

Trade and Sustainable Development in Vietnam

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1. Trade, Environment and sustainable development in the context of Vietnam

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Introduction

In this paper we examine the relationship between globalization, international trade expansion and environment, in the context of Vietnam and from the point of view of a person working on environmental protection. A large part of this paper refers to the Government's economic expansion policies, put into place to raise incomes and abolish poverty.

The main part of the paper examines the potential and likely effects on the environment of increasing international trade. We also consider issues related to foreign direct investment (FDI), issues related to the business sector in Vietnam (state and private), and finally, issues of governance.

The effects of international trade on the environment can be either positive or negative. They can take place at the local, regional, national and international scales. Given the potential persistence of these effects, any consideration of them must take a long-term view. The effects on the environment of increasing international trade are mainly indirect and work through effects on the economy. Thus, an examination of the relevant issues must take into consideration not only the environmental policy framework but also economic policy. An appropriate analytical framework is shown in figure 1.

Effects of International Trade on the Environment

By liberalizing its economy during the “door-opening” period of the 1980's, Vietnam signaled its intention to enter the world economy in a major way. The liberalization process is still underway with trade commitments under ASEAN and the bid to join the WTO. Investment and trade have grown considerably – between 1985 and 1994, the GDP rose 167% in real terms. The value of foreign trade rose from 5.1 billion US\$ in 1990 to an estimated 20.6 billion US\$ in 1997. Annual direct foreign investment rose from US\$288 million in 1988 to US\$ 2.2 billion in 1997.

The effects of increased international trade are felt on the economy and then the environment. These effects (see figure 1) can be conveniently categorized (Jones, 1996) as:

- scale effects;
- structural effects;
- technological effects; and
- product effects.

We consider these in turn although they are often inter-related.

Scale Effects:

Trade liberalization leads to increased international trade, which in turn leads to increased economic activity. These scale effects on the economy have been direct, and, in the absence of correct policies and controls, will have negative impacts on the environment. Vietnam's industrial production grew in real terms by 65% between 1990 and 1994 (at annual rate of 10.8 percent). The fastest growing sectors were chemicals (110%), fuel industries and electricity (100%), electronic industries (80%) and construction materials (79%) (World Bank, 1996). As the industries expand, so does the quantity of pollutants. In the absence of any new control measures and policies, the World Bank estimates that toxic wastes will increase by a factor of 3.8 between 2000 and 2010, an annual growth rate of 14.%.

Similar scale effects are witnessed in the agricultural sector. The spectacular increase in rice production and the very high levels of exports have been made possible by massive increases in the use of chemical fertilizers and agricultural chemicals. Whilst fertilizer application rates soared, rice production per unit of fertilizer fell (see figure 2) – a clear case of diminishing returns. Whilst few studies have been undertaken in Vietnam, evidence from other countries where similar increases in the use of agri-chemicals has occurred have revealed severe water pollution problems from these chemicals. Many have questioned the sustainability of such heavy reliance on these chemicals.

Growing international trade both in Vietnam and in the region has led to a considerable increase in water transport, both in marine and inland waters. Some 200 ships a day pass just off the southeast coast of Vietnam. Between 1990 and 1997 inland water freight increased from 16.3 million to 24.1 million tons. Marine freight increased from 3.5 to 10.3 million tons. Shipping in and out of Vietnamese ports has increased from 7.8 to 15.4 million tons in the same period. Increased water transport has caused higher water levels and marine pollution and a higher risk of a major oil spill.

Structural Effects:

Trade liberalization and economic expansion are generally accompanied by changes in the structure of the economy and in the spatial distribution of economic activities. These changes can have important environmental and equity implications. Figure 3 shows the dramatic changes in the structure of the Vietnamese economy between 1985 and 1997. Notwithstanding the big increases in agricultural production and exports, the period has seen a significant decline in the relative importance of agriculture. At the same time there has been a significant rise in the importance of the industrial sector. The importance of the service sector has also risen but not as significantly.

The structure of the industrial sector is undergoing less dramatic changes (figure 4) with a significant decline in the importance of the food and foodstuff sector, and less significant increases in the importance of machinery and metallurgy, chemical and fertilizer, construction materials and textile and leather sectors. With the exception of textiles, it is planned that these sectors, together with the fuel industry sector, will be the fastest growing of the economy. A recent World Bank study (World Bank, 1996) has estimated the sector shares of toxic pollution and projected these to 2010 based on current growth forecasts. These are shown in table 1.

Table 1. Percentage shares of toxic pollutants (all media) 1995 - 2010

Sector	1995	2000	2010
Chemical and fertilizer	59.3	63.2	67.6
Fuel and electrical	11.4	12.2	13.0
Weaving and textiles	8.3	7.4	5.1
Food and foodstuff	8.0	6.0	4.1
Metallurgy and other metal products	3.2	3.5	3.7
Cellulose and paper	3.4	2.7	2.7
Other	6.4	5.0	4.2

Source: (World Bank, 1996)

Analysts (e.g. Jones, 1998) often state that trade liberalization will lead in the long term to a change from polluting industries: i.e. heavy chemical and primary products with low levels of processing, to those that are more environmentally benign. However, for Vietnam the indications are that this is not likely to take place, at least in the medium term (i.e. next 10 - 15 years). Geographically, many of these polluting industries are located in the north, and the prevalence of old and often obsolete machinery exacerbates the situation. The development of the oil industry in the southeast is already exhibiting disturbing signs of oil pollution. Where light industries are developing fastest, around Ho Chi Minh City, there is massive immigration of people, leading to very rapid urbanization, increasing levels of air and water pollution and mounting problems of solid waste disposal. These are common problems for the urban areas of Vietnam and in the medium term is likely to become worse.

Technology Effects:

Other potential effects of trade liberalization are changes in processing, waste management and pollution abatement technologies. This is the result of the greater access to such technologies from increasing international trade. However, there is the potential for contrary effects. These stem from the big increases in competition that industries face as a country's economy is opened to world trade. In an effort to cut costs, old, inefficient and obsolete machinery may be imported: so-called "eco-dumping" or the "race to the bottom". Although there is some anecdotal evidence of the use of old machinery, tangible evidence is lacking. According to the results from a nationwide inspection on environmental protection made in 1997, a high percentage of enterprises have no waste treatment equipment. In addition, much clearer evidence is available of the installation of relatively efficient processing equipment, but the failure to install (or in some cases install but not use) waste treatment equipment. The need is for more stringent inspection of imported equipment, more detailed development conditions following EIAs, and life cycle analyses and waste audits of new plants to ensure pollution minimization.

Product Effects:

A final effect of trade liberalization relates to products, in particular to changes in consumption patterns. Processing and production methods (PPMs) are becoming an increasingly important environmental concern. Although current WTO rules prohibit trade restrictions on the basis of PPMs, there is increasing political and consumer pressure in North America and Europe to invoke trade restrictions on products that cause significant pollution or environmental damage during their production or harvesting. This raises important issues for Vietnam concerning cleaner technology, eco-labeling, certification, internationally recognized standards for production (e.g. ISO 14001) and developing systems of sustainable Eco-tourism. Recently, in the efforts to harmonize trade expansion and environmental protection, Vietnam has set a system of awards for quality. ISO 14001 is becoming the internationally recognized certification standard for eco-friendly production. Life-cycle analysis and waste audits are becoming important tools in developing cleaner production methods.

For Vietnam, these issues highlight the particular need for information, capacity building and the ability to influence (through WTO and other fora) decisions on international standards and systems of certification. Much of the growth of consumer pressure in developed countries has been the result of rising real incomes and increased environmental awareness. The same phenomena, although delayed, is likely to occur in Vietnam in the near future.

Three related issues

(1) Foreign Direct Investment:

Many of the issues related to foreign direct investment (FDI) have been mentioned in the section on technology effects as the two are closely related. The main issue to highlight is the importance of linking systems of FDI approval to systems of environmental compliance. It is important that Vietnam maintains its environmental standards whilst encouraging FDI, to prevent from becoming a "pollution haven".

Jones (1996) recognized three types of FDI: "market seeking" where the object of the FDI is to access the local market; "resource seeking" where the object is access to reliable supplies of natural resources; and "platform seeking" where the object is to provide a platform to access regional markets. Generally, it is "resource seeking" FDI that is most likely to be associated with environmental damage. This is particularly so in the oil, mining, and forestry sectors. Most resource seeking FDI in Vietnam is aimed at the oil industry, and it is here that Vietnam will have to be vigilant.

Most FDI Projects comply with the environmental protection law; about 50% of the EIA submitted reports have been approved. In 1998, 170 reports examined by the central appraisal committee chaired by MOSTE and a large number of EIA reports were evaluated in the cities of HCM, Dong Nai, and Binh Duong.

Not all of the projects which had their EIA report approved implemented the requirements to build waste treatment plants or managed to meet the environmental standards. However, there are a number of projects that have good waste treatment plants. Examining the EIA appraisal process and the environmental management practices, tentative conclusions can be made as follows:

- Those projects licensed before the promulgation of the law on environmental protection often neglected to prepare an EIA report, or construct waste treatment plants, which has resulted in difficulty for environmental protection.
- The problem of projects that had an EIA report approved is that they did not fulfill the conditions in the report, e.g. not reporting on the progress of construction of waste treatment plants. Others did not operate the treatment plant when it was in place.
- Particularly, in some cases, investors used potentially polluting technologies or materials prohibited or restricted by Vietnam, such as DBSA production or fibro cement containing amiang.
- Moreover, waste treatment technology for water, air, and solid waste proved inefficient, especially for wastewater of textile plants - thermal power plants

that use fuel with high sulfur content. Dangerous waste treatment needs substantial investment, otherwise, pollution is likely to occur.

(2) Business Community in Vietnam:

We use the term "business community" to include all those enterprises which are state, private or jointly owned. The business community faces the twin challenges of meeting the increased competition that results from increased international trade and of maintaining efforts to safeguard the environment. Individual firms can view environmental regulations as restrictions on their competitiveness. The challenge is to demonstrate that energy and material efficient processes can both be financially beneficial and contribute to a cleaner environment.

In Vietnam three major components of the business community can be recognized: big multi-national enterprises (MNE's), small and medium enterprises (SME's), and the State Owned Enterprises (SOE's) that can be small, medium or large. Each presents its own set of problems and potentials. Many of the natural resources related to MNE's have rightly been blamed for much environmental degradation. As a result, the MNE's are now bearing the brunt of attention by environmentalists worldwide and are thus becoming increasingly concerned about their corporate "green image". They have the potential to transfer technology for cleaner production and pollution abatement, and the challenge for Vietnam lies in this potential.

SME's are particularly difficult to manage from an environmental point of view because of their numbers and variety of processing technologies. They thus present a particularly difficult challenge for the state's environmental management and protection authorities. The issue is how can the Government join forces with the MNE's and large enterprises and devise ways and means of assisting SME's to develop financially and environmentally efficient production methods.

The SOE's present a specific problem partly relating to the need to increase their competitiveness in international trade and thus reduce costs and overheads with management often unused to competition. Often, ownership and control lies with local administrations. A dwindling supply of working capital means that investment in cleaner production and pollution abatement technologies often receive a very low priority. This creates particular difficulties for environmental protection agencies at the national and local levels. The challenge here is to devise alternative and complementary approaches to environmental compliance through awareness of cleaner production methods for management, and mobilizing community and public pressure through environmental awareness campaigns. There is clearly a role for FDI in joint ventures to facilitate the introduction of financially and environmentally more efficient technologies.

(3) Governance - the role of the State:

There is an increasing trend towards globalization of trade and environmental governance. This is seen in the increasing number of regional and global trade associations (WTO, ASEAN, APEC, NAFTA, EU, etc). There has been a similar rise in the number of regional and global multi-lateral environmental agreements (UNCED, Hazardous Wastes, Marine Pollution, Ozone Depletion, Global Warming, etc). But these global and regional alliances and agreements fail to deal with environmental issues at the local level. Only national governments can do this. International trade and environmental agreements request national governments to make the necessary domestic legal frameworks for implementation.

With the proliferation of international trade and environmental agreements there is a need to enhance Vietnam's capacity to monitor the changes taking place, to be able to influence the complicated negotiations which precede these agreements, and to monitor the performance of other countries' compliance with these agreements. This will require considerable investments in information and training. Compliance in the rapidly changing global governance structures will require continual amendments to the Vietnam government's economic and environmental policy and legislative frameworks. This in turn will require developing and enhancing capacity in monitoring and policy analysis of the complex relations between increasing international trade, domestic economic activity and the environment.

Some outstanding issues for Vietnam's implementation of MEAs in the context of international trade liberalization

As is the case worldwide, the relationship between trade liberalization and environment in Vietnam is complex. Some problems for Vietnam may arise in implementation of international treaties. The CITES convention for instance, uses trade restrictions.

Vietnam is a signatory of CITES convention, therefore the trading of scarce valuable plants and animals on the "red list" is considered illegal. Illegal trade in the fauna and flora can be very lucrative but destroys the environment and biodiversity. The situation requires urgent measures from the Government, including legislation to raise awareness and economic incentives. International cooperation plays an important role.

Conclusions

This paper outlined some of the issues for Vietnam in trade and environment. Any conclusions about such a complex and little studied subject must be tentative.

1. The relationships between international trade, economic development and environment protection are complex, and the effects can either be positive or negative, depending on economic and environment policy frameworks and policy instruments. It is vital that in Vietnam we understand this interrelationship.
2. In Vietnam, scale effects of increasing international trade are probably most direct and have the potential to inflict the most negative impacts on the environment. It is apparent also, that in the medium term at least, structural effects are also potentially negative to the environment. The potential changes in technology from increased international trade are much more ambiguous and will require monitoring. Finally, changes of consumers attitudes to products in developed countries, and in particular to their production and processing methods, are likely to put pressure on Vietnamese producers to adopt cleaner production methods. In the near future, this will be re-enforced by rising real incomes and better environmental awareness in Vietnam itself.
3. Negative environmental impacts from increased international trade can be avoided. But, this can only be done in the presence of correct environmental and economic policy frameworks with effective implementation. It is vital that in Vietnam we develop the correct frameworks, enact the most appropriate instruments and that we resolutely implement those policies.
4. As the dramatic events of 1998 and 1999 have demonstrated, the global economy into which Vietnam is integrating is in a state of dynamic flux. It is vital for Vietnam that our economic and environmental policies remain flexible and appropriate to changing circumstances.
5. We in the state institutions dealing with national and local economic and environmental management must recognize the key role of the "business community". It will be important for state institutions and various sections of the business community to seek joint solutions to many of the environmental management problems that we face. Appropriate modalities to achieve this must be found.
6. The important linkages between the state's encouragement of foreign direct investment and environmental management must be forged. It will be necessary for Vietnam to remain vigilant and never become a "pollution haven".
7. Finally, with the increasing globalization of trade and environmental governance, it will be vital for Vietnam to monitor, influence, engage in and effectively implement these global associations and agreements. This will require substantial investments in capacity building and information. It is the intention of this conference to develop some outline recommendations as to how these may be achieved.

2. Integration and sustainable development: issues for Vietnam

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Introduction

We are living in a period of rapid globalization. Globalization stems from the interactions of the development of production, science and technology and market forces. Globalization has created greater interdependence among countries worldwide. It requires countries to integrate further into global economy. However, integration does not always bring about benefits, especially for poor and underdeveloped countries. The process of integration creates both opportunities and new challenges.

Within the framework of this article, we would like to discuss some issues relating to environmental protection that might arise during Vietnam's integration process. This article focuses on analyzing advantages and disadvantages which Vietnam faces in the integration process. It also points out a number of fundamental issues relating to environmental protection in the integration process and stresses the need to strengthen human and institutional capacity in environmental protection.

Vietnam and the process of international economic integration

It is clear that we live in a time when international economic relations are developing so fast that no state can exist and develop without being influenced by these economic relations. In the 1990s, world trade surpassed US\$ 300 billion annually, and foreign investment flows sharply increased with the presence of trans-national corporations especially in Asia and Southeast Asia.

Globalization is closely linked to the liberalization of the world economy. Globalization and liberalization have been expanding to almost all areas namely goods, services, investment, finance and technology.

Together with the trend of globalization, regionalization has also been one of the notable characteristics in recent decades. This is manifested through various regional economic institutions. This, in turn, has helped to speed up the process of trade liberalization and create conditions for further integration and cooperation.

International competition has become fiercer and fiercer. Developed countries, who enjoy more advantages in terms of technology, capital, and markets, have tried to speed up the process of trade liberalization to their benefit. Meanwhile, developing countries, not wanting to isolate themselves on the margin of this trend, have tried

very hard to make full use of competition and globalization to attract more capital, advanced technology and management experience for their national benefit.

The scientific and technological revolution, especially in communication technology, has been developing with galloping speed. This has dramatically changed the world's economic structure to increase industries with high technology and knowledge content. This has helped to solve problems in development and environment (e.g. clean and green technologies and smoke-free industries). Communication technology has occupied a growing role in the economy, including trade with the appearance of E-commerce. The development of communication technology has enabled fast and wide access to the world market and to the achievements of human civilization.

