priority should be given for certain import-sensitive industries like textile and apparel, and steel. Korea is already losing competitiveness in textile and apparel because of its high wages. Steel and petro-chemicals, are already a concern because of the climate Change Convention. In conclusion, Korea’s option shall be the reinforcement of international environment agreements and the reinforcement of multilateral mechanism under GATT/WTO. I fully agree with Dr. Han’s paper. But, I have difficulty understanding his mention of “impure elements” in his conclusion. Dr. Han also mentioned “stick and carrot” in the future negotiation with developing countries. Obviously, developing countries will not accept the trade and environment negotiation unless they are given carrots. The worst scenario is that negotiation reaches an impasse and the environmentalists and the protectionists in the U.S. Congress become aligned and enact unilateral environment - trade legislation. Probably, Korea’s national interest lies in persuading the developed countries and the developing countries together. No other country is in such a position to persuade both sides.

Finally, I would like make a few remarks concerning several issues of “global commons” affecting Korea. Korea has strong interests in timber trade, wildlife trade, and high sea fisheries. Unless such problems are not changed, Korea’s position in the future new round negotiation will be hurt. Also, Korea’s policy-makers should increase their sense of trade and the environment issue. For example, Korea is now increasing the capacity of the waste water treatment facility in Daegu Complex in order to meet increasing demand for dying operation. But, in the long run, such an investment could be doubtful as textile business is now losing the competitiveness slowly. Environmental policy-makers also shall increase their sense of the trade issue in these days of the globalization. Current discussion on trade and the environment can be an opportunity to improve our environmental quality and our economy if we use the opportunity very wisely.
Hong-Gue Lee

My comments will be given mainly on Dr. Anderson’s paper. It is a legitimate question to ask whether environmental protection is compatible with development, as both of them are indispensable to human prosperity. Yet I doubt that, in this session, we have come up with any definite answer to that question.

Dr. Anderson observes that the use of trade policies to address environmental issues will pose a threat to the global trading system, as these trade policy measures are likely to be followed by retaliatory responses. Obviously, they will worsen welfare in many countries by jeopardizing the global trading system. Moreover, national environmental policies will affect a country’s comparative advantage to the extent that the national environment constitutes part of factor endowment whose value is increasing with national income, and that the initial distribution of environmental resources is not identical throughout the world.

Yet I suspect Dr. Anderson’s assessment on the compatibility of environmental protection with development needs a little bit of elaboration. First, the launching of the World Trade Organization (WTO) will suppress, to some extent, the proliferation of discriminatory protection disguised in the form of the environmental measures. Thus, as long as any adverse effect of income growth on the environment is contained through optimal environmental policies (not second-best trade policies), global trade liberalizations will not have to be impeded by concerns for environmental protection.

Second, the prospective use of trade measures as means of addressing environmental concerns is rightly attributable to the advanced countries dissatisfaction with the current environmental protection system. Yet part of the reason also stems from their worries about the declining competitiveness with respect to developing countries in those goods and services whose production is environmentally unfriendly. The EU and the United States suspect that laxer environmental policies in poorer countries have failed to provide a ‘level playing field’. They believe that the poorer countries are likely to take advantage of their special and differential status in the current global trading system.
Third, one of the most important issues involved in the environmental issues pertains to the international coordination of environmental policies. This problem is likely to become more serious, as many developing countries have to be allured to the negotiation table in the near future. Their concerns for the environment will tend to increase as their income grows, while the supply of the environmental goods and services is not so elastic. Moreover, markets for environmental goods and services simply do not exist in these countries. In consequence, a sort of corner solution has prevailed. For example, the quality of tap water can be deteriorated until it becomes unfit to drink. So the problem arises: How to create institutions for handling the tasks of deriving a social consensus on the appropriate environmental policies or markets for environmental goods and services.

**Sang-Hee Yoo**

Recent issues on the trade-environment nexus, including environment-related trade measures, can be termed, I think, “Greening of Protectionism.” Regardless of the genuine objectives of environment related trade measures, they are inevitably trade restrictive in nature. Therefore, protectionist actions will prevail for a fairly long period. The United States will certainly lead it. However, I expect the multilateral agreement will take a long time to be completed. That’s because environmental problems are very complicated and in some cases contradictory to each other.