Within the last decade, Vietnam has implemented an open door economic policy, gradually integrating into the regional and world economy. Vietnam has established trade relations with over 100 countries, and its export revenue increased almost 20% annually in the last decade. Import-export turnover has also been increasing annually despite a slight decline in 1998 and early 1999. This has been a major factor contributing to economic growth in Vietnam. The open-door economy has created opportunities for domestic goods to reach regional and world markets and to raise the revenue of foreign currencies to meet import needs, and has also increased the competitiveness of Vietnam's products, reduced prices and generated jobs for local workers.

Vietnam has encouraged more foreign direct investment in the country since the issuance of the Law on Foreign investment in 1987. Since then Vietnam has issued licenses for over 2600 projects with foreign investment capital to operate in Vietnam, with a total registered capital of more than \$34 billion. Foreign investment projects in Vietnam have made a considerable contribution to economic growth, increased export revenue, improved the quality of "made-in Vietnam products" and helped to introduce advanced technologies to Vietnam, including green and clean technologies. They have also helped generate more jobs for local workers.

Vietnam's integration process has also been reflected through the efforts of the Government in negotiating and participating in regional and international organizations. In terms of international economy and trade, Vietnam joined the Association of Southeast Asian Nations (ASEAN) in 1995, the ASEAN Free Trade Area (AFTA) and the Asia-Pacific Economic Cooperation Forum APEC in November 1998 and is now negotiating conditions to be admitted to the World Trade Organization, while negotiating with the United States of America for a bilateral Trade Agreement. Vietnam hopes to integrate further in the world economy, and enjoy more favorable conditions and non-discrimination. Vietnam has also joined many other regional and international organizations involved in public health care, sports and environment protection. This in fact has helped increase Vietnam's prestige and position in bilateral and multi-lateral negotiations and created opportunities for Vietnam to have better access to the world's achievements.

Opportunities and challenges for Vietnam in the international integration process

Vietnam enjoys various advantages but also confronts numerous difficulties in joining regional and international groupings. As mentioned above, international integration have the following advantages:

- Avoiding discrimination and pressure in international trade while gaining preferences applied to underdeveloped countries or transitional economies;
- Expand and stabilizing the domestic market, attracting investment and technology transfer;
- Increasing its position and prestige in the international arena, especially with major powers in the world; making necessary adjustment orientations for the country's interest; and
- Accelerating the restructuring of the national economy, shifting to the market-oriented mechanism of economic management based more on efficiency, promoting the growth and improving social and environmental protection.

The problem here is whether Vietnam can make full use of these advantages or not. What are the remaining obstacles in Vietnam's integration process? Following are some questions raised for consideration.

First, Vietnam has adopted a policy of openness, but it is still at a low level of development, and many of its products are very uncompetitive. Vietnam remains one of the countries with the lowest per capita income worldwide. In terms of competitiveness indicators, the World Economic Forum has estimated that Vietnam ranks 49 among 53 countries. This proves that Vietnam has to confront tough conditions to integrate into the world economy. Without a clear-sighted and wise policy, Vietnam will not be able to develop and stand on its own feet on the way to industrialization and modernization.

Second, having been left far behind by many regional countries in the process of economic integration, Vietnam's preparation is in the defensive position. Many domestic organizations still tend to rely on the State's protection and are not yet prepared to strengthen their competitiveness. This might lead to risks and losses when the country opens and integrates into the world economy.

Third, Vietnam has been experiencing a transition to a market economy. The market mechanism has not yet been fully established, and the centralized planned economy lingers on in many aspects of the economy. On joining regional and international institutions, Vietnam has to sign a number of commitments that require it to promote further this change, especially economic reforms in accordance with international law and practices such as the principles of non-discrimination, transparency, and information system.

Fourth, Vietnam's legal framework has not yet been finalized. This is a major restriction for the flow of goods, services and capital to the country, and at the same time a loophole for other countries to profit from the open door policy. This does harm to Vietnam's long-term interest. Besides, poor management skills and knowledge of Vietnamese managers and staff also hinders the positive impacts of the integration process.

In couple with promoting the economic and administrative reform and improving its legal framework in accordance with a market economy, Vietnam will continue to integrate in the world economy. By so doing, Vietnam plans to gain a better position in regional and international markets, attracting more capital and advanced technologies and wider markets for its products. Integration and international competition should be used as a lever to encourage Vietnamese enterprises to further develop and consolidate their position in the international markets.

Environment and environmental protection in the process of integration: Institutional and legal requirements

It might be said that Vietnam's open-door policy and integration into the world economy in the last decade have created conditions to attend better to environmental protection. Having participated in international organizations on environmental protection and with assistance from international community, Vietnam has managed to issue a number of policies on environmental protection, such as the Law on environment protection in 1993. We have gradually raised awareness among people, including producers, on environmental protection. This has helped to reduce pollution in industrial and major residential areas and to prevent the overuse and destruction of natural resources.

Monitoring the integration process of the country, one can see positive impacts on environmental protection as follows:

- Better access to green, clean and high technologies. Many foreign investment projects brought the most up-to-date technology, that causes less pollution and uses materials in a more effective way. All foreign investment projects must have industrial waste treatment solutions (this does not necessarily mean that these projects have no negative impacts on the environment).
- More access to information and knowledge on environmental protection and the interactions between international trade and environment. Vietnam has also learnt from other countries' experiences in maintaining the harmony between economic benefits from international trade and environmental protection for sustainable development.
- With the growing flow of Official Development Aid to Vietnam in recent years, more official development aid has been allocated for environment protection. In 1985- 1995 period, ODA for environment in Vietnam stood at \$460 million, accounting for 9% of the total ODA to Vietnam. The figure increased by 13% and

has amounted to \$600 million since 1996. This accounts for 11% of the total ODA implemented in Vietnam. This helped to strengthen the capability of Vietnam in environmental protection and, at the same time, helped to settle urgent environmental issues such as treatment of industrial waste water, domestic waste water, environmental protection of coastal areas, forest protection and the protection of endangered species.

Besides these positive impacts, international economic integration has also created new challenges for Vietnam in following aspects:

- Vietnam mainly exports raw materials and semi-finished products. The proportion of manufactured products of exports remains low (only 26% in 1998). Among the major export items, crude oil accounted for 13% of the total export revenue, rice accounted for 11.2%, marine products accounted for 9%, coffee accounted for 6.3%. Meanwhile Vietnam's processed products are mainly garments and textiles, making up 13.2% of the total export revenue. Footwear accounted for 9% of total export revenue of the country in 1998. It is predicted that natural resources of Vietnam will be exhausted soon if Vietnam does not increase its processed products for export. Besides, imbalances of the ecological system, such as increased flooding, have been caused in the Mekong River delta by prawn farming for export. This in turn affects the economic benefit (namely, reduced prawn output).
- Vietnam imports mostly raw materials and technologies which are not yet produced domestically. Most of its imports come from regional countries, with imports from Asian markets accounting for 75% of total import value of the country. This is because the technology from western countries is usually more expensive. Another reason is the poor management and technical skills of Vietnamese staff. Some cases have been documented where Vietnam imported obsolete technologies that were no longer used in other countries, or a species harmful to the environment, such as yellow snails.
- Beside the advantages of the trade liberalization process and international economic integration, Vietnamese enterprises have been confronted with a number of obstacles in selling their products in foreign markets, especially the hard-to-please markets such as EU countries, Japan and the US. Many countries impose strict environment regulations on imported goods and thus create non tariff barriers to limit the penetration of goods from outside (for instance the requirements for hygiene for marine products, not to use pesticides or organic fertilizers). With poor technical standards and lack of funds, Vietnamese partners are faced with challenges to expansion of its markets to these countries.
- Vietnam's legal framework has not yet finalized. Law enforcement has not been strict and its monitoring of law enforcement and management skills remain poor. This has been a major cause of environmental damage, such as the smuggling of rare and precious species, or wanton forest destruction. Another problem is that the application of some economic tools in pollution control, such as pollution taxes and fees, is very difficult because this could reduce the competitiveness of Vietnam's goods.

The question of environment and environmental protection is of growing concern to the Vietnamese Government. This is manifested by the instruction issued by the Political Bureau in June 1998 on environmental protection in the process of industrialization and modernization. This instruction defines important measures for environmental protection. It states that economic policies should be closely linked to environmental protection. Environmental issues involve multiple sectors and branches and closely connect with all branches of the national economy. Policies for economic development if not combined with policies of environment, might cause serious consequences for the environment in future.

As mentioned above, the process of integration in the regional and the world economies is inevitable. However, this process has greatly affected the environment. That is why, in addition to the capacity building for staff of agencies involved in environmental protection in Vietnam, it is necessary to address the following problems:

First, there needs to be coordination of activities to raise awareness on environmental protection for everyone involved in the integration process. Producers are very important because, in a market mechanism, they are the ones who directly decide where and what to invest in and the ones who directly turn out products and also directly deal with international markets. Once they have good understanding of environmental protection, the producers (mainly enterprises) will actively take part in environmental protection and prevent negative impacts on the environment. Further, if producers are aware of requirements for export products, they will work out relevant policies of investment and decide suitable technology to meet these requirements. It is also necessary to encourage producers, especially exporters to apply the ISO 14000 series of environmental management standards.

Second, raising awareness in the community of the integration process and its impacts on the environment is also one of major factors that puts pressure on economic activities to take care of environment protection. With environmental protection in mind, consumers can change their habits and favorites to use environment-friendly products with "green labels", gas or solar energy instead of coal or electricity for fuel in their day-to-day life. This in turn forces producers to invest in upgrading technology and changing products to meet the new requirements of consumers.

Third, it is necessary to retrain and upgrade staff involved in commerce and trade negotiation, especially on matters of trade liberalization and environment, giving them sufficient knowledge to win at negotiation tables for the national interest, and the interest of domestic producers and consumers in particular.

Fourth, all agencies and economic branches should strictly observe the instruction N.36 issued by the Political Bureau of the Party Central Committee in June 1998. Under this instruction, it is necessary to institutionalize coordination between economic development and environmental protection. This means that every national master

plan of socio-economic development or of an individual branch must have indicators of the environment impacts and measures for environmental protection. Another important issue is that, costs for environmental protection must be taken into account whenever calculating the economic benefits of a project or a development program at national level. It is also necessary to encourage polluters to set up funds for environmental protection to contribute to reducing negative impacts on environment and, at the same time, to assist investment projects in pollution treatment and strictly observe international environmental requirements.

Fifth, the communication campaign to raise awareness and to disseminate information is of great significance. This question is inter-related to the four issues mentioned above. Environmental information should provide information to people of all walks of life, including people in the community, producers, and economic managers. The environmental legal system should be improved and disseminated widely, together with plans of action, so that assessment of the results of these plans can be made.

Sixth, Vietnam needs assistance and support from international organizations so as to make full use of the advantages of the integration process for environmental protection. It is estimated that in the years to come, Official Development Aid allocated to environmental protection will increase. However, credit grants for environmental protection will decrease while the proportion of soft loans will increase. It is necessary to take measures for effective use of foreign aid.

Annex 1: structure of major export-import goods in 1991-1998 period

	1991	1992	1993	1994	1995	1996	1997	1998*
EXPORT								
US\$ million	2087.1	2580	2985.2	4054.3	5448.9	7255	9270	9360
Ratio	100	100	100	100	100	100	100	100
including - coal								
US\$ million	47.7	62.0	52.0	75.1	88.9	114.3	111.8	
Ratio %	2.3	2.4	1.7	1.9	1.6	1.6	1.2	
Crude oil				75.1				
US\$ million	581.0	805.0	861.0	1.9	1031.8	1345.0	1423.7	1200
Ratio	27.8	31.2	28.8	976.0	18.9	18.5	15.0	12.8
Rubber				24.1				
US\$ million	53.3	67.0	74.7	134.0	157.0	149.9	195.9	1200
Ratio	2.6	2.6	2.5	3.3	2.9	2.0	2.1	12.8
Rice								
US\$ million	187.6	300.0	363.0	406.7	546.0	853.0	868.3	190
Ratio %	9.0	11.6	12.2	10.0	10.0	11.8	9.4	2.0
Cashew nuts								
US\$ million	26.0	41.0	44.0	72.5	595.5	95.0	130	1050
Ratio %	1.3	1.6	1.5	1.8	10.9	1.3	1.4	11.2
Coffee								

US\$ million	74.0	92.0	110.6	328.2	621.4	333.8	507.6	594
Ratio %	3.6	3.6	3.7	8.1	11.4	4.6	5.4	6.3
Marine products								
US\$ million	285.4	307.0	427.2	551.0	850.0	651.0	760.0	850
Ratio %	13.7	11.9	14.3	13.6	15.6	9.0	8.1	9.0
Textile & garments								
US\$ million	158.0	220.0	335.0	554.0	296.4	1150.0	1300.0	1350
Ratio %	7.6	8.5	11.2	13.7	5.4	15.9	14.0	14.4
Footwear								
US\$ million	10.5	16.8	68.0	115.4	296.4	530.0	955.0	950
Ratio %	0.5	0.7	2.3	2.9	5.4	7.3	10.3	10.1

IMPORT								
US\$ million	2338.1	2540.7	3924	5825.8	8155.4	11144	11200	11390
Ratio %	100	100	100	100	100	100	100	100
Electrical appliances								
US\$ million	29	39.7	116.9	104	113.8	184.8		
ratio %	1.3	1.6	3.0	1.8	1.4	1.7		
Steel								
US\$ million	25	8.5	233	211	365	529.2	187	
Ratio %	1.1	3.4	5.9	3.6	4.5	4.8	4.3	
Fertilizer								
US\$ million	236	237	205	247	339	341.1	410	
Ratio %	10.1	9.4	5.2	4.2	4.2	3.1	3.7	
Essential oil								
US\$ million	185	615	687.4	701	830	1079	1111.6	
Ratio %	20.7	21.3	17.5	12.0	10.2	9.7	9.9	
Fabric								
US\$ million	42	13.8	60	81	199	158		
Ratio %	1.8	0.5	1.5	1.4	2.4	1.4	-	

Source: Office of National Committee on ASEAN 1997;
General Department of Statistics, 1998.

3. The General Picture: International trade expansion and environment protection in Vietnam

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Introduction

The issue of trade and environment has been of global concern since early 1970s, starting with the Stockholm Conference. During the Tokyo Round (1973 to 1979) of the General Agreement on Tariff and Trade, environment became a hot issue in a discussion which focused on green protectionism and new barriers to liberalization.

At present, the issues of trade and environment in international trade are dealt with in two dimensions and with two different points of view. The first is concern for the degradation of the environment in a time of rapid growth and development, particularly in developing countries. In response, developed countries have set standards for environment protection and have encouraged developing countries to follow suit. The second is the concern that rapid trade liberalization might lead to the massive penetration of goods and products detrimental to the environment. This might also turn developing countries into dumping grounds for obsolete equipment. Due to their limited management skills and poor infrastructure, developing countries fear that they might fail to manage the imports of environment-unfriendly equipment and industrial products within the framework of trade liberalization.

These two trends have to some extents slowed down the process of global liberalization. As the result, trade and environment issues have been persistently hot themes in multilateral trade talks to seek a mutually acceptable solution and policy that benefits both trade and environment. This is a difficult but promising process since both trade liberalization and environmental protection share the same goal of effective exploitation of available resources.

How to deal with this issue in Vietnam?

First of all, the trade and environment nexus is a new issue in Vietnam. The discussions of this issue have been carried out in the world since the 1970s. However, only in April 1998 did Vietnam organize its first conference on trade and environment. The conference focused on how to apply ISO 14000 and ecolabels to Vietnam's products to increase their competitiveness in international markets and meet the environmental criterion of hard-to-please potential markets world-wide. In other words, this is Vietnam's effort to fulfill environmental requirements to expand trade with other countries. These efforts are probably positive in terms of trade but negative in terms of environment. That is because they are only one-way efforts and a

temporary environmental solution to meet requirements to expand trade relations. However, fundamental and subjective measures on trade to effectively protect the environment have not been worked out yet. The absence of these measures will hinder the sustainable development of both trade and environment. I would like to raise three issues as follows:

First, the trend to expand foreign trade of Vietnam was highlighted in the national economic development strategy. The Resolution of the 6th Congress of the Communist Party of Vietnam defines: "Vietnam will build an open economy in accordance with the principles of multilateralization and diversification of its external economic relations. Vietnam will pursue an export-oriented economy while substituting imported goods by domestic ones". To achieve this, Vietnam has been strengthening bilateral trade ties with various countries worldwide and is in the process of acceding to the World Trade Organization (WTO). Vietnam also participates in regional associations such as ASEAN, APEC and ASEM. The restructuring of commercial structure to meet all the required procedures in bilateral and multilateral trading activities has also posed certain environmental problems for Vietnam. There is also a paradox between the need to control flows of products and goods or toxic chemicals which might cause environmental pollution and implementation of an open door policy. The question of how to set the trade policies in accordance with international rules while addressing environmental problems in Vietnam remains unanswerable.

Second, how can the current export encouragement policy of Vietnam settle the question of sustainable development, especially for those branches using non-renewable natural resources and those industries greatly affecting the environment?

Third, in the current context of an open economy and integration into the world economy, Vietnam needs to have relevant environment policies to take full advantage of trade liberalization, and to contribute to breaking down green barriers in order to boost Vietnam's exports.

To help provide a feasible solution to the above-mentioned problems, I would like to share with you some of my experiences on the following issues:

- Current situation and structure of import-export;
- Trade development tendency of Vietnam upon accession to the WTO and participation in regional economic organizations;
- Environmental risks due to the above-mentioned changes in trade policies;
- Existing regulations on environment; and
- Recommendations and solutions.

Existing import-export structure

In recent years, Vietnam's import-export volume has been rapidly increasing, with annual imports of about \$11 billion and exports of about \$9 billion. In the period from 1991 to 1995, Vietnam's import-export value increased by 28% annually. 1996 alone saw an increase of 33% against 1995, and the figure in 1997 was up by 22.7% against 1996. In 1998, due to the adverse impacts of the financial and economic crisis in the region and worldwide, the import-export figure stood at merely 2.4%. In the coming period, the top priority of Vietnam remains on exports. Given rapid increases of import-export, the country's economic growth rate is estimated at between 8 and 9% annually. Economists consider this rapid development.

Vietnam's main export items at present mainly come from farm products such as rice, cashew nuts, and coffee, as well as minerals, engineering, electronics, and labor intensive products such as garments, fine arts and handicrafts. It is easy to realize that the production of these products might be limited (like minerals and farm products) or fall into the category of high-risk production (like garment making, textile and handicraft, fine art and electronic products). This further illustrates that expansion of trade has implications for the country's environment. Therefore, it is essential for Vietnam to find a proper solution to the relationship between trade and environment in its economic policy.

Vietnam mostly imports machinery, materials for manufacturing consumer goods and other commodities that are not yet made domestically like cars, motorbikes and refrigerators. These are also environmentally high-risk goods, specially second-hand products, such as refrigerators containing ozone depleting substances. The following analysis of the import-export control structure will highlight problems in the existing policies on the control of imports of products that might cause environmental pollution. How can Vietnam design trade policy that contains suitable stipulations on environment protection? This is a major task for the coming period.

With regard to investment policy, Vietnam has encouraged investment in export-oriented production, processing of aquaculture, farm and forest products, sectors that generate more jobs or make full use of natural resources, in sectors that apply high-tech, and in infrastructure and key industries.

Trade Management Policies

Currently, Vietnam's existing commercial system is regulated by the Trade law, Decree 57/CP of the Government. Other documents provide specific guidelines in implementation of the trade law and the above-mentioned decrees.

Based on the Decree 57/1998/ND-CP and other related documents issued by the State, the existing import-export regulations of Vietnam can be outlined as follows:

- Encouraging export, especially for industrial and processed products, through export supporting funds and soft loans, and preferential policies for inputs importation.
- Imposing bans on import and export of commodities that might adversely affect national defense, security, health, and flora and fauna, culture, education, arts and archaeological works. At present the bans are imposed on 6 items: weapons and ammunition; antiques; drugs; toxic chemicals; timber; and rare animals.
- Vietnam also bans the import of the following 11 items of goods: weapons, drugs, toxic chemicals, decadent cultural works, fire-crackers, cigarettes, second-hand goods, cars with right-hand driving wheel, materials containing amiang, and second-hand engines. Those included in the banned list can only be exported or imported in some special cases with the approval of the Government.
- Application of export quotas for rice, garments and textile products. As for textile and garments, foreign partners grant the quotas. There is no quota for import.
- Application of import- export licensing for sensitive goods and those that need to be controlled by the Ministry of Trade or relevant ministries. They include 20 items of goods including petrol, motorbikes, electric fans, bricks, tiles and ceramic products, porcelain commodities, finished plastic containers, frames of motorbikes, NaOH, bicycles, vegetable cooking oil, DOP plastics, Clinker, black cement, sugar, fertilizer, wine, glass used in construction, writing papers and steel products of different kinds.
- Most exported goods have zero tax rates, excluding some natural resources such as crude oil, some kinds of minerals, and rattan.
- There are three kinds of import tariffs including conventional tariffs, preferential tariffs and specially prioritized tariffs. The preferential tariff is applied for goods imported from countries which enjoy the most favored nation status in trade relations with Vietnam. The conventional tariff is 50% higher (but not exceeding 70%) than the preferential tariff. The specially prioritized tariff is applied for imported goods from countries with which Vietnam has bilateral trade agreements, or within the framework of free trade areas or custom unions, or to create favorable conditions for border trade activities. At present, Vietnam's tariff is applied for approximately 7300 items. The peak tariff is 100% applied for liqueur, wines, beer, and cigarettes. The lowest import tariff is 0%, mostly applied for machinery, materials for domestic production and means of production. To prevent unhealthy competition, Vietnam will also apply anti-dumping tariffs for goods imported at a price lower than production cost, or countervailing taxes for those goods that enjoy subsidy from the exporting countries. The average tariff in 1998 is 13.4% lower than the tariff rates of other countries in the region.

It could be said that the import export duty policies of Vietnam do not cover specific provisions on environment protection like that of other countries. All the banned import-export goods or those goods which need import-export permits aim only at protecting people's health, social safety, national security, and preserving traditional

cultural values and practices. Some of these bans or requirements also relate to environmental protection, but not specifically and clearly enough. They are even too immature in comparison with the lists of environment unfriendly or environment-polluted products stipulated in multilateral agreements on environment protection or in other relevant documents of international organizations such as the United Nations, Food and Agriculture Organization and the World Health Organization. It appears that Vietnam leaves itself open to environment unfriendly products or products that might affect the environment. I would like to raise here some examples:

- The United Nations has listed over 700 items of goods that must be strictly controlled in use, trade and production. This list excludes poisonous food additives and some pharmaceutical products belonging to the banned list by the Food and Agriculture Organization and the World Health Organization.
- The Basel Convention has produced two lists, A and B, of wastes which need to be controlled strictly in trade and cross-border transportation.
- The Montreal Protocol includes 6 annexes to prohibit the use, production and trade of chemical substances, facilities and products which may cause ozone depletion.
- There are a number of other commodities such as children's stuff, household utensils, cosmetics, detergents, textile, garments, paints, electronic devices, leather shoes etc. which contain environmentally-unfriendly substances and needs strict control in their use, production and trade.

Apart from insufficient non-tariff measures to control goods, as mentioned above, the system of import-export duties in Vietnam has not yet worked out the relevant tariff rate for environment-unfriendly products. For instance, Vietnam has set up zero tariffs for up to 264 different chemical substances, and the average tariffs of chemical substances is only 6.2%. About 150 agricultural products have tariff rates of between 0 to 5%.¹ This means that Vietnam's tariff and non-tariff policies do not include relevant measures to control and regulate the importation of environment-unfriendly products.

Development trends in Vietnam's commerce

The WTO stipulates general regulations for world trade. The WTO code includes 46 agreements and decisions and has legalized almost all aspects of world trade, including environment-related commerce.

Vietnam is in the process of accession into the WTO. This means that Vietnam has to observe all the regulations and rules of the WTO, or in other words, to observe the common rules of the game of world trade. Vietnam has a rudimentary economy with many infant industries. Its legal system remains incomplete and needs to be finalized.

¹ The statistics are based on the figures for import and export tariffs in 1998. Source: Vietnam Individual Action Plan in APEC.

Because of these factors, Vietnam's entry to the WTO may create a number of major challenges. In the coming time, the following changes need to be made:

- Gradual reduction of tariffs, with tariff binding no be higher than the current rates;
- Gradual reduction and removal of limitations and bans on imports and exports, with some exceptions. Shifting of regimes of quantitative restrictions to limit imports of agricultural products to tariff controlling regimes (tariffication of all non-tariff measures);
- Transparency of commercial management measures such as issuance of import-export permits, customs procedures, and business rights, in accordance with general procedures of the WTO;
- Gradual removal of all domestic supporting and export subsidies that affect the trading of agricultural products;
- Reform of the commercial and service systems to broaden the business rights of domestic and foreign enterprises, and National treatment for service providers;
- Adjustment of technical specification systems and requirements for quarantine of animals and plants, in accordance with the regulations and stipulations of the WTO and international commercial practices. There should be scientific evidence for the need for these standards and requirements;
- Increased transparency and consistency of policies, in accordance with international commercial practices and stipulations;
- Removal of all kinds of subsidies for state-owned enterprises; and
- National treatment of foreign investors and the gradual removal of restrictions on investment, on the basis of the Agreement on Trade-related investment measures (TRIMS).

Within the framework of ASEAN and APEC, Vietnam will participate in programs for trade liberalization and facilitation. They include the following:

- APEC program of voluntary trade and investment liberalization and facilitation, (Individual Action Plan - IAP), under which Vietnam will reduce tariffs, remove all non-tariff barriers, and harmonize standards on quality and customs procedures with that of other APEC member countries by 2020;
- Collective Action Plan of APEC (CAP) to reform policies on trade and investment management mechanisms;
- Early voluntary sectoral liberalization (EVSL) in 15 sectors, including many environment-related items such as rubber, chemical substances, food and food stuff, energy, products and environmental services. Under the EVSL, tariff rates applied for these items will be reduced to between 0 and 5% by 2002-2005. Non-tariff measures will also be minimized or readjusted in conformity with international practices; and

- Complete liberalization of markets for exports from ASEAN countries by 2006, finalize the investment agreement of AIA by 2010-2013 and progressively open service markets to ASEAN countries, according to the schedule agreed upon among ASEAN countries.

So, we can foresee major changes in Vietnam's trade policies in its relations with regional countries and the world in years ahead. These changes will be in the direction of a more flexible mechanism of trade management and freer flows of goods and services in and out of the country. Such changes in trade management policy might bring about problems for the country's environmental protection unless an environment-related trade policy is worked out. Risks to the environment will directly affect socio-economic life and make the process of trade expansion unsustainable.

Environmental risks in trade expansion

Immediate impacts:

- Faced with growing competition, Vietnam's state-owned enterprises will seek to reduce production costs to compete with imported goods. By reducing prices to raise competitiveness they might curtail environmental expenditures while overexploiting natural resources.
- The removal of commercial restrictions might lead to the influx of environmentally-unfriendly products.
- Once strict regulations on investment management are loosened, investors might focus on lucrative businesses such as restaurants, hotels, and recreation centers while ignoring labor intensive and difficult sectors such as agricultural production, rural development and environmental projects, which already receive very little investment.
- At present, the infrastructure system in Vietnam is not good enough for large scale production of goods, especially in the sectors of agriculture, handicrafts and fine arts, mining, and so on, which are the major export earners. Trade expansion in these areas might lead to overloaded production and cause degradation of the environment. Therefore, environment-supporting measures are needed during trade expansion.

Vietnam's environmental policies

To deal with environmental issues, Vietnam enacted the Law on Environment, which was approved by the National Assembly in 1992 and includes the Law on Land, the Law on Conservation and Development of Forest Resources, the Mineral Law and Ordinance on Aquaproductions. Along with these legal documents, the Vietnamese Government also has issued a strategy on improving activities for environmental protection. This includes the implementation of Agenda 21, a program to control

industrial and urban pollution, a national program on forest protection, and a program to eliminate ozone depleting substances. In its Strategic Plan for Socio-Economic Development for 2000-2010 Period, the Government has instructed ministries and branches to develop detailed plans for environmental protection while designing their development strategies and master plans.

- All master plans for development should account for environmental protection and ecology.
- It is necessary to identify limits for industrial wastes to maintain environmental quality.
- It is necessary to have a general estimate of the relation between production and environmental degradation for agriculture, forestry and fishery.
- For urban development, Vietnam must identify limits and measures to prevent environmental degradation, to protect and improve the living environment, and to treat urban wastes.
- For regional development plans, it is necessary for provinces and cities affiliated to the central Government to identify environmentally-sensitive territories and work out relevant solutions.

So, it could be said that Vietnam's environmental programs are relatively diversified and involve the entire national economic apparatus. However, in general, these are only efforts to upgrade and protect the natural environment. As far as commerce is concerned, there is no detailed mention of specific environmental measures to support trade development, such as environment capacity building for enterprises, the application of ISO 14000 or ecolabeling, or the application of Codex Alimentarius criteria. In the current context of trade expansion, an effective and relevant environmental policy should cover all the aforesaid issues so as to support national economic development.

Recommended solutions for sustainable development of trade and environment in Vietnam

I would like to raise the following recommendations as a reasonable solution to environmental problems that may arise during trade expansion.

1- Recommendations for better management of the import of environmentally-unfriendly products during trade and investment liberalization and facilitation, in bilateral and multilateral economic ties:

- Study and apply correctly environment-related regulations of the WTO such as stipulations of the Agricultural Association, the SPS Agreement, and technical standards to ensure regulatory consistency with the WTO and recognition of measures by WTO member countries;

- Establish a close co-ordination mechanism between commercial agencies and environmental agencies;
- Participate in international conventions on environment and implement their stipulations in national policies on trade management. In this process, it is necessary to establish technical cooperation programs with international environmental agencies and organizations so as to ensure the effective adoption of those provisions on environment (of MEA Agreements) into our commercial laws and policies, and avoid cumbersome stipulations that block trade activities; and
- Collect and disseminate information of the UNCTAD and the WTO working teams on trade and environment to the ministries and branches concerned, especially those involved in control of imports-exports and enterprises. This is to raise their awareness about the trading of products detrimental to the environment and of other countries' solutions to these problems so that they can design relevant policies for Vietnam.

2- *Recommendations to ensure sustainable development for Vietnam's export-oriented sectors and create a solid precedent for commerce expansion:*

- Give priority to and encourage investment in infrastructure, especially infrastructure for agriculture and industry development;
- Exploit the provisions of the WTO's TRIMs Agreement to encourage investment projects for the environment;
- Support farmers to improve agricultural production, prevent land degradation and gradually shift to environmentally-friendly agricultural production methods. To make these measures consistent with WTO's rules and remain viable when Vietnam joins the organization, there should be a close co-ordination between the Ministry of Trade and Ministry of Agriculture and Rural Development in designing specific measures;
- Increase the prices of goods and products which contain environmental costs to prevent wasteful use of natural resources; and
- Impose taxes and environmental fees on enterprises to encourage initiatives for environmental improvement. However, this is complicated work and if not applied properly may lead to negative practices.

3- *Recommendations to assist enterprises to meet other countries' environmental requirements and standards so as to expand Vietnam's export markets:*

- Assist enterprises in readjusting their structure, progressively moving towards clean production, advancing to the popularization of ISO 14000 among all enterprises, and applying ecolabels to all environment-related products. This is also an area where Vietnam needs to give priority to and establish technical cooperation programs with concerned international organizations to ensure effective assistance and WTO consistency; and

- Broaden contacts with standards and criteria agencies of developed countries to be better informed about environmental criteria and requirements stipulated in various national environmental codes and international environment conventions. Enterprises in many developing countries including Vietnam have limited access to this sort of information. Only by grasping all the environmental requirements and standards of other countries can Vietnamese enterprises manage to upgrade their production technology to meet these criteria. Developed countries themselves and concerned international organizations should take the initiative in disseminating their environmental requirements and standards to facilitate enterprises in developing countries to respond properly. This will in turn help developing countries expand trade and balance their economic interests in the international trade arena and promote global trade liberalization.

- 4- *Vietnam needs other countries' active support for its environmental efforts through technical assistance programs, clean technology transfer, and facilitation of Vietnam's accession to "technology banks". Only then can Vietnam enjoy full and effective access to advanced technology and respond fully to environmental concerns.*

4. Environmental issues and Vietnam's International Trade expansion of agricultural and forestry products

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Introduction

Environmental conditions such as the weather, soil, industry and so on have a great influence on agricultural production. In turn, agricultural production, especially intensive cultivation, has resulted in both positive and negative effects on the environment and ecology.

Within this document, we would like to mention some main environmental issues relating to the development of agricultural production, including:

1. Some recent achievements of Vietnamese Agriculture;
2. Problems concerning Agriculture and Environment; and
3. Some scientific and technological measures for agricultural development with regard to environmental protection.

Recent achievements in Agriculture of Vietnam

For the past few years, Vietnam's agriculture has made considerable achievements in increasing the quantity and improving the quality of its products. The country's agricultural production is no longer only for self-sufficiency but has become commodity production, and lots of its products have been exported.

From a country that was constantly in food shortage, Vietnam now has not only met its domestic demand in rice but has become the world's second-ranked rice exporter after Thailand. Since 1998, foodstuffs outputs have been growing continuously. Industrial plants, especially coffee and tea, have increased rapidly (see table 2 and table 3).