The issues open for the Marrakesh meeting can be classified into four categories. They are: trade measures for environmental purposes; environmental measures with significant effect on trade; dispute settlement procedures; and market access. The example of trade measures for environmental purposes is the countervailing duty, and examples of environmental measures with significant trade effect are the carbon tax and energy tax.

If a carbon tax of ten dollars per barrel is levied in the year 2000, following a proposal within the European Union, the effect will differ significantly across countries. The impact, based on the production cost,
will be much larger for Korea than for EU. Since Korea is heavily dependent on international trade and especially export of energy- and pollution-intensive products, the loss of international competitiveness is expected. Furthermore, even before a multilateral agreement is reached, unilateral measures, when used by the U.S., could impose a serious threat to Korea’s international competitiveness.

Then what are our alternatives for these threats? There are internal measures and external measures. As for external measures, I agree with Dr. Porter’s suggestion to actively participate in multilateral negotiations. However, since Korea’s position is not easily identified as a developing country or a developed country, we have difficulties in making effective measures in multilateral negotiations. Since Korea has a more pollution- and energy-intensive industrial structure, compared with other Newly Industrialized Countries such as Taiwan or Singapore, it is even harder to make an effective coalition in multilateral negotiations.

The more important area is internal countermeasures. The internal measures can be termed as “Greening of Industrialism.” The effective internalization of environmental costs of business is motivated by three factors, including environmental regulation, economic incentive, and public pressure. Korea has traditionally been dependent on environmental regulation among the three factors. The policies should be designed and implemented to give more weight to economic incentive and public pressure as driving forces for the internalization of environmental costs.

The international environmental issues, however, have positive aspects, not only negative aspects as discussed so far. It will certainly work as stimuli to improve the quality of our environment and the competitiveness of environmental industry. Thank you.

**Ho-Saeng Rhee**

I have two questions, one on the Green 301, the other on Minimum Environmental Standards.

First one is about the extra-territorial nature of Green 301. I think that in talking about trade measures for environmental purposes, what
matters is the scope of the environmental problems concerned. As for transborder or global environmental problems, it is perfectly understandable for some country to address its concern on other countries' behavior. As we well know, nevertheless, it has been noted in environmental fora that multilateral cooperation, rather than unilateral trade measures, will provide a more useful and effective tool to solve these problems. However, if Green 301 were to be applied based on local environmental conditions, it would cause a serious problem of some country's imposing its own standard on the others. It seems that there is little rationale for the extra-territorial use of unilateral trade measures for local environmental problems, and there arises concern about protectionist abuse of trade measures of this nature. I would like to have some comments on this.

Secondly, on the Minimum Environmental Standards (MES). I guess that the main difference between Green 301 and MES lies in the procedure: that is, the one relies on coercion, the other on negotiation, both looking to narrow down the gap between local environmental standards in different countries. Therefore, I think that MES has a problem similar to the one I raised on Green 301. Another question is on enforcement of MES, if it were to be successfully negotiated, I guess some kind of penalty would be introduced to implement MES across countries. Then, wouldn't this penalty be basically of the same nature as that of Green 301? I would like to hear Mr. Porter's opinion on this.

**Chan-Hyun Sohn**

I have a somewhat different view than others: it is the time for Korea, the 12th largest commodity trader and 19th largest service trader in the world, to actively participate in and endeavor to protect the global environment. The reason comes from the fact that recently, environmental issues have attracted much of the attention of scientific studies and international concerns, thereby calling for Korea's immediate attention.

Interfacing environmental issues with international trade, particularly within the GATT/WTO framework, may mislead the fundamental aspect of the environment-trade relationship. Most papers select the
issue of anti-dumping and countervailing duties as the most important topic for the protection of the global environment, and also focus on a higher level of environmental standards for developing countries to ensure the so-called greening of trade. They are right in the sense that these issues address how to protect our earth. Yet focusing on just these issues leads to a very distorted situation. Such an approach to environment and trade fundamentally distorts the relationship between them and eventually leads to unfair multilateral environment negotiations.

The basic problem of the environment-trade discussion lies within global environment issues rather than regional or local ones. The global issues are those such as acid rain, depletion of the ozone layer, emission of carbon dioxide, and ocean pollution, among others, which are transboundary in nature. The transboundary nature of global environment issues raises a question regarding the historical responsibility of global pollution. It is the very developed and industrialized nations that are responsible for the deterioration of the global environment.