Problems concerning Agriculture and Environment

The development of extensive cultivation has generated a larger quantity of agricultural commodities and helped to improve the living standards of farmers. However it has also had negative effects on the environment. We should be aware of the effects and put forth appropriate protective measures to protect the environment

and maintain the ecological balance. The following are indications of environmental impacts:

- Changes in the cultivation system: the proportions of crop-plants and farm-animals are changing very quickly against ecological factors. For instance, people destroyed forests and mulberry to make space for coffee and got rid of orange trees to plant tea. The expansion of the so-called Industrial Zones has invaded the peasants' land for rice, potatoes or other crops. Indeed many people have started to grow flowers and vegetables for these IZs themselves;
- Changes of crop proportions mean changes of cultivation techniques, water supply and soil nature, which may create conditions for pests to appear;
- Chemicals used in agriculture such as insecticides, inorganic fertilizers, which boost productivity of crops, consist of inorganic fertilizers and weed killers. Such inappropriate use of chemicals has already polluted and will continue to pollute, doing harm to people and even damaging the agricultural products. They may kill useful creatures, poison people, pollute soil and water, and leave toxic chemicals in the products; and
- According to research of the Plant Protecting Agency- Ministry of Agriculture and Rural Development, plant protecting chemicals supplied in Vietnam are as follows:

1991: 20,300 tons	equal to	7595 T a.i
1992: 23,100 tons	-	9510
1993: 24,800 tons	-	9969
1994: 20,380 tons	-	6213

The average quantity of inorganic fertilizers used for seeding ranges from 80 to 90 kg/ ha 100-110 kg/ ha (in particular for rice), similar to the global average. The problem, however, is that the use of these chemicals is actually concentrated on some highly cultivated areas such as Hong River Delta and Me Kong River Delta.

Some cultivation measures that improve production while protecting the environment

Agriculture should be modernized to maximize the quantity and quality of products to meet domestic consumption and export demand without polluting the environment and disturbing the ecological balance. That means there must be “clean” and sustainable agriculture. Here under are some solutions that are currently undertaken with an aim to limiting negative impacts on the environment and agricultural ecology:

- Projecting plans of agricultural ecology areas: survey, research of the natural conditions such as climate, weather, soil, water, ecosystem of each area for suitable plants and farm-animals;

- Building up the most effective cultivation system based on various ecological zones. Proper cultivation systems will not only improve effectiveness but also help solve the environmental problem;
- Developing concentrated agricultural commodities production areas for export as follows:
 - High quality rice areas (Hong river Delta 300,000 ha and Me Kong River Delta 1 million ha); intensive coffee areas of 250ha in Tay Nguyen and the South Eastern region;
 - Tea fields in the Midland and mountainous areas in the North, in Lam Dong, and Gia Lam; sugar-cane fields in the Midland, mountainous areas and the Me Kong River Delta;
- Choosing and hybridizing productive plants and farm animals suitable for each region, so that they can resist pests and diseases is the most important job in agriculture. Breeding efforts have made great contributions to the success of agriculture in the past few years;
- Preparing technical documents such as Standards and Technical Processes for Crops, farm-animals, fertilizers, plant protecting chemicals, food for farm-animals and veterinary medicines as the basis of management and guidelines for farmers;
- Publishing legal documents for agricultural management such as the ordinance on quarantine and plant protection; ordinance on veterinary medicines; decree on animal food management; regulation on trading of plant - protecting chemicals, fertilizers, food for farm-animals, veterinary medicines, lists of allowed, limited, forbidden plant - protecting chemicals in Vietnam. Encourage the use of biological fertilizers and biological anti - disease methods; and
- Carrying out new policies such as preferential credit policy; policy for agriculture promoting services; technology-transfer and production services; taxation policy; agricultural science - technology research policy; agricultural pioneer-training policy; and agricultural assurance policy, etc.

Table 1: Crops output

Unit: 1000 tons

	1990	1991	1992	1993	1994	1995	1996	1997
RICE	19,225	19,621	21,590	22836	23528	24963	26396	27
MAIZE	671	672	747	882	1143	1177	1536	1640
SWEET POTATO	1929	2137	2593	2404	1905	1685	1697	1642
MANIOC	2275	2454	2567	2450	2358	2211	2067	1983

Source: Annual Statistics

Table 2: Long-term cash-crops output

Unit: 1000 tons

	1990	1991	1992	1993	1994	1995	1996	1997
TEA	32	33	36	37	42	40	46	52
COFFEE	92	100	119	136	180	218	320	400
PEPPER	8,5	9	7.8	7	9	9.3	10.5	10.7
COCONUT	894	1025	1139	1184	1078	1165	1317	-
RUBBER	58	64	67	96	128	124	142	-

Source: Annual Statistics

Table 3: Short-term cash-crop output

Unit: 1000 tons

	1995	1996	1997
COTTON	12.8	11.2	14
JUTE	14.8	15	22
RUSH	75	55	52
CANE	10711	11371	11428
PEANUT	334	357	352
SOY-BEAN	125	133	102
TOBACCO	27	23	28

Source: Annual Statistics

Table 4: Heads cattle and poultry

	BUFFALO (1000)	COW (1000)	PIG (1000)	HORSE (1000)	GOAT & SHEEP (1000)	POULTRY
1990	2854	3116	12260	141	372	107
1991	2858	3135	12194	133	312	109
1992	2886	3201	13891	133	312	124
1993	2960	3333	14873	132	353	133
1994	2977	3466	15587	131	427	137
1995	2962	3638	16306	126	550	142
1996	2953	3800	16921	125	512	151
1997	2934	3900	18000	119	515	170

Source: Annual Statistics

Table 5. Agricultural products for export

Unit: 1000 tons

	1995	1996	1997
RICE	2000	3050	3600
COFFEE	248	240	400
RUBBER	138	121	197
TEA	19	21	31
PEANUT	115	127	84
CASHEW NUT	20	22	32
MEAT	6.5	4.6	10

Source: Annual Statistics

5. Environmental issues relating to Vietnam's international expansion of industrial products

**By Engineer Nguyen Dinh Hai
Engineer Nguyen Van Vinh**

Ministry of Industry

Industrial production in Vietnam

In 1995, the Ministry of Industry was re-established on the basis of Ministry of Heavy Industry, Ministry of Light Industry and Ministry of Energy, including the following branches: chemistry and fertilizers; steel production; textiles; leather and shoes; tobacco; paper timber and matches; pottery and glass; electric and electronic equipment manufacturing; machinery; mining; and electricity, coal, oil and gas production.

- From 1983 to 1989, average GDP industrial growth rate was 6.6% per annum, compared to 4.7% for the country as a whole.
- From 1989 to 1995, average GDP industrial growth rate was 10.8% per annum, compared to 7.7% for the country as a whole.
- Average industrial GDP growth rate has risen by 13% since 1993.

In the period 1996-2000, average industrial growth rate is expected to be 14-14.5%, compared to 9.8-10% for the country as a whole. Trade between Vietnam and ASEAN and EU will grow rapidly. It is estimated that industrial GDP will occupy 35% of the country's GDP in 2000 (22% in 1993) of which:

- the State sector accounts for 48% (43.5% central industries and 46.5% local industry);
- the non-state sector accounts for 23%; and
- the foreign capital sector accounts for 29%.

The main industrial product outputs of central, local and foreign capital enterprises combined are:

- Electricity: 20 billion kWh;
- Coal: 10 million tons;
- Steel: 980,000 tons;
- Chemical fertilizers: 1 million tons;
- Cloth: 300 million meters; and
- Paper: 25,000 tons.

To date, there are more than 900 licensed projects with total registered capital of US\$ 20 billion and a turnover of US\$ 1.5 billion. A series of industrial parks, export processing zones equipped with modern technology, are being established. If the growth rate is sustained, industrial output value will increase by 4 in the next 10-15 years. Most products are of good quality and compatible with foreign ones. A number of goods made in Vietnam like machinery, minerals, foodstuff, garments, footwear, etc., have been exported to customers with high standard like Japan, the United States, and the EU. More than 80% of products of the foreign capital enterprises, which employ 140,000 people, are for export.

Industry is considered to be the engine of modernization and a lever for national economic development. The following are essential:

- Infrastructure development;
- Building an appropriate product strategy;
- Facilitating competitiveness in world and regional markets;
- Adoption of a preferential policy for the export of industrial products;
- Attracting foreign investment;
- Motivating advanced and appropriate technology transfer; and
- Urban and territorial development planning establishing industrial centers on the basis of suitable development trends in each region.

The Ministry of Industry should place priority on the following sectors:

- Processing, consumer goods and exporting industries;
- Exploitation of coal;
- Chemicals and fertilizers;
- Oil refining;
- Electricity and electronics;
- Steel; and
- Machinery.

Industrial development must occur in combination with environmental protection and sustainable socio-economic development.

State of Industrial environment and measures for environmental protection

Chemical industry

The chemical industry was formed in the 1930s and includes 43 state-run enterprises and 10 foreign capital ones. Most chemical workshops are in industrial zones and are equipped with old and inefficient technology. After 1975, some new chemical plants

were built with relatively modern technology. Foreign capital enterprises have technology of medium-advanced level. There is a shortage of waste disposal equipment. The chemical industry is a serious source of air and water pollution.

Metallurgy and steel

Metallurgy and steel state-enterprises are mostly located in cities such as Thai Nguyen, Bien Hoa and Ho Chi Minh City. Although the metallurgy and steel production in Vietnam is limited, it does cause considerable pollution to the environment. Mineral dust, silicon containing-dust, amongst other pollutants, are believed to be the most serious problems. Dust pollution has had significant effects on the health of workers, as well as local residents. From 1995 to 1997, the state invested in phenol containing-waste water treatment systems and planted trees in the Thai Nguyen metallurgy zone.

Consumer goods industry

There are thousands of consumer goods production enterprises, including 120 state-run enterprises and 490 local-run ones. In general, the production technology and equipment are old, and most plants have no waste treatment systems. Textile and dyeing, paper making, leather tanning, foodstuffs and monosodium glutamate production establishments are thought to have caused the worst water pollution. Most enterprises are located in urban and populous areas.

Mining industry

Large mines are located in Quang Ninh, Bac Thai and Nghe An provinces. Mine sites are polluted with dust, and the land is eroded and weathered. Every year, ore dressing workshops discharge 2-55 million tons of wastewater into surface water sources.

Environmental management and sustainable development

In recent years, some sectors have partially updated their technology. However, the old equipment is still prevalent. Workshops, most of which started operating before the promulgation of the Law on Environmental Protection, are unable to invest in clean technology and waste treatment systems.

In order to insure sustainable development at the forecasted growth rate, now is the time to determine appropriate steps for environmental pollution prevention. The Ministry of Industry has oriented around the following:

- Searching for measures to deal with pollution, reduce environmental incidents, and prevent industrial environmental deterioration;

- Preventing pollution, reducing industrial pollution, and investing in updating production technology;
- Developing strategy, making policies and planning for sustainable industrial development.
- Selecting technology suitable for a sustainable development strategy;
- Applying energy-saving technology, high technology which produces high quality products or less-wasteful and non-toxic technology;
- Changing materials and production habits;
- Replacing coal and oil with gas as a fuel source;
- Increasing energy efficiency - the Electricity branch is carrying out the projects called Demand Side Management-DSM and Supply Side Management-SSM, with the assistance of UNDP and the World Bank; and
- Ensuring that waste treatment systems are available for plant operation for projects developed since the promulgation of the Law on Environmental Protection.

Environmental protection and trade

Production and Import-Export of Environment-concerned industrial Products

In the chemical industry, a great number of chemicals are used, and many kinds of chemical products are available in markets. The Ministry of Industry has recently notified the prohibition of import-export and the use of DBSA detergents and its substitution by LAS for environmental protection. The Ministry is about to issue a circular on the prohibition of production, import and export of toxic transient substances and chemical products. The Ministry has also notified enterprises to gradually restrict and replace CFC refrigerants and foam to protect the ozone layer.

The textiles and dyeing industries have to observe strictly international agreements on the use of toxic chemical dyes and assisted dye agents. It is necessary to restrict and phase out the use of A30 and aniline dyes, to replace chlorine with H₂O₂ in the bleaching process, and gradually to suspend the use of aldehyde chemicals in bleaching, printing and dyeing processes.

The foodstuffs processing industry has to observe strictly international conventions in safety, sanitation, environmental protection, exploitation and use of marine products. According to Article 19 of the Law on Environmental Protection, the import and export of technologies, machinery, equipment, biological or chemical products, toxic substances, radioactive materials, and various species of animals relating to the protection of the environment must be approved by the concerned management agencies.

According to Article 29, the import of technology and equipment that do not meet environmental standards and provisions on import and export of wastes are strictly prohibited.

In connection with the above-mentioned Articles, the Ministry of Industry has made a proposal for import of some kinds of wastes such as waste paper, cotton, aluminum, plastic, etc. for recycled products since certain wastes can replace primary materials.

Importation of second-hand equipment is prohibited except for that whose quality is at least 80% of new equipment and does not cause any damage to the environment. Most second-hand equipment imported by Ministry of Industry works effectively, contributing to increased output and quality of products, particularly fiber winding, tobacco and plastic production. However, due to the shortage of information about export and import of industrial products relating to environmental protection, in some cases Vietnam has imported items incompatible with environment protection.

Industries and ISO 14000

Industrial branches in Vietnam have started to use the international standard ISO 9000 to set up product quality management systems. Many companies have acquired ISO-9000 certificates. To date, in terms of environment management, ISO-14000 has remained unpopular for Vietnamese industries. However, in view of the increasing demand for environmental protection, industry needs to research and develop environmental management systems appropriate to the international standards of the ISO 14000 series.

Conclusion

1. Although industry in Vietnam is smaller than in other countries, its development speed is relatively high. That is why, from now on, we should concentrate on environmental protection and sustainable development by preventing pollution, investing in updating technology and equipment, as well as in clean technology.
2. Industry needs to implement measures for environmental management, as follows:
 - Selecting technologies appropriate to sustainable development;
 - Changing materials, fuels and production habits;
 - Improving policies and mechanisms for environmental monitoring, protection and management;
 - Researching and developing environmental management systems according to ISO 14000; and
 - Updating information about commercial and industrial products and the environment to promote industrial production.

6. Eco-labeling, EMS certification and implications for international trade expansion of Vietnam

By Mr. Nguyen Van Nam
Director of the Institute for Trade Studies
Ministry of Trade

Overview

The establishment of world and regional economic and trade organizations plays an important role in mankind's development. Over the last two to three decades the rapid growth of world trade has boosted production and also created a dependence of national economies on regional and international trade and interdependence among national economies. Such interdependence is a condition and even a measurement for economic development. At present, a completely independent economy only exists in theory. This fact has been seen through the Asian economic crises.

The establishment of regional organizations and above all, the World Trade Organization has created a favorable opportunity for the development of world trade and helped to increase the transaction volume of goods in the world. The aims of these organizations are to establish and progressively improve the trading environment to respond to the needs of trade in goods and services for the economic development of each member country. The WTO represents the globalization of international trade. The establishment of the WTO has gradually reduced tariffs and trade barriers, and at the same time, generated a stable trading environment and unprecedented opportunities for the development of international trade.

The reduction of tariffs and trade barriers not only considerably increases the transaction volumes of goods, but also constantly improves the quality of goods. Besides scientific and technological advantages, trade liberalization plays a considerable role in responding to people's needs for trade in goods and services. As far as living standards and awareness are improved, the consumers will prefer environment-friendly products. Moreover, issues of the environment attract great public intention in our era. Thus, there have emerged products that not only are in conformance with normal quality standards, but also are environmentally-friendly.

The working groups and the sub-technical committee on ISO/TC207 are developing standards for this type of products. Of these standards, the ISO 14020 mentions the General Principles of Environmental Labeling and related issues so that the products can be internationally recognized. This Standard is very significant in international trade because, according to rules of GATT/WTO, only products that do not cause environmental pollution during and after use will be eco-labeled and traded. Another Standard, ISO 14040, is related to the life-cycle of the products, their impacts on the environment during the processes of management and production and the enterprises'

commitment to conduct environmental impact assessment and monitor environmental impact during their operation.

These product assessment standards will help to formulate the best principles and approaches to assess environmental impacts of the products. With these standards, enterprises are required to pay attention to environmental impacts of the products from the design stage to material selection and until the products are disposed. The supply of such products, however, requires producers to renew their technology, resulting in increased production costs. This requirement will be a major challenge to all countries, particularly for less developed economies such as Vietnam. Moreover, the ban on environmentally-unfriendly products in international trade creates a new type of barrier in international trade, namely the Technical Barrier to Trade (TBT). Environmental Labeling is the Access Card to cross this barrier. Environmental Labeling is one of contentious issues in the WTO and a main theme of the ISO 14000 series.

Environmental Labeling is one of the tools in Environmental Management Systems which is being studied by the ISO/TC207's Technical Committee on environmental management of the International Standardization Organization. Recently, the first standard on environmental labels, the ISO 14020 on Environmental Labeling (also known as Eco-Labeling) has been applied in many countries. A Global Eco-Labeling Network has been formed in most developed or newly industrialized countries. The significance and objectives of Environmental Labeling can be seen in the linkage between the Environmental Management System (EMS) and specific organizations/enterprises that supply specific goods or services. Therefore when looking at this matter, basic information on Eco-Labeling is needed.

Eco-Labeling is still very new to Vietnam and not widely understood by the public. Therefore, in order to make more familiar this concept of environment oriented production, issues related to eco-labeling should be disseminated not only to managers, but also to the public, with a view to encourage production and consumption of environmentally-friendly products, raise awareness of environmental protection and relate this to economic benefits of enterprises. Now some regional countries have stamped eco-labels on products that meet certain environmental standards. Products of Singapore and Thailand have been eco-labeled in accordance with the recognized standards.

As global competition has become fiercer, environmental standards seem to be abused and become new technical barriers in international trade. Environmental labeling was even discussed in the WTO meeting on Trade and Environment in Singapore in 1997. As a matter of fact a better understanding about Eco-Labeling will help exporting enterprises notice challenges in importing markets so that they can formulate appropriate strategies to cope with these challenges, particularly those behind environmental labels.

Environmental Labeling and Vietnam's awareness

Vietnam became the 65th member of ISO in 1977. Previously, as a member of SEV, Vietnam's participation in ISO standards was very limited. Most of Vietnam's standard systems were formulated in 1962 on the basis of either accepting or referring to the standards of the former Soviet Union (GOST) and SEV (ST SEV), then very close to us. Up to 1993, Vietnam had no environmental standard systems in the proper sense of the word. Among the 24 environmental protection standards, formulated separately and unsystematically to cope with immediate demands of state functional offices, none mentioned the environmental management as a systematic approach.

In the past, Vietnam's approach to environmental matters was one-sided and obsolete. As a result, it needs a new approach consistent with international regulations and Vietnam's particular situation. Furthermore, since Vietnam has engaged in a process of change towards a market economy and regional and international integration, the competent authorities need to review their perspectives on environmental protection in general, and environmental management in particular.

Systematic environmental management through development and application of an Environmental Management System (EMS) is very new to not only environmental management agencies, governmental agencies, environmental research and technical institutions, organizations and enterprises, but also the national standardization agency. A documented EMS in the form of an international standard is even more unfamiliar to relevant Vietnamese agencies. Over the last few years, although the government and the entire society have been increasingly concerned about environmental issues, the country has been preoccupied dealing with the transition to a market economy to take action on environmental issues. However, international and regional experience of using ISO14000 EMS as a tool in environmental management policies encourage further study of EMS and its application in Vietnam.

Advantages and disadvantages of application of ISO14000 EMS in Vietnam

- Although to some extent, most organizations and localities have included environmental management in their operations, they have never had environmental management inserted in the overall management framework. Environmental management is not considered to be an issue which needs to be managed systematically;
- Most enterprises are facing numerous difficulties in their production and business and are making every effort to survive in an increasingly competitive market;
- Management and technological skills remain weak;
- Knowledge of environmental management of staff and even managers is very poor; and

- For many enterprises, it is not easy to find a budget for the application of an EMS.

However, many organizations/enterprises are aware that environmental issues are becoming urgent in all aspects of social life, and the government has been more concerned about environmental protection. The government has been taking various measures to protect the environment through an increasingly stricter legal system, particularly the enforcement of the Law on Environmental Protection of 1993. Growing concerns about environmental impacts of enterprises' operations push these enterprises to apply pollution control measures. In this regard, EMS has emerged as an effective measure, though initial investment is required to establish the system.

The application of EMS in Vietnam is expected to become more favorable because the Vietnamese government has issued specific policies and plans of actions on environmental protection. In its report to the 19th UN Ad hoc Session on the Implementation of the 21 Program of Action of the Rio Earth Summit in Brazil in 1992, Vietnam clearly stated the enforcement of policies, laws and by-laws for environmental protection, namely:

- The promulgation of the Environmental Standard System of Vietnam; and
- Progressive development of systems of standards consistent with ISO9000 and ISO14000 in order to integrate into the global trade system.

As we may know, many international standards are still new to Vietnam and we have been familiarized with them in pilot projects since 1993.

We would like to mention some issues relating to the application of ISO14000 in ASEAN region. At present, 6 of the 9 ASEAN countries excluding Laos, Cambodia and Brunei are members of ISO/TC207 and its technical subcommittees. These economies are export-oriented. More than anyone else, they are very sensitive to the issues related to export capacity and markets. They must be conscious of trade aspects of ISO14000 and consider them carefully. Furthermore, the ISO14000 series has attracted the attention of responsible agencies for its possibilities as an effective tool to prevent and control pollution.

The first enterprises certified with ISO14000 are from Singapore, Malaysia, Thailand, Indonesia and the Philippines. Many other enterprises are making preparations to apply EMS through the framework of pilot programs sponsored by the governments.

At the initiative of Singapore, a consulting network on issues relating to ISO14000 has been formulated in ASEAN countries in close contact with UNCTAD, aiming to encourage participation in the development and application of environmental management standards by engaging in ISO/TC207 activities and exchanging information and experiences in the development, application and certification of ISO14000 EMS.

Vietnam's project on application of ISO14000 EMS

Environmental Labeling is one of the main contents of the ISO14000 series that the Vietnam General Department of Standardization, Metrology and Quality Control and the National Environmental Agency (NEA) are very concerned about and intend to pilot it in Vietnamese enterprises. For this purpose, the Vietnam General Department of Standardization, Metrology and Quality Control, in cooperation with the NEA, have implemented a project to develop and apply standardized environmental management measures consistent with the requirements of the Law on Environmental Protection and in conformity with regional and international economic and trade integration.

Project objectives:

1. To create the necessary technical basis for environmental protection through identification and establishment of a Vietnamese standards system responsive to basic management needs;
2. To strengthen awareness, responsibility and management efficiency of all enterprises in environmental protection through dissemination of information, training on environmental management and experimental models of basic ISO14000 environmental management standards including EMS, EMAS, and Environmental Labeling; and
3. To develop and apply policies on managing and supporting the development and application of environmental management standards to meet requirements of national programs on sustainable development and integration in the regional and international economy.

Main project activities:

1. Developing Vietnamese standards in compliance with international environmental standards;
2. Undertaking pilot application of ISO14000 Environmental Management System in some selected enterprises;
3. Researching and applying contents of ISO14000 Environmental Labeling and relevant issues;
4. Economic and general matters related to the application of ISO14000; and
5. Providing standardized chemical samples and equipment for physic-chemical measurement standard departments to facilitate their examination of environmental testing equipment.

Vietnam is preparing necessary activities for the application of ISO14000 EMS, namely,

1. Developing training manuals for awareness raising and the application of ISO14000 EMS;

2. Developing detailed guidelines for the enterprises, taking into account of Vietnam's special socio-economic development characteristics;
3. Developing a pilot program on ISO14000 EMS in Vietnam;
4. Selecting enterprises for the pilot program;
5. Organizing training courses for enterprises in combination with trainings of bilateral and multilateral projects funded by national or international organizations;
6. Preparing an infrastructure for building, applying and certificating EMS in Vietnam condition, namely:
 - To train consultants to apply EMS;
 - To develop Vietnamese standards on the basis of ISO14000 standards on environmental management systems;
 - To establish and consolidate an EMS certification agency consistent with international standards;
 - To build EMS certification facilities; and
 - To train auditors for EMS certification;
7. Organizing a consultancy on the application of EMS to help enterprises in the pilot program sponsored by the government;
8. Studying and issuing government policies to encourage and help enterprises, especially serious polluters, to apply ISO14000 EMS;
9. Raising awareness nation-wide using mass media to educate the public about the contents of ISO14000 EMS and the reasons to apply it; and
10. Studying the Environmental Labeling and testing and verification methodologies.

Meanwhile, at the macro level, the State management agencies are required to study the impacts of EMS on regional and international trade activities to notify Vietnamese enterprises and take proper measures to help these enterprises to identify markets in case developed countries use environmental management standards as technical barriers against to trade.

Through the experience of some regional countries, we think that Vietnamese enterprises should bear in mind the following points when applying EMS:

1. Before applying EMS, enterprises should identify and select one of the two following approaches:
 - For the enterprises that have already applied the ISO9000 quality management system or had a quality management program at the request of their clients, it is simple to apply EMS. The enterprises need only adjust their current QMS to meeting environmental management requirements, announce

their environmental policy or managers' commitment and add necessary guidelines for implementation. At present, there are not many such enterprises. According to our statistics, so far only two companies in the southern provinces have received ISO9000 certifications, and about 20 other companies in the country are preparing to apply ISO9000.

- Enterprises applying a documented environmental management system for the first time do not have enough documents on management procedures or guidelines for implementation, nor even a system to ensure environmental quality as well as environmental management in any form. This situation can be found in most of our enterprises, particularly SMEs. They need to review their whole production process and build a standardized production process, procedures and guidelines. There should be high consensus, firm resolution and full awareness of their managers on the significance and importance of EMS;
- 2. All enterprises should get to know about EMS and apply them as soon as possible because sooner or later the enterprises have to do this. It will facilitate them in competing with foreign products, especially as developed countries become more concerned about environmentally friendly products;
- 3. Immediate efforts should be made to provide training for enterprises' staff by making full use of relevant national and international funding programs;
- 4. The commitment of enterprises' leadership through the announcement of their environmental policies is the most important condition to realize EMS;
- 5. It is necessary to combine EMS with the general management system including quality management; and
- 6. The application of EMS and registration for certification are two stages of the application process.

For those without prior experience with EMS, certification is not necessarily an important first step. Certification can be obtained once the firm has more familiarity with the process.

Government assistance to enterprises in applying EMS is very important. However, it is most important that the enterprises should be proactive, creative and resolute, and coordinate closely within the enterprise so as to mobilize its human and financial resources to get thing done.

The General Department of Standardization, Metrology and Quality Control under the Ministry of Science, Technology and Environment is tasked to provide training and consultation on EMS. It is also responsible for the application and auditing of EMS in Vietnam.

Finally, it is necessary to stress that unlike the ISO9000 management system, due to factors of public pressure, market competition and strict legal regulations on

environmental protection, the application of EMS is of a special significance in Vietnam's sustainable development policies and needs concern and investment from the state.

We should also be aware that in the coming decade, with the removal of tariff barriers in many parts of the world, including ASEAN (AFTA), more environmental requirements will be applied in international trade. Management system standards and environmental labeling of goods and services will create technical barriers to trade. It will be a great challenge for the exporters if they do not think of applying the ISO14000 series right now. The issues of trade and the environment were discussed at the WTO Meeting in Singapore in December, 1996 and at the Regional Conference on Trade and the Environment held in Kuala Lumpur, Malaysia in June, 1998. The United Nations Committee for Trade and Development, UNCTAD has also been very concerned about the application of the ISO14000 series and the impacts of trade and the environment. The issues of trade and environment are particularly important for developing countries like Vietnam, and therefore this workshop is of great significance to each of us.

7. Application of ISO14000 and challenges and opportunities for trading enterprises of Vietnam

By Mr. Tran Van Hoc

*General Department of Standardization,
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At present, the trend of globalization affects many activities of the state, particularly in the fields of trade and environment. As it is still very complicated and new for Vietnam, most policy makers and business people are not fully aware of the challenges they have to face to ensure trade development and environmental protection.

However, from experiences of other countries and of its own recent participation in international integration and globalization, Vietnam has ideas on how to approach trade and environmental issues.

One of the important measures taken by countries recently to cope with environmental challenges while facilitating trade promotion is to standardize and apply environmental management standards in international trade.

The growth of environmental problems, the need for international trade promotion, and the impact of environment-related events such as the 1972 Stockholm Conference and the 1992 Earth Summit in Rio de Janeiro, are key factors which spurred the International Organization for Standardization (ISO) to develop and adopt a set of international standards on environment management during the early 1990s.

In 1993, ISO established a Technical Commission called ISO/TC207 for environmental management to develop and publish international standards on environmental management. Up to now, 70 national standardization agencies which are ISO members have participated in the Technical Commission. The Vietnam General Department of Standardization, Metrology and Quality Control is a member of the commission.

The objective of ISO/TC207 is to develop and apply in trade a series of basic and unified standards on environmental management that can help an organization/enterprise obtain its environmental targets. With this standard series, the organization/enterprise can still effectively use its equipment and facilities without negative impacts on international trade.

The first standards of the ISO14000 series prepared by ISO/TC207 was issued by ISO at the end of 1996 and warmly welcomed and highly appreciated by many countries in the world. Like the previous ISO9000 series on quality control system, many countries have fully accepted and applied the ISO14000 series as their national standards. (Vietnam has accepted 5 of the 11 ISO14000 series as its national standards). It is estimated that about 10,000 companies from 50 countries in the world have received

certification for an environmental control system in conformity with ISO14001. These standards are now applied by many companies, and many others are expected to get certification soon.

The Vietnamese economy is in a transition period and thus faces numerous challenges in integrating into the region and the world. The Government has taken a sustainable development strategy as the foundation for its development plans, with particular attention paid to combining economic development and environment protection. However, in addition to macro policies, it needs to take concrete and effective measures to implement this strategy. The application of the ISO14000 series may be an important contribution to realization of that strategy. However, for trade, it may either pose a great challenge or give a good opportunity for the businesses to improve their international competitiveness.

The ISO14000 series

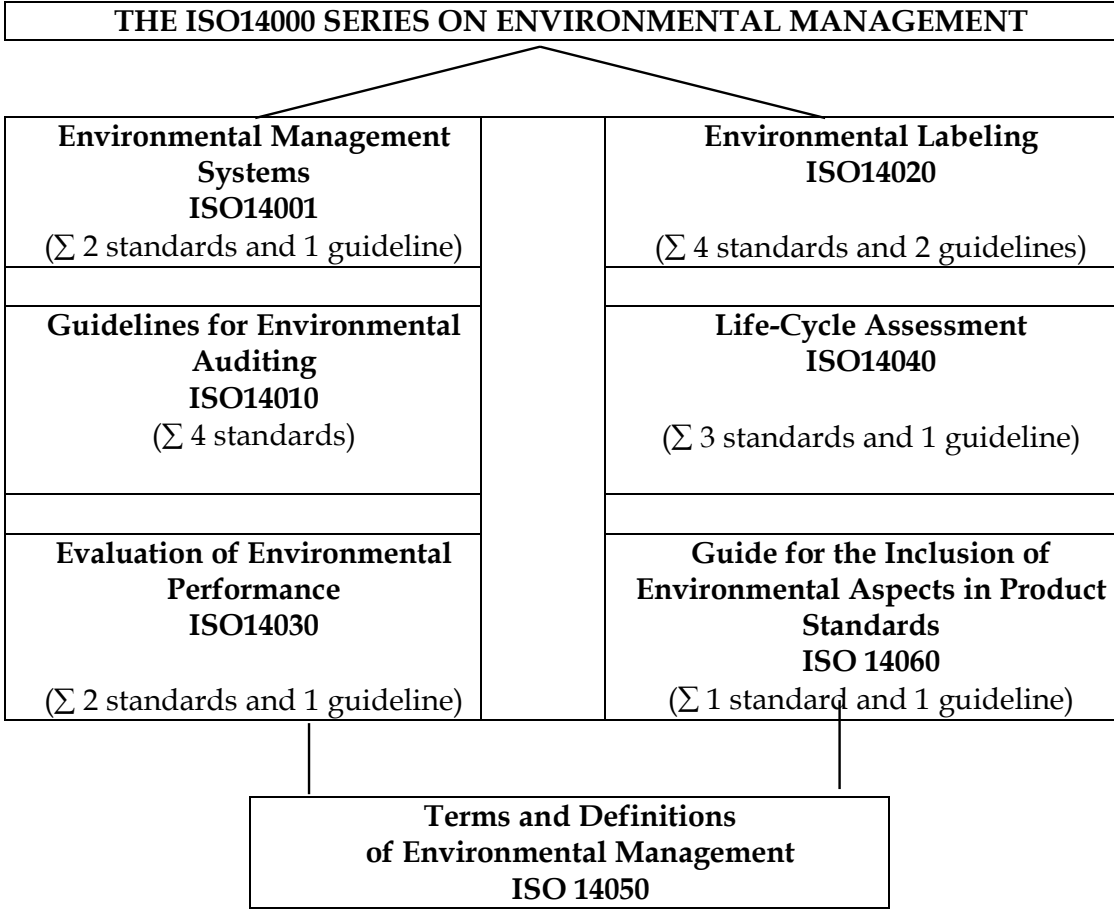
The ISO14000 introduces a systematic approach to environment management, establishing an environment management system and providing relevant supportive means for organizations/enterprises. This will help them manage the impact of their activities, products or services on the environment, prevent pollution and improve the environment with the commitment of their leaders and the conscious participation of all members, from workers to managers.

The ISO14000 series was issued to apply to all large and small enterprises, taking into consideration factors relating to the developed and developing regions. The ISO14000 series can be applied to any enterprise, regardless of its category, size, form of activity or location. Issues relating to national legal documents were also considered during the development of this series.