As such, most of the discussions on environment-trade issues are apt to emphasize the anti-dumping or countervailing duty problem and higher level environmental standards. Thus, they naturally bias multilateral environment negotiations by neglecting the responsibilities and corresponding obligations of the industrialized countries. This leads to a very unfair situation and represents a pitfall for multilateral environment negotiations from the outset.

I hope that my concerns can be properly addressed in further discussions on environment-trade issues. Thank you.

**Kym Anderson**

Thank you, Mr. Chairman. If I could just make three points, re-raising points that were made by discussants. The first is a point Professor Kim raised about the need for less talk and more empirical, down-to-earth research on some of the effects of environmental policies on trade and vice versa. And I think that’s very true. There’s little around of that sort at the moment, and if we’re going to make much progress on discussions, we do need that. Let me just take the example
that was mentioned by Dr. Yoo about the effects that agricultural trade liberalization may have. And he stressed that one of the consequences of the freeing up of food trade might be that more food is impregnated with chemicals to preserve it during transportation and so on after it’s been harvested, and that would be bad for human health, and of course, he is correct insofar as that is true. But there are a great deal of chemicals also used in the process of producing that food in the first place, as distinct from the post-harvest use of chemicals, and that chemical use varies enormously across countries. For example, the degree of chemical application of fertilizer in European countries such as Switzerland is about twenty times per hectare the use of chemicals in Southern Hemisphere agriculture. And so, there are already chemical residues in foods before it gets harvested, and that varies enormously depending on where that product is harvested. If it turns out, as in fact is the case, that a freeing up of agricultural trade would lead to a relocation of production from densely-populated Northern Hemisphere countries, to less densely-populated Southern Hemisphere countries, then the chemical residues in our food might well be much less, and in the process, the chemicals going into our waterways and into the soil also would be much less on a global basis. So that’s an example where I think we need to look at the empirical story carefully and weigh out those two different aspects of that particular issue, for example.

The second point that I would like to underscore was one made by Mr. Kim from the EPB about Korea’s role as a intermediary country between the high-income economies and the poorer economies of the world. And it will be in this very unique situation of being the first developing country to be a member of the OECD, and therefore be able to play that role very effectively there. But I think, too, it has the scope to play that same role, both in the WTO forum and in the APEC forum here in the Asia-Pacific region. And let me just give one example, Dr. Yoo mentioned that he was wondering what Korea could do about China’s heavy use of coal and the effects that has on pollution here on the Korean peninsula. Well, for example, one thing Korea could do in its rather unique role in the WTO is to push for reductions in European coal subsidies, the consequence of which would be to raise the international price of coal, and thereby lead to a lesser use of that energy source.
compared with other energy sources in countries such as China. And the second obvious thing Korea could do is to try to encourage the speedy bringing back into the GATT of China, because once it's a GATT member, then it will be subject to more disciplines, one of which will be to have domestic price levels not too dissimilar from international price levels. And in the case of coal, that would mean a significant rise in the user price of coal in China which, again, would have a positive influence on the degree of pollution that Korea suffers from China. Thank you.

Gareth Porter

Thank you. I will try to cover at least several of the questions that I’ve noted or directed at some of my points.

The first is about Super 301. Dr. Lee suggested that Korea is no longer enjoying a trade surplus with the United States, and I inferred from that, that the point was that, perhaps the United States might be less eager to target Korea with a Super Green 301. That may be true, but my recollection is that, when Korea had a very large trade surplus with the United States, the main effect of that was that the Super 301 actions were accompanied by pressure on the macroeconomic policy front on Korea, and it may be that that pressure on the macroeconomic policy front relaxes without necessarily affecting the targeting of Korea with regard to Super 301 type of actions. So I wouldn’t be necessarily optimistic on that point.

With regard to Korea’s accession to the OECD, and the fact that this differentiates Korea from other developing countries with regard to its situation with regard to setting standards, it is true that Korea’s situation is going to be unique, although I would also agree with the comment that was made later by the speaker from the Economic Planning Board, Mr. Kim, that this gives Korea the possibility of, in fact, serving as a mediator between the OECD countries at present and the developing countries with regard to the question of multilateral negotiations on minimum standards. And so I think that perhaps this could strengthen Korea’s position as a player on that issue, and give it more credibility on both sides, both developing and industrialized countries. I was asked
about countervailing duties, and I guess the question was, wouldn’t consumers benefit from low-cost products in the United States? I think the answer is yes, and it is a bit ironic that Ralph Nader’s consumer organization, Public Citizen, is one of the most relentless in its opposition to free trade. I take the point on that. I think it’s a valid one. There should be more of a conflict between consumer groups and environmentalists than in fact there has been on this point, but the consumers’ organizations, at least the Nader organization, has been very anti-free trade up to now.