The ISO14000 series consists of 21 Standards and Technical Guiding Principles (11 of them had been issued by ISO by the end of 1998) which relate to the following issues:

1. Environmental Management Systems (EMS);
2. Environmental Auditing;
3. Environmental Labeling;
4. Evaluation of Environmental Performance;
5. Life-Cycle Assessment;
6. Environmental Aspects in Product Standards; and
7. Terms and Definitions in Environmental Management.

The ISO14000 series can be illustrated by the following figure:



*To be used by
Organizations/Enterprises*

*To be applied to
Products & Services*

Among the above-mentioned Standards, the ISO14001 on Environment Management Systems is most important. A third, independent party can use this Standard to objectively evaluate the compliance of the organization/enterprise's commitment with legal regulations on environmental issues, as well as the impact on the environment of the organization/enterprise's activities, products or services. It can be used for designing or improving their environmental management system. This is the only standard of the ISO14000 series that stipulates the requirements needed for EMS, including factors that the organization/enterprises should meet to be certified. The remaining Standards are Guidelines that help effective development and implementation of EMS.

The ISO14001 Standard was developed on the basis of experiences of ISO9000 and is implemented in the P-D-C-A formula of the ISO9000 series. The EMS factors detailed in ISO14001 must be applied, documented and implemented in a way that enables the Third Party to verify with true evidence and issue certification for applying parties. ISO 14001 is also designed for the organization/enterprise that wishes to announce its

compliance to the standards to a second party that is ready to accept self-certification without the intervention of a third party.

ISO14001 provides the organization/enterprise with a framework to reach more reliable and comprehensive environmental management. The ISO14001 requirements for an EMS mention all environmental aspects of the enterprise's activities, products and services including environment policies, resources, training, operation, response to emergency cases, assessment, auditing, measurement and reconsideration by leaders.

Another notable content in the ISO14000 series in its relations with trade activities is Environmental Labeling. For the last decade, many countries have stamped Environmental Labels on products. Environmental Labeling is a current concern of many enterprises, importers and exporters from many countries in the world. It has also been mentioned by the WTO during recent trade and environment discussions because of its potential impacts on international trade as "a green barrier". Environmental Labeling has been implemented in the framework of ISO/TC/207 in order to unify and guide basic concepts and indicators for the stipulation and implementation of Environmental Labeling to remove the green barrier.

General background

Global development relating to the environment (such as sustainable development, the destruction of the Ozone layer and tropical forests, and pollution of water sources, etc.) and the daily actual and potential environmental impacts of industrial enterprises, business and individuals on the environment, as well as growing legal demands, have pressured organizations/enterprises to control their own impacts on the environment.

The UN-sponsored international conference on Human Environment held in Stockholm, Sweden in 1972 boosted the co-ordination between trade and environment activities in the world economic and political forums. This conference led to the acceptance of a global program of action on the environment; and the establishment of UNEP to strengthen environmental management and awareness. Following the Rio Earth Summit, the Uruguay Round of GATT also proposed the development of environment management standards. During that summit, negotiators agreed that standardization of environmental management would be a positive contribution to preventing environment pollution and removing technical barriers to trade.

In recent years, the number of national and regional environmental management standards have increased. These standards including the Global Eco-Labeling Network, with the participation of more than 20 countries, and some environmental management standards similar to those of Europe, such as the British Standards BS7750 (1992) on Environmental Management System. These standards also include those issued by the Canadian Standard Association (CSA) on environmental management, auditing, assessment, labeling, designing, risk assessment, and procurement, as well as the EU's EMAS. Meanwhile, with the fund from ASTM, the

United States also issued dozens of technical standards to meet the needs of environmental tests and to monitor emissions and impact control.

In general, these standards are contradictory in contents and viewpoints, which demonstrates the need to harmonize standards issued by relevant countries and organizations/ enterprises.

Examples of how national and regional standards can create trade barriers can be seen in the European Eco-Labeling network. These legal regulations have encouraged consumer interest in environmentally-friendly products by labeling the products to show that they meet the environmental standards. The eco-labeled products have to meet the minimum requirements of EU's Eco-Labeling Network. If this Network is strictly implemented, it may hinder export activities of almost all manufacturers from developing countries. These manufacturers will have to cope with many challenges to meet the EU Standards while using technology suitable to their country's scientific and technological development level. The auditing of products from non-EU companies to see whether they meet the eco-labeling regulations or not will be an additional burden to these companies which may eventually prevent imports to the EU market. These regulations may also help maintain nationalism in local industry protection in these countries.

In addition to building an effective management system in the enterprises to improve their products' quality, ISO9000 has become a trade requirement and, in many cases, has become a condition for good procurement set by importers to exporters. Similarly, the ISO14000 series will play a considerable role in helping enterprises to be aware of environmental protection. By developing and operating a harmonious environmental management system in combination with their existing management system, they can abide by environmental laws while making profit. However, there remain potential factors leading to technical barriers to trade.

Impacts on trade and environment

Technical barriers to trade

Customers' demands of environmental standards can be seen through their demands of the products or production process. However, customers and importers from developed countries still ask companies from developing countries to meet various requirements not relating to products. They demand that suppliers should abide by specific environmental standards or have an Environmental Management System, but not necessarily third party certification. This is manifested by the formulation of standards and regulations on environmental management by many countries, as mentioned above.

The ISO14000 series includes international standards developed on the basis of negotiations and therefore helps to harmonize the views of different countries on their

approach to Eco-Labeling, Environmental Management and Life-Cycle Assessment. This approach will help to remove trade barriers and therefore boost trade.

However, the ISO14000 series might be less relevant to customers than the ISO9000. Customers are not always directly affected by the company's environmental impacts. Moreover, because environmental activities often involve both subjective and objective measures, it is very difficult to assess customer satisfaction with environmental demands.

Although there is no clear and concrete evidence that importing countries will require the exporters to have ISO14001 certification, it is suggested by the current international environmental movement and many countries' policies encouraging environmentally-friendly products and trade protection through non-tariff barriers. The tendency to use EMSs or Eco-Labeling standards as non-tariff barriers might well occur when free trade areas are established and expanded in many regions in the world. It will be a great challenge for import-export enterprises to overcome these barriers in the coming years.

However, it is very difficult to estimate the potential impacts of ISO14001 on the exports of developing countries. Some companies of developing countries can find in the ISO14001 certification a means to strengthen their export competitiveness and their foothold in the market, even when there is not yet any acute pressure from foreign customers. ISO14001 can be used potentially as a marketing tool in both domestic and international markets.

In most other cases, companies from developing countries will look for an ISO14001 EMS certification to meet the requirements of foreign customers, community pressure or policies or legal requirements. ISO14001 can be a non-tariff barrier in trade if certification is difficult and costly.

So we can see that ISO14000 helps remove trade barriers, but at the same time, itself is a potential trade barrier which should be taken into account. Some experts maintain that it will take about a decade of experience, or more, to properly assess the role of ISO14001 in the market.

Facilitating negotiations on trade and environmental treaties

The ISO14000 series potentially plays the main role in formulating a new methodology to consider environmental aspects in international trade agreements. Taking into consideration environmental issues has strengthened the role of the standards in recent international trade talks. So economists and traders have to seek for ideas, approaches and measures to solve the natural tension between these two areas.

We should be aware that recent international discussions have considered *accepting the use of trade sanctions against those enterprises that fail to meet environmental expectations or standards of other trade partners or the world community in general*. Talks on these issues

have met with numerous difficulties due to many reasons including sensitive national sovereignty, lack of a scientific agreement, belief advantages of free trade by some parties (political viewpoints, subjective thinking of quality of life, cultural value are sensitive issues for the environmentalists). Requirements for environment conditions in trade negotiations often made the talks complicated and led them to an impasse.

The ISO14000 series proposes a more promising approach to the resolution of trade and environment related matters. ISO14001 can be used as an indicator for national commitment and wishes to promote environment protection through better EMSs taken by organizations/enterprises in the country.

Application of ISO 14001: Better environmental management

ISO14001 requires enterprises to prepare an EMS to limit the impacts of their operations on the environment, to prevent pollution and improve the environment with leaders' commitments and conscious participation of all members, from workers to managers. These enterprises will be able to exercise their obligations and fulfill their responsibilities for environmental protection suited to the legal regulations in force at present. As a result, the organizations/enterprises will make a better contribution to environmental management.

Application of ISO14001: Creating certain advantages in doing business

Advantages in borrowing bank loans

The application of ISO14001 creates prospects for borrowing bank loans or getting financial assistance to proposed development projects. International institutions including the World Bank, the International Monetary Fund, ExImbank and others, as well as private commercial banks and investors, can require the borrowers' ISO14001 commitment. As ISO14001 may be a good indicator of organizations/enterprises' efforts to meet environmental requirements, their certification may be considered an advantage in obtaining market access.

Combining economic and environmental benefits

Over the last few years, the increase of relevant environmental issues has considerably affected global industrial activities as the organizations/enterprises have to try to abide by government regulations and to meet the expectations of customers.

As quality management systems have become a vital Trade Pass for enterprises in many markets, the establishment of an EMS might also help them overcome trade barriers. At present, there is proof that many organizations/enterprises wish that their suppliers had a more responsible attitude towards the environment, and, in many cases, they require their suppliers to have a certified EMS as a condition for their trade partnership. In other words, the enterprises have to face the fact that environmental management is business management.

As we may know, each business activity has certain potential impacts on the environment - from the consumption of raw materials and energy to the generation of waste of different types, distribution of products and services, and end use and disposal. An organization/enterprise that combines its management system and environmental management system will be able to balance and integrate economic and environmental benefits. An organization that applies EMS is likely to obtain a stable and sustainable economic benefit.

Economic benefits can be obtained by implementing an EMS. These benefits should be identified in order to prove the value of a good EMS to the relevant parties, particularly share-holders. It also creates an opportunity for enterprises to combine environmental targets and indicators with their financial expenditure, thus enhancing their existing resources for bigger financial and environmental benefits.

Competition advantages

When developing an EMS according to ISO 14001, the organizations/ enterprises have to examine and define all environmental aspects, including customers' environmental demands, as well as importing countries' environmental standards. These are important factors directly affecting their business activities. It is very difficult to meet these demands, but in many cases, the challenge creates an opportunity for the enterprises to access and gain a firm foothold in the market. Application of ISO14001 will help enterprises access potential markets that demand environmentally-friendly products.

As global environmental problems become of increasing concern to consumers, and they demand environmentally-friendly products and services, an ISO14001 certification (similar to the current ISO9000 certification) will allow import-export enterprises to consolidate their position and improve competitiveness in international markets. In addition, the application of ISO14000 will create considerable opportunities to improve the enterprises' general management, their image and credibility

Some problems concerning the application of ISO14001 EMS by import-export enterprises

With the limited public awareness of the environmental challenges in trade, Vietnam's import-export enterprises should start the process of applying ISO 14000 by organizing a training program to strengthen public understanding of this series. The application of the ISO 14000 series will be significant only when all enterprises, particularly their highest leadership, are fully aware of the potential challenges and opportunities for expansion in international trade.

In addition, because the ISO14000 application will be an effective measure to prevent pollution and implement the national strategy for sustainable development, policy

makers should support it fully. To encourage enterprises to invest in the application of the ISO14000 series for the benefit of both the country and themselves, a government supported ISO14001 pilot project should be carried out with the voluntary participation of enterprises. This project should include training to improve awareness. Project findings will be a good lesson for other enterprises and for application of ISO14000 nation-wide in the coming years.

Application costs

Two important factors in identifying application costs are:

- a) added cost to meet the needs of an ISO14001 EMS (i.e., building and maintaining an EMS, employing consultants, the cost in meeting objectives of the company's activities); and
- b) the cost of ISO14001 certification/ registration.

These costs vary in each case, depending on initial conditions inside and outside the organization/enterprise. An UNDP study shows that the estimated cost of abiding by ISO14000 standards might be high for independent companies in developing countries, particularly if they do not already have a management system, do not abide by current environment regulations and depend on the costly services of consulting firms.

Enterprises without an EMS need to develop materials for the application and maintenance of an EMS, which is very complicated and time consuming. The cost of EMS application and maintenance might be considerable, particularly if the enterprise has to hire consultants. Meanwhile, it is relatively easy for those enterprises that already have an EMS to participate in ISO14001. The companies participating in ISO14001 are expected to meet requirements of environmental laws and regulations by self-commitment to continuously improvement of their EMS.

Possible disadvantages

Companies in developing countries may have to confront some disadvantages for accepting an EMS as follows:

Firstly, the ISO14001 standard is a management system that harmonizes with the current management systems in developed countries. Those companies from developing countries that do not have an on-the-spot management system may meet with considerable difficulties in applying complicated management systems.

Secondly, while companies from developed countries have easy access to information on regulations and other legal matters through proper information channels, companies from developing countries may have to pay a higher cost for collecting full information on relevant regulations and other legal matters.

Thirdly, while environmental impact assessment is required to be done regularly in the developed countries, companies from the developing countries may pay a considerable price for EIA.

Issues relating to legal regulations

ISO 14001 certification requires the organizations/ enterprises at least to abide by all applied environmental regulations. The term applied environmental regulations relate to environmental regulations issued by the country or province where the enterprise is operating. Additional costs depend on two factors:

- a) the level of compliance of the enterprises with environment legal regulations; and
- b) the strictness of environmental regulations issued by the country where the enterprise is operating.

To a certain extent, the compliance of the enterprises from developing countries with environmental regulations is lower than for those from developed countries, so many companies from developing countries may have to spend more to become certified. At the same time, it might be easier to grant ISO14001 certification in the areas where environmental regulations are less strict and comprehensive.

Although there is not much information on actual costs and benefits brought about by EMS, particularly in developing countries, recent studies have succeeded in listing "potential benefits" brought about by EMSs as follows:

- Reduce environmental incidents, increase efficiency, improve the results of environmental activities and the awareness and cultural way of life of all members in the enterprise;
- Maintain the improvement of economic activities while applying EMS;
- The government may issue special terms for companies that already have an EMS. This may help these companies save;
- The ISO14001 certification may also help increase the share value. This is why companies in the process of privatization are concerned with EMS; and
- Banks and insurance companies can require their clients to have an EMS. Insurance costs, credit conditions and the removal of obstacles may be different between companies with and without EMS certification.

Mutual recognition

Certification is how ISO14001 might be used as a trade barrier. It might be costly to be certified if a national registration and certification agency does not exist; or the self-certification or the certification granted by the national registration agency is not recognized in international markets.

ISO14001 may be used for self-certification. However, for many organizations/enterprises, particularly those from developing countries, third-party certification seems to be necessary to win market credibility. Difficulties arise relating to existing certification facilities in developing countries and associated costs. Experience from ISO9000 shows that a lack of necessary facilities in developing countries may reduce the opportunities for certification. For example, certification granted by a European or American certification agency may cost from US\$10,000 to US\$30,000. Some experts have estimated that the cost of ISO14000 certification may be higher than that of ISO9000, because the ISO14000 standards are complicated, and there is a shortage of ISO14000 experts.

In developing countries, the costs of ISO14000 certification granted by domestic agencies are likely to be much lower. A number of developing countries have established a system to assess compliance to assist certification by domestic agencies. Pilot projects have played a very useful role in this process. However, the international value of ISO14000 certification depends on the credibility of the registration agency. This may pose an obstacle to exporters, especially those from developing countries.

To build confidence in ISO14001 certification, each country should have a strict and reliable mechanism to support the recognition of registration and certification agencies and ensure a fair and logical certification process. Several developing countries have recognized certification agencies.

Mutual recognition of certification systems can be sped up in bilateral and regional framework as a means to avoid trade barriers. A number of initiatives are being made to develop an internationally recognized certification system (for example QSAR under ISO and International Acknowledgement Forum (IAF) and others). After being put into use, this system will help reduce demand for bilateral and regional mutual acknowledgement on certification.

Demand for EMS from Trans-National Corporations (TNCs) and main contractors

ISO14001 encourages companies to consider environmental impacts of their contractors and suppliers. According to the standards, the companies are required to consider controllable environmental impacts and their possible influences on these impacts. So, companies that have acknowledged an EMS can require their suppliers to pay more attention to environmental issues. In many cases, it might lead to the replacement of inputs or specific environmental demands for manufacturers from developing countries. It might also make these manufacturers accept an EMS as a compulsory requirement.

These influences may be important because each company in the production line might be affected. The company whose EMS is already ISO14001 certified can require specific environmental activities from its supplier, but only environmental achievements which influence its capacity to abide by the already announced

environmental objectives and indicators. For example, if the certified company set an indicator to reduce waste, that company can require its supplier to change their packages to be more environmentally-friendly.

Investment possibility

Environmental management agencies need to examine possible impacts of environmental management standards on investment.

Some experts maintain that there are possible impacts of ISO14001 on investment in developing countries. In addition to the possible advantages of on-the-spot or international certification, confidence will improve, and enterprises with ISO14001 certification will have an opportunity to access concessional loans and insurance.

From a perspective of sustainable development, the developing countries have two major concerns relating to Foreign Direct Investment (FDI), namely:

- a) to attract FDI as a source of long-term funding; and
- b) to speed up the role of FDI in reaching environmental and social targets.

For their concern (a): The EMS standards have almost no important impact on FDI flows. The creation of proper facilities to participate in ISO14001 can help attract more FDI to some environmentally sensitive areas.

For their concern (b): It is interesting to note whether or not and to what extent ISO 14001 certification can help governments of developing countries increase FDI on environmental management to meet sustainable development targets. It is also necessary to note that the TNCs might play an important role in speeding up the application of EMSs by developing countries.

The case of Small and Medium Enterprises (SMEs)

Discussions on environment and trade have pointed out special conditions of SMEs in facing environmental challenges, particularly in developing countries. SMEs can make important environmental improvements by keeping their workshops clean and maintaining the supporting infrastructure. In this situation, it is very important to inspect the EMS's role in supporting SMEs' environmental management.

Under EMAS, the specific difficulties for SMEs have been acknowledged. SMEs in the EC benefit from special support when participating in EMAS. This support includes information, training and technical assistance. SMEs can be treated with simplified supervision and inspection and exempted from submitting annual environment reports.

Findings of studies in Latin American countries show that most of SMEs supply goods in domestic markets which do not require environmental records. Most SMEs consider

laws and the environment as motivation to apply environmental measures. There is little known about ISO14000 and almost no trade pressure to apply it. Studies on SMEs in South Wales and Britain produced similar results.

Most of the studies affirm that SMEs have to confront specific difficulties in developing their own EMS. Their major constraints include a shortage of funds and competent staff; poor access to information and changes; and costs relating to EMS design and certification. A permanent topic is the shortage of staff and training facilities. The findings also show that only a very small number of SMEs from developing countries already have an environmental policy. The SMEs have met with specific difficulties in understanding and translating ISO14000, environmental laws and in identifying environmental aspects and impacts caused by themselves.

In the immediate future, the EMS application by SMEs will depend very much on the demands of large organizations/enterprises. For example: foreign customers or large companies in developing countries, particularly TNC subsidiaries impose environment conditions for local suppliers. Big organizations can support SMEs to abide by ISO14001 standards. For example, in Mexico, the Guadajara pilot project on ISO14000 for SMEs succeeded in raising awareness of the importance of cooperation between big and small enterprises. The big companies are helping SMEs apply EMS and improve their environmental policy to meet the needs of suppliers and customers. 12 big companies participate in this project. Each of them provides technical assistance for 2 SME suppliers, in addition to financial assistance for the project. Results of this project will be used in developing a management framework for the application of ISO14001 in the country. Similarly in Malaysia, a TNC is providing technical assistance under a "model" program to help a small domestic enterprise get its certification.

Moreover, cooperation among SMEs can help to solve problems and reduce costs. For example, SMEs operating in certain fields and in the same geographical area can cooperate with one another to identify environmental impacts of their activities and exchange information on legal matters. Cooperation in personnel training will also be considered.

To see the impacts of ISO14000 on relevant aspects it is recommended to refer to recent surveys conducted by UNIDO.

Conclusion

After analyzing the usefulness of ISO14000 in trade and environmental protection, we would like to make a recommendation to policy makers and enterprises. In order to broaden our international trade and maintain sustainable development, Vietnam should take proper steps to apply an ISO14001 EMS as soon as possible. The first step that should be taken is to provide training and strengthen public awareness of the ISO14000 series.

Import-export companies should be well informed about the interrelation between trade and the environment, and on this basis, they should be encouraged to apply the ISO14000 series with their own conditions and with the government support. The pilot project on the application of ISO14001 EMS which approved and supported by MOSTE will be implemented soon by the General Department of Standardization, Metrology and Quality Control and the National Environment Agency, and will be a good opportunity for eligible enterprises.

8. Case study: coffee exports and international standards

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Coffee production and trading in the world

Coffee is the second most traded commodity in the world after oil. The world's coffee export value fluctuates mainly due to pricing. Coffee is grown and exported by more than 70 developing countries in tropical and semi-tropical regions, and most of the coffee products are exported to developed countries.

Coffee export value

The coffee export value is much higher than cocoa and tea. From 1985 to 1989, on average, coffee export value was US\$ 10.5 billion a year while cocoa export value was US\$ 3.3 billion, and that of tea was US\$ 2.6 billion.

In many developing countries, coffee is an important production sector. The coffee export value in some countries makes up a large proportion in their total export value. In the 1985-1989 period, there were six countries that had coffee export turnover accounting for more than 50 % of their total export value. Among them, Uganda and Rwanda had coffee export turnover accounting for 90 % of their total export revenue. 11 other countries had coffee export values of 20 - 50 % of their national export revenue. Coffee production plays a very important role in rural development and the improvement of farmers' lives.

Table 1: Quantity and value of coffee export of member countries of the International Coffee Organization in the 1985-1994 period

Year	Total (US\$ bil)	Million bags (60kg/bag)	Cents/Lb.
1985	16.8	71.5	114.54
1986	14.3	64.9	167.57
1987	9.5	71.9	100.01
1988	9.4	66.1	107.51
1989	8.7	75.9	86.65
1990	6.9	80.5	64.80
1991	6.5	75.8	64.83
1992	5.3	78.1	51.30
1993	5.7	75.0	57.46
1994	10.0	70.1	107.84

Table 2: Percentage of coffee export value in the total export revenue of some countries in the 1985-1989 period

Producers	1985	1986	1987	1988	1989	Average 1985/89
Uganda	94.2	96.9	95.4	91.5	96.2	94.9
Rwanda	87.6	90.2	93.0	84.0	98.9	90.7
Burundi	97.9	79.0	75.2	72.7	94.5	81.9
Guatemala	42.6	75.2	84.6	82.0	34.3	63.7
Ethiopia	33.6	74.4	56.7	61.9	69.5	59.2
El Salvador	67.7	71.7	61.2	50.2	39.7	58.1
Nicaragua	42.0	47.4	42.1	41.4	41.1	42.8
Tanzania	46.7	53.2	37.8	34.2	40.5	42.5
Colombia	50.3	59.7	36.4	34.7	27.6	41.7
Madagascar	35.4	47.8	27.0	23.1	22.1	31.1
Cameroon	41.9	43.6	24.8	21.9	15.3	29.5
Costa Rica	31.8	38.1	29.1	24.5	22.3	29.2
Kenya	31.4	40.5	24.6	25.7	22.7	29.0
R. Centra Africa	44.8	22.2	21.7	26.0	20.8	27.1
Honduras	23.4	38.4	23.8	20.3	21.9	25.6
Haiti	28.6	34.9	19.0	22.3	12.7	23.5
R. Congo	26.1	40.2	18.5	9.6	9.7	20.8
Brazil	10.2	10.2	8.3	6.6	5.2	8.1

Coffee production in the world:

According to the international coffee report of F.O. Licht, coffee output in the world in the 10 years from the 1988-1989 crop to the 1997-1998 crop ranged from 5,347,920 tons (in 1985/1986) to 6,143,880 tons (in 1991/1992) with an average annual output of 5,797,380 tons. Of this, Arabica accounted for from 3,584,820 (in 1985/1986) to 4,376,940 tons (in 1991/1992) or an average of 3,953,050 tons, and Robusta from 1,642,920 tons (in 1990/1991) to 2,149,260 tons (in 1996/1997). On average Arabica output accounts for 68.17 % (or from 66.47 - 71.24 %) and Robusta 30.57 %.

According to statistics released by the International Coffee Organization (ICO) in the five coffee crops from 1990/1991 to 1994/ 1995, coffee output was 85.5 million bags to 97.9 million bags (see Table 3).

There are about 70 coffee planting countries in the world. They are grouped by the ICO according to the type of coffee they export: Arabica producers and Robusta producers. However, some countries belonging to the Arabica producers' group also produce Robusta and vice versa. The breakdown is illustrated graphically in Figures 1 and 2.

In these statistics, coffee-producing countries are also grouped according to the region, for example, North and Central America, in Southern America, in Asia -Pacific etc.

Table 3: World coffee output from the 1990/1991 crop to 1994/1995 crop
Unit: million bags (60kg/bag)

Coffee crop	1990/91	1991/92	1992/93	1993/94	1994/95
World	95.0	97.9	88.6	89.3	85.5
Arabica	67.3	68.7	64.8	62.3	57.3
Brazil	21.4	20.2	21.0	20.1	13.1
Colombia	14.2	18.2	13.8	11.3	12.5
North & Central America	17.0	17.7	18.2	16.6	16.4
Other South American countries	3.7	3.3	3.6	4.0	4.7
Africa	7.9	6.5	5.5	7.2	7.7
Asia-Pacific	3.1	2.8	2.7	3.1	2.9
Robusta	27.8	28.9	23.7	27.1	28.2
Brazil	5.3	5.4	5.5	5.13	3.7
Other American countries	0.9	0.7	0.7	0.7	0.7
Africa	9.4	11.4	5.9	8.2	11.0
OAMCAF	5.7	7.3	3.1	3.8	5.9
Other African countries	3.7	4.1	2.8	4.4	5.1
Asia- Pacific	12.2	11.4	11.6	12.9	12.8
Proportion					
Arabica	70.8	70.4	73.1	69.7	67.0
Robusta	29.2	29.6	26.9	30.3	33.0

Source: Archive ICO EB 3558/95

* OAM CAF: Malgache and African Coffee Organization

Coffee trees originated in Africa. In the 17th century, coffee was introduced into Indonesia at the Amsterdam Botanical Garden. Coffee was introduced into the Western Hemisphere at the beginning of the 18th century, first in Surinam and Martinique in the Caribbean islands. Since then it has spread to all tropical, semi-tropical regions and Latin America. Latin America still accounts for two thirds of the coffee output and exports in the world.

In the 10 years from 1979 to 1988, the world's coffee planting area increased by 2.2 million ha from 9.1 million to 11.3 million ha. In Africa alone, coffee area increased by 2 million ha from 1.8 million to 3.8 million ha, and Asia - Pacific region increased by 0.8 million ha from 0.4 million to 1.2 million ha.

During the past several years, coffee output in the Asia-Pacific region has increased rapidly. In the 1990/1991 coffee crop, the output in the region accounted for 15.2 % of the output, against only 7.4 % in 1970. In the period under review, the market share of African coffee declined from 28.4 % to only 20.4 %.

According to ICO statistics in Sept. 1998, the 10 largest coffee exporters in the world in the 1996/1997 and 1997/1998 coffee crops are listed in the table below

Table 4: Quantity of coffee exported by top 10 exporters from October of the previous year to September next year

Unit: bags (60kg/bag)

1996/97			1997/98		
Countries	Quantity	Rank	Countries	Quantity	Rank
Brazil	18,555,125	1	Brazil	16,054,607	1
Colombia	11,176,950	2	Colombia	10,813,329	2
Indonesia	6,358,210	3	Vietnam	6,496,988	3
Vietnam	5,421,965	4	Indonesia	4,954,339	4
Mexico	4,388,726	5	Cost Divoa	4,423,925	5
Uganda	4,336,781	6	Mexico	3,891,695	6
Guatemala	4,224,217	7	Guatemala	3,838,351	7
Cost Divoa	3,563,703	8	India	3,308,752	8
El Salvador	2,837,544	9	Uganda	3,014,034	9
India	2,476,121	10	Honduras	2,299,762	10

* El Salvador exported 1,883,890 bags, ranking 12th after Costa Rica which exported 2,219,280 ranking 11th in the 1997/1998 coffee crop.

Vietnam accounted for 29% of the market share of Robusta. Vietnam's coffee export has a considerable influence on the world Robusta coffee market.

Coffee consumption demand

In 1947, total coffee volume imported by countries was 27.6 million bags. 50 years later in 1997, the figure was 99.4 million bags, or a 3.6 fold increase. In recent years, global coffee consumption has increased by 1% per year. Approximately 75% of the world's coffee is used by industrialized countries (See Figure 4). Coffee consumption growth has been rather steady, but some potential markets in coffee consumption remain to be tapped. The largest coffee consumer now is the United States, but the average coffee consumption is only 4 kg per capita, lower than that in European countries. In the United States, coffee has to compete with other beverages, particularly non-fermented ones that are very popular in the country.

International buyers of coffee are concentrated in a handful of companies, with just eight companies controlling some 56% of the world market (see Figure 5).

In Europe, coffee remains a popular drink, accounting for 20 percent of the beverage market share (See Figure 6). In Japan, coffee consumption has increased rapidly in the last 15 years with the average coffee consumption per capita of 3 kg. Japanese people prefer instant coffee and canned liquid coffee.

Table 5: Coffee consumption per capita in some countries
(kg/capita)

Countries	1975	1980	1985	1990	1993	1996
Norway	9.7	9.7	10.4	10.3	9.6	9.8
Denmark	12.0	11.1	11.0	10.1	10.3	9.9
Finland	13.7	13.2	10.1	12.9	13.4	10.6
Sweden	14.1	11.4	11.4	11.9	11.1	8.8
Austria	4.9	6.9	7.3	10.4	10.0	7.9
Holland	8.9	7.7	9.4	10.3	9.4	9.9
Switzerland	6.9	6.3	6.2	8.1	7.5	7.8
Germany	5.6	6.7	6.9	6.7	7.9	7.2
Belgium/ Luxembourg	7.0	7.1	7.6	2.3	6.5	5.9
France	5.7	5.9	5.5	5.5	5.7	5.7
USA	5.7	4.6	4.3	4.6	4.3	4.0
Italy	3.6	3.9	4.9	5.1	5.2	5.0
Portugal				3.2	3.8	3.9
Spain	2.7	2.3	2.7	4.2	4.2	4.5
Japan	1.3	1.7	2.1	2.5	2.8	2.8
U.K.				2.5	2.6	2.5

Vietnam's Coffee Production

Coffee has been present in Vietnam since the last half of the 19th century. In the early 20th century, coffee plantations expanded in some provinces in Northern and Central Vietnam and finally to the Central Highlands and Eastern Nam Bo. In 1976, following the reunification of the country, the coffee area in the whole country was about 20,000 ha, but coffee yield in a large part of the area was very low. By 1990, the coffee area rose to 135,000 ha, with a total output of 64,500 tons, of which 56,800 tons were exported. Since then, the area under coffee and coffee output have increased rapidly every year. By 1998, Vietnam had 300,000 ha of coffee with an output of 400,000 tons, of which 390,000 tons were exported, earning US\$ 600 million. Coffee has become the second most important export after rice in Vietnam. From a country with a small coffee output, Vietnam has for the past 5 years been one of the 10 largest coffee exporters in the world. In the 1997/98 coffee crop, Vietnam ranked 3rd after Brazil and Colombia in the volume of exported coffee. See Figure 3.

Mr. C. P. R Dubois, an official of the ICO at the 5th Asian International coffee Conference was quoted as saying: " It can be said that Vietnam's coffee industry is matured and has been recognized in the global market. In 1982, Vietnam exported

69,000 bags of coffee beans, accounting for 0.1 % of the world's coffee export output. In 1987, Vietnam exported 433,000 bags, accounting for more than 0.6 % of the world's total coffee export volume, making Vietnam rank 25th among coffee exporters. By 1997, Vietnam exported about 6.2 million bags, or 7.7 % of the total world coffee export output and ranked 3rd after Brazil and Colombia and 1 among the Robusta exporters.”

Mr. Pablo Dubois added, “Coffee production in Vietnam has been well planned and very effective. In 1980/1981, the Vietnamese Ministry of Agriculture worked out a development program for coffee production targeting 400,000 tons from 2005 to 2010. This program was implemented effectively and the target was already achieved in 1997/1998 crop, 10 years ahead of the plan”.

Standardization of Vietnam's Coffee

Right from early 1980, Vietnam's coffee industry has paid attention to developing a quality standard for its products. With the cooperation of the General Department of Quality Control, the Polytechnical University, and the Department of Science, Technology and Quality Control, and after reviewing the coffee standards of ISO and some countries such as Indonesia, Brazil, the Standardization Committee of Vietnam Coffee Corporation (VINACAFE) has developed standards on terminology translation. It has also developed standards for coffee beans, standards on packaging, labeling, preservation and transport. These standards were approved by the Ministry of Science, Technology and Environment for official issuance as the Vietnam standards (TCVN) in 1986.

In the standards of coffee beans, the residue of pesticide, and allowable content of the heavy metals such as Pb, Cu etc. are included. In 1990, the Standardization Committee reviewed the Vietnam Standards TCVN 4193-86, supplemented and revised it into TCVN 4193-93 on coffee bean. Methods of measurement of the moisture of the coffee beans and concentration of caffeine were also developed. So, the quality standards of Vietnam's coffee products have been complete, ensuring quality and environmental sanitation for customers.

As shown in Table 6, Vietnam's coffee has been exported to 50 countries and regions in the world, with an average annual export volume of about 400,000 tons of good quality.