The point was raised about agricultural products. It’s true I did not address agricultural products. I directed my suggestion on multilateral negotiations on minimum standards at the manufactured goods side of this, and agricultural products certainly raise other issues that I think would have to be dealt with quite separately from the problem of manufactured goods in world trade, I think that issue would have to be relegated to a different setting. It involves, obviously, questions of tropical timber as well as temperate timber products, and I think that there are some knotty problems that have to be dealt with with regard to agricultural commodities that would have to be separate.

On the question of the coal problem, again I think that’s a separate issue. It seems that the question was not about international trade in coal, but actually the use of coal in economies, and what the trade and environmental implications would be, and I can’t answer that question at all, I have not really thought about it, to tell you the truth.

The point was raised that the Uruguay Round took seven years to unfold, to be completed, and that it could take much longer to reach uniform standards on various manufactured goods. I think it’s important to understand that the idea of negotiating minimum standards on manufactured goods in world trade would have to be an ongoing, rolling process. Clearly, it’s not possible to reach agreement on a large number of pollutants or products in a short time, and I think that you would have to focus on a very few primary, major issues. I think the suggestion that steel and textiles and a few others would clearly be very prominent in this set of negotiations is quite accurate, that those would be focal points of negotiations in the early period of negotiations. What I’ve proposed, however, in my paper, in the very brief outline of a
proposal on multilateral negotiations on minimum standards, is that the first phase of negotiations has to be for a framework agreement which would not actually address specific standards yet, but would create the framework within which those negotiations would ultimately take place. And the key to such a framework, in my view, is to set up an international system of environmental, or waste, audits at the national level. These would be carried out by the firms themselves in a common format, and would be reported to their respective governments. That would create the database on which you could base international negotiations on specific standards.

I was asked about the question of a New York Times article a few days ago reporting that free trade could cause a deterioration in the employment situation in the United States. I really don’t know. I’m not an economist, and I cannot comment really on whether there will be a negative impact of free trade— I presume this is the Uruguay Round that’s being referred to — whether the Uruguay Round would have any negative impact on employment, but all of the commentaries that I’ve seen suggest that that’s not the case, if I understood the question correctly. The Uruguay Round should not have a negative impact on employment in the United States, and I think it’s interesting that, despite the rise of protectionist sentiment in the United States Congress, it’s generally accepted by most members of Congress that the employment benefits of the Uruguay Round are clearly going to outweigh any negative impacts on certain sectors of the economy. So this does not appear to be a major problem politically in the United States thus far.

And then finally, I was asked about how strongly the United States will push the two reasons for unilateral trade measures with regard to environmental problem - the threatening of specific species, and the effectiveness of a scientific-based international standard being diminished. I don’t know the answer to that, but I would say that my impression is that, right now, the administration is primarily concerned with simply its freedom to carry out existing U.S. law. I have not seen any evidence that the administration is thinking of increasing the number of laws that would involve unilateral trade measures. I think they’re primarily concerned now with existing U.S. laws, such as the Marine Mammal Protection Act, which do, in fact, have trade restricting
measures in them. My impression is that the administration really is not interested in trying to increase the opportunities for trade-restricting measures for environmental purposes. But as the Bush administration before it, it is simply interested in being able to carry out existing laws.

There was also a question about whether it's really possible to reach a consensus on minimum standards. And my answer to that would be, that by the very nature of the process, this would be an agreement that's reached on the basis of consensus. The result of that could be that the standards that can be agreed upon may be too low to satisfy environmentalists, or to satisfy those in various governments who wish to see a rapid increase, or upgrading, in environmental standards. I do believe, however, that there could be agreement on a process that would strengthen the ability of governments to actually implement environmental standards. And the proposals that I've put forward here do have the kernel of an idea that would make environmental protection efforts by governments more effective because it would create a database and a process of constantly renewing the information on the actual performance of industries in various sectors that would serve that purpose. So I think that it does constitute the basis for a more effective system for environmental protection world-wide. Thank you.

**Yanxia Zhao**

Thank you, Mr. Chairman. I'm quite happy with the second point raised by Dr. Anderson about the speedy resumption of China's GATT contract status, but about the first point, I don't quite agree. About the coal issue, I was born and brought up in Xengxi Province, which is noted for coal. I think I should have some say in this issue. I understand that the Chinese government, the central government and the local government, have spent a lot of money, and tried every means to reduce the pollution. For example, we have started a program, by making scientific experiments, to reduce the pollution, that is, trying to make full use of the coal energy and obtaining the by-products after burning the coal. But turning these scientific experiments into production is not an easy job. We need a lot of money and technology. So on our part, we
think if China can get technology transfers and financial resources in this area, this problem might be resolved.

About the measures to reduce air pollution, I think we also fixed the problem. On our part, we have abolished some pollutant production lines. I think examples have frequently appeared in newspapers about the closing down of some pollutant industries. And we have spent a lot of money to generate the pollutant industries. Another aspect of the issue is that, as China is in the process of economic development, we are trying to absolve much foreign investment. But some joint ventures in China may transfer the pollutant industries in China. So we are very concerned with this issue. And in the future, I think we should adopt some measures, and when we establish joint ventures, the environmental protection factors should also be taken into consideration. Thank you.

_**Taek-Whan Han**_

First of all, I would like to give an explanation on the expression "close to optimal." I did not mean that Korea’s environmental policies and environmental state is satisfactory. The government sets environmental policies considering resource endowments and social preference. If the government is run by democratically elected agents and, at the same time, if it takes every possible factor into consideration in decision making, the environmental policies should be assumed as optimal in an _a priori_ sense. It is not an empirical question on whether the environmental state is good or bad.

I also want to clarify the expression "impure." The trade-environment linkage, especially regarding the PPMs trade measures, is sometimes justified by the reason that the trade measures rectify incorrect domestic environmental policies. Some even argue that unilateral trade measures are justified because the not-so-democratic governments of developing countries do not properly reflect the people’s demand to address environmental issues in policy formation. This line of argument is supported neither on environmental nor economic grounds.
Il-Chyun Kwak

I will comment on only two points. Professor Kim Il-Choong mentioned that regulatory mechanisms are not necessary if the market mechanism works properly. However, a regulatory mechanism is necessary to and complementary to the functioning of market-based mechanisms.

Regarding Dr. Sohn's remark on historical responsibility, I believe too much emphasis on it may not be desirable. We are all responsible for the global environment, no matter how little our responsibility is.
Welcoming Address by Jang-Hee Yoo

Your Excellency Vice Minister of the Environment Hyung-chul Kim, Distinguished Participants, and Guests:

On behalf of the Korea Environmental Technology Research Institute and the Korea Institute for International Economic Policy, I would like to express my sincere appreciation to the participants and guests attending this seminar on "Trade-Environment Issues and Korea's Alternatives."

The Rio Declaration and Agenda 21 adopted in 1992 identified the issues to be addressed by countries and international institutions in the area of environmental protection. Subsequently, the Commission on Sustainable Development was established to monitor the performances of those countries and international institutions. The essential elements of the measures to address the global environmental problems are the deepening and widening of the public's understanding of the issue; capacity building; the financial mechanism; and technology transfer.

Countries also share the view that the harmonization of policies concerning trade and the environment is necessary to attain sustainable development. The international community, including international institutions such as GATT, UNCTAD, UNEP, OECD and CSD, is starting to examine the relationship between trade and the environment. And as the Uruguay Round has finally reached a conclusion, the Subcommittee on Trade and Environment is expected to start discussions to prepare the framework of negotiations under the World Trade Organization this year.

The issue is complicated and difficult because of the diversity of individual countries' viewpoints, methods of approach, and specific interests on the issue of trade and the environment. In particular, the views of the Congress and environmentalist groups in the U.S., of the trade experts including the GATT secretariat, and of developing countries such as China and India, are distinctly divergent. Closing the gaps
between the different views will be a high priority task during future discussions and negotiations.

We have invited three speakers who will discuss the issue of trade and the environment with special emphasis on the views of the three groups I mentioned. I believe their presentations and subsequent discussions will be a valuable input to the policy formation of the Korean government and to the strategy of the private sector.

I conclude my welcoming remarks by extending my appreciation to our guests on the floor and by inviting all of you here today to actively participate in the discussions. Thank you.

Opening Address by Hyung-chul Kim, Vice Minister of the Environment

President of the Korea Institute for International Economic Policy Dr. Jang-Hee Yoo, President of the Korea Environmental Technology Research Institute Dr. Chin-Seung Chung, Distinguished Participants, and Guests:

I sincerely congratulate you on the opening of the international seminar "Trade-Environment Issues and Korea's Alternatives," jointly held by KIEP and KETRI. I am very happy to give the opening remarks in this meaningful conference.

As all the participants and guests well know, during the United Nations Conference on Environment and Development in June 1992, held on the twentieth anniversary of the United Nations Conference on Human Environment in Stockholm, the international community adopted basic principles to attain Environmentally Sound and Sustainable Development. The global environmental issue has now emerged as one of the most important international subjects after the end of the Cold War.

Moreover, the GATT Ministerial Meeting in Marrakesh officially completed the seven-year-long Uruguay Round negotiations, establishing the World Trade Organization, which will be the center of the new world trade order. With the adoption of the Decision on Trade and
Environment during the ministerial meeting, we expect a series of negotiation on trade and the environment to start in the near future.

The Korean government has actively participated in the international effort to protect the global environment. Korea signed on to the Montreal Protocol, the Framework Convention on Climate Change, the Convention on International Trade in Endangered Species of Wild Flora and Fauna, and the Basel Convention. The Interministerial Committee for Global Environment was established for the effective and concerted implementation of Agenda 21 and international environmental conventions.

Korea is expected to soon experience environmental reforms, including the raising of environmental standards to the level of the developed countries, and the initiatives of the private sector to enhance its capability to meet those upgraded standards. The Korean government is also preparing various means to encourage the development of environmentally safe industry and technology. Specifically, the government has chosen 21 projects to develop environmental pollution treatment and prevention technology, as one of the G-7 projects.

Our policy toward international environmental issues, including the trade and environment problem, should be active and positive, rather than passive and negative. The upcoming negotiations on trade and the environment will be an opportunity, rather than a crisis, to improve the quality of the environment, which has continuously become degraded during the course of industrial development in the last few decades. I believe that investment in the environment will contribute to the strengthening of industrial competitiveness.

It is therefore valuable and timely to discuss these issues in trade and environment focusing especially on the different viewpoints of various groups and countries. I hope that this seminar will bear fruitful results which will provide important insights for policy makers.

I would like to extend my appreciation to the speakers and commentators, and to the people of KIEP and KETRI who organized this seminar.

Thank you.
Program Agenda

Date: April 22, 1994 (Friday)
Place: Inter-Continental Hotel, Seoul, Korea

13:00-14:00  Registration

14:00-14:15  Opening Session

· Welcoming Address
  Dr. Jang-Hee Yoo, President, KIEP
· Opening Address
  Mr. Hyung-chul Kim, Vice Minister of Environment

14:15-16:15  Presentations

Chairman: Dr. Won-Hoon Park (Korea Institute of Science and Technology)

Speakers: 1. Professor Kym Anderson (University of Adelaide)
  "Trade, Environmental Issues and Asian-Pacific Economic Growth"
2. Dr. Gareth Porter (EESI, U.S.A)
  "Trade and Environment in U.S. Politics and Policy: Implications for the Korean Economy"
3. Zhong-Zhou Li and Yanxia Zhao (MOFTEC, China)
  "The Uruguay Round and Trade-Environment Issues: A Chinese View"
4. Dr. Taek-Whan Han (KIEP)
  "New World Trade System and Trade-Environment Issues: A Korean Perspective"
5. Dr. II-Chyung Kwak (KETRI)
  "Reconciling Free Trade and Protection of Global Commons: Tasks for Korean Environmental Policy-makers"

16:15-16:30  Coffee Break
16:30-18:15  Discussion Session

Chairman  : Dr. Won-Hoon Park (Korea Institute of Science and Technology)
Discussants : Professor Il-Choong Kim (Dong-Kuk University)
            Mr. Young-Che Ahn (Ministry of Environment)
            Mr. Tan-Il Kim (Economic Planning Board)
            Dr. Jae-Hyun Yoo (Korea Economic Justice Institute)
            Professor Sang-Don Lee (Chung-Ang University)
            Dr. Hong-Gue Lee (Korea Development Institute)
            Dr. Sang-Hee Yoo (Korea Institute for Industrial Economics & Trade)

The Close of Symposium
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