Existing issues relating to Vietnams coffee quality

Vietnam's coffee trees not only grow very strongly and give high yield, but its products are of high quality. Most coffee plantations are on the highlands and in mountainous regions with a large range of temperature between day and night and fertile basaltic soil. Coffee from Buon Ma Thuot has been much sought after by customers. However, due to poor facilities, a lack of awareness of a large section of farmers of quality requirements, and their failure to fully observe technical

requirements during picking, processing and preserving coffee beans, the quality of coffee has been adversely affected. Following are some examples:

Table 6: Vietnam Coffee Export markets for the 1997/1998 crop
(data based on awarded COO)

Rank	Market	Quantity	Value	Market share (%)
1	USA	83,361,208	123,404,779	21.08
2	Germany	69,980,207	105,612,248	17.69
3	Italy	34,312,518	53,135,175	8.67
4	Spain	31,880,856	48,933,829	8.06
5	United Kingdom	31,689,185	49,413,443	8.01
6	France	22,000,183	33,165,792	5.56
7	Poland	17,793,750	26,218,682	4.50
8	Japan	14,458,102	23,011,102	3.65
9	Korea	14,046,265	21,744,048	3.55
10	Belgium	12,885,649	19,654,579	3.26
11	Netherlands	10,986,727	16,774,207	2.78
12	Australia	9,038,729	13,805,644	2.28
13	Canada	5,561,580	8,249,268	
14	Singapore	4,948,247	7,310,344	
15	Malaysia	4,317,257	6,363,791	
16	Israel	4,148,776	6,532,527	
17	Romania	3,198,762	4,816,124	
18	New Zealand	2,484,958	3,886,411	
19	Portugal	2,430,079	3,818,653	
20	Czech	2,392,193	3,632,911	
21	Algeria	2,145,398	3,173,379	
22	Philippines	1,528,277	2,198,346	
23	Indonesia	1,202,070	1,670,663	
24	Morocco	1,027,743	1,499,312	
25	Slovenia	899,607	1,523,749	
26	Egypt	875,902	1,287,571	
27	South Africa	784,836	1,130,802	
28	Hong Kong	683,317	1,026,293	
29	Iran	522,060	900,653	

30	Greece	485,965	781,896	
31	Hungary	438,000	627,180	
32	Finland	396,000	585,360	
33	Bulgaria	365,555	619,396	
34	Sweden	323,952	458,205	
35	Jordan	251,604	396,605	
36	China	224,055	400,425	
37	Thailand	204,000	249,765	
38	India	197,116	287,161	
39	Austria	176,967	259,625	
40	Armenia	126,000	219,276	
41	Lebanon	107,688	152,410	
42	Slovakia	90,000	159,300	
43	U.A.F	75,208	122,336	
44	Switzerland	70,663	116,556	
45	Ukraine	59,777	147,460	
46	Croatia	54,000	89,100	
47	Iceland	54,000	65,880	
48	Syria	54,000	84,780	
49	Ireland	36,000	63,364	
50	Taiwan	26,344	59,574	
51	Denmark	18,000	28,800	
	Total	3,954,193,35	599,868,781	

Table 7: Vietnam coffee export in main markets
(Unit: 1000 bags)

Markets	1993	1997
Total	2.077	6,177
USA	0	1,495
EU	840	3,237
Austria	74	4
Belgium/Luxembourg	82	281
France	114	362
Germany	325	1,111
Italy	123	368
Holland	33	160
Portugal	1	30
Spain	71	500

UK	16	411
Japan	60	179
Singapore	825	152
Algeria	50	126
Australia	7	127
Canada	4	117
China	2	17
Czechoslovakia (former)	0	39
Egypt	2	17
Hungary	74	22
Israel	0	22
Jordan	13	3
South Korea	0	69
Morocco	4	13
New Zealand	0	21
Poland	172	259
Romania	0	26
R. South Africa	3	22

Table 8: Export quantity to major markets in 1997

Unit: 1000 bags.

Markets	Vietnam	Indonesia	Cost Divoa
USA	1.495	1.045	135
EU	3.237	1.839	3.058
Germany	1.111	899	63
France	362	42	1.104
Italy	368	273	708
Spain	500	174	237
UK	411	141	37
Belgium/Luxembourg	281	101	584
Japan	179	940	6

- **Picking and collecting coffee beans:** not only ripe but also green beans are picked;
- **Drying:** Many farmer's households do not have enough drying yards, so when they pick a large volume of coffee beans, they have to dry them earthen plots, thus making coffee smell earthy, and green coffee beans smell grassy. For fresh coffee beans, when they are threshed, the water for processing is not changed in time, or fresh coffee beans are not processed in time, thus leaving them fermented and making them smell foul, stinking, unclean and rotten. Industrial hygiene in processing workshops is poor. Of special concern is the moisture (% of moisture) of coffee during preservation, and transport. The moisture of coffee beans is required at less than 13 %. High moisture may make coffee sweat and mold; and
- **Packaging:** bags should be clean, without the smell of engine oil.

Most of the coffee products for export are raw coffee beans, except only a small volume of instant coffee. Vietnam Coffee Corporation - VINACAFE - is upgrading and renewing its technologies and increasing the capacity of Bien Hoa Coffee Plant to produce more instant coffee and coffee mixed with sugar and milk.

Prevention of mould and coffee quality

One of the projects funded by the Common Fund for Commodities (CFC) of the ICO is to prevent the formation of mould. It is very important as coffee can be infected by mycotoxin, especially ochratoxin A (OTA). Some experiments on animals show that with high concentration, OTA can cause Nephrotoxin (which damages kidneys) and Carcinogenesis (creating tumors) in pigs, dogs and mice.

At a conference on Ochratoxin in 1996, many scientists reported on the production of Ochratoxin by some types of coffee with different origins. Many reports said that even when coffee is extracted, this toxic bacterium could not be eliminated completely.

Although people who drink coffee only receive a very small quantity of OTA which is not dangerous, controversy is ongoing. On the basis of data on OTA in coffee, scientists have produced significant indicators: PTW1 and VDS 8 - 20 nanogram/kg of human weight/week, while coffee only accounts for 2 - 4 nanogram/kg. A person who drinks 10 cups of coffee a day gets 8 % of the indicator of nanogram/kg of his body weight per week.

Coffee beans after cleaning have a significantly reduced quantity of OTA. The Research Center for Nestle Coffee Development has proved that after being ground and roasted, only 16 % of the initial quantity of OTA remains. However, OTA remains a concern for customers, and the European Commission plans to limit OTA content in coffee to 5 per billion (5 ppb). This has been strongly re-acted to by coffee producers. Many coffee importers have been very worried about the reduction of the volume of their coffee import.

The Vietnam Coffee - Cocoa Federation has reported to the State offices on this. The ICO project on preventing mould for coffee is funded by the CFC along side with assistance from UNDP, CIRAD and European Coffee Industry ISIC.

Vietnam is not yet member of CFC, therefore, it can not enjoy the project funding. At the suggestion of ICO, the Association has worked with FAO and asked the Government for the permission to seek for assistance from FAO to implement the project on preventing mould and OTA control for Vietnam's coffee.

Orientation of Vietnam's Coffee Industry

During the process of industrialization and modernization, it is necessary to pay attention to improvement of quality of coffee products to meet world standards on environment. Not only the processing but also planting should apply good

agricultural practices and good manufacturing practices. Monitoring and inspection should be strengthened at production units, processing workshops and storage and also quality control agencies of coffee for export. The most essential question is the funding for training, agricultural extension and equipment of laboratories which need assistance from the State and international organizations.

Table 9: OTA Statistics in Coffee beans

Period	Number of samples	Average context of OTA (ppb)	Quoted sources
1980 - 1990	91	2,6	Ca + Ts + Mi
since 1991	534	1,4	Sl + Ma + Fi + M/L
Total	625	1,6	All 7 authors

Table 10: Normal distribution and average accumulated value of samples of coffee from different OTA countries (from all 7 authors)

OTA level	Number of samples	% of demonstrator	Average accumulated OTA level (ppb)
<2	537	85,9	0,44
2 - 4	33	5,3	0,59
4 - 6	17	2,7	0,73
6 - 8	11	1,8	0,85
8 - 10	13	2,1	1,03
10 - 15	5	0,38	1,13
15 - 20	2	0,3	1,18
>20	7	1,1	1,58
Total	625	100	

Figure 1: Major producers Arabica in 1996/1997 crop

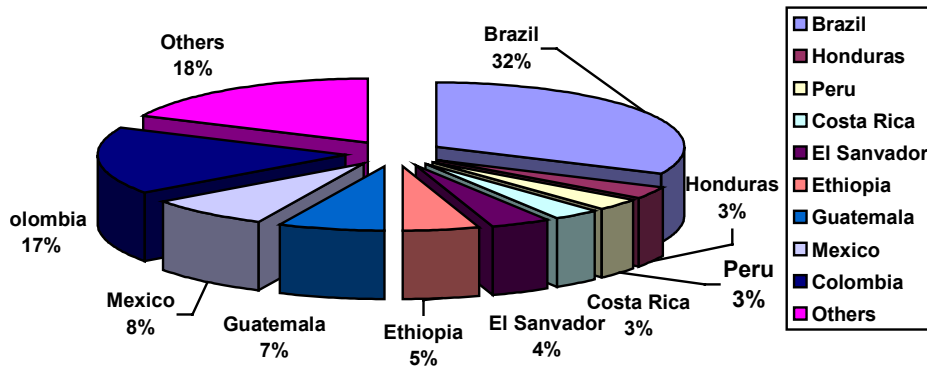


Figure 2. Major producers of Robusta in 1996/1997 crop

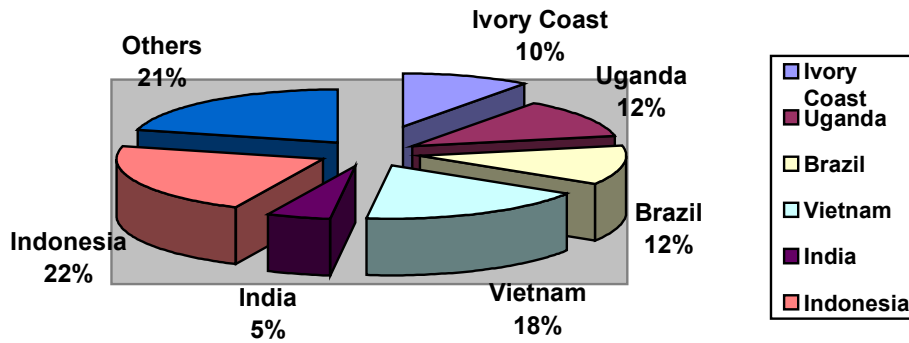


Figure 3: Market share by countries in 1996/1997 crop

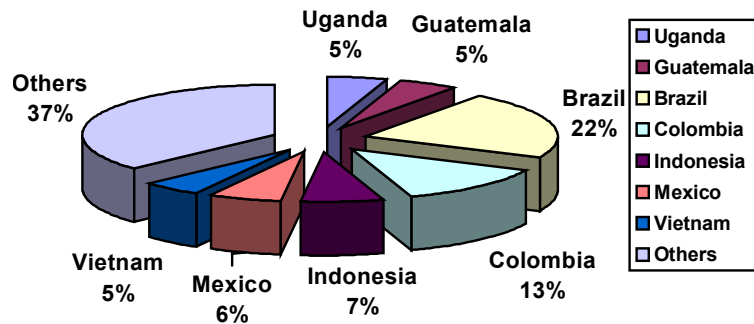


Figure 4: Import by regions, 1995

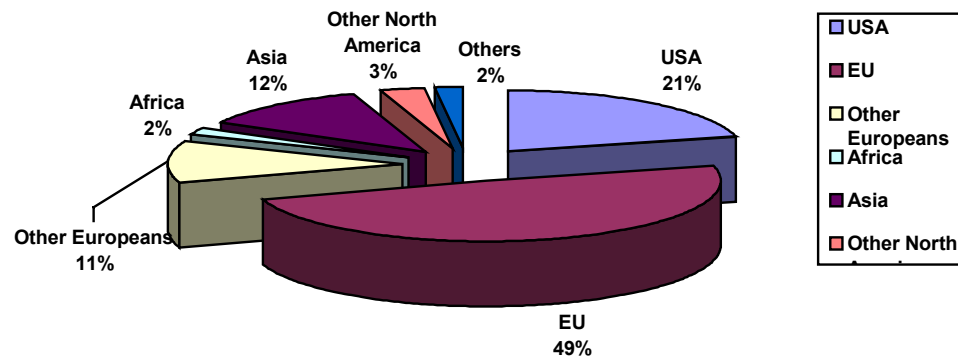


Figure 5: Market share by major trading companies

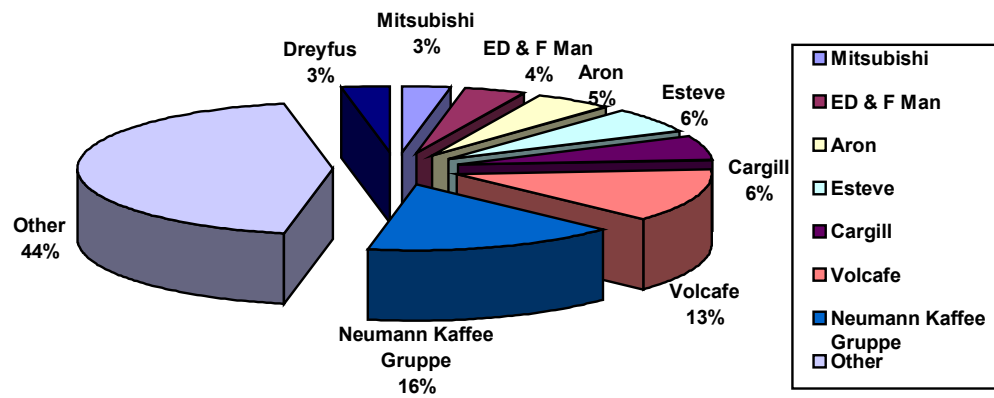
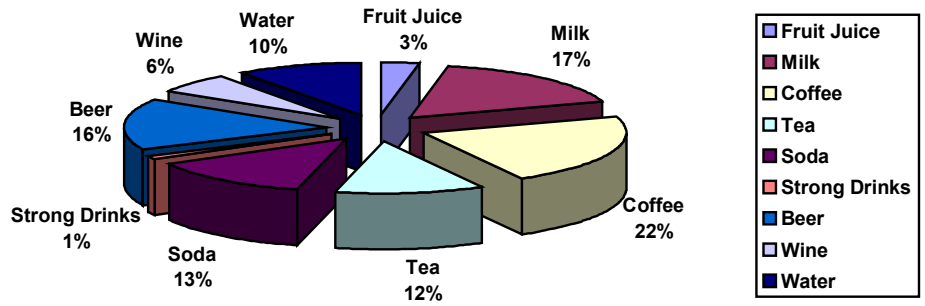


Figure 6: EU 1995



9. Case Study: Cau Tre Enterprise and international standards

By Ms. Tran Thi Hoa Binh
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Ministry of Fisheries

Clean production to contribute to sustainable development is a primary concern of nations in the world today.

Since the UN Conference on Human Environment held in Stockholm in 1972, and the UN Earth Summit on Environment and Development held in Rio de Janeiro in June 1992, which attracted representatives from 178 countries, the legal frameworks and standards on environment have been progressively and systematically enshrined in various bilateral or multilateral declarations and conventions.

In Vietnam, the Law on Environmental Protection was approved by the National Assembly and made public under Order No. 29-L/CTN dated January 10, 1994 by the State President of the Socialist Republic of Vietnam. Thereafter, by-law documents have been issued for its implementation.

In the implementation of the above-mentioned environmental laws, the Cau Tre Export Processing Enterprise, specialized in food processing for exports, has seen both advantages and disadvantages.

Overview of Cau Tre export processing enterprise

1) Cau Tre Export Processing Enterprise was established in 1982 on an area of 75,000 sq. meters on the outskirts of Ho Chi Minh City. Many major and medium factories, particularly small industrial establishments, are located in this industrial center. Large scale production enterprises and factories including textile, chemicals, food processing, paper and detergent production, and cotton and mechanical engineering industries pose urgent problems for environmental protection.

2) Within the Enterprise, the production includes the following:

- Seafood processing workshop (fish, squid, octopus, oysters, arca etc.);
- Agricultural products processing workshop (tea, balsam-apple tea, turmeric etc.);
- Meat processing workshop (duck, pork etc.);
- Food processing workshop in service of domestic consumption (spring rolls, meat paste, etc.);
- Starchy food processing workshop (plain rice, sticky rice, etc.); and

- Two workshops specialized in instant food processing and joint ventured with foreign partners (Mitsui- Hayashiya, and Thien Nhien Joint Venture).

3) Cau Tre Export Processing Enterprise is equipped with the following machinery and equipment:

- Three Japanese and Western European-made freezer systems, two operated by refrigerants producing CFCs;
- Japanese and UK-made block refrigeration systems with a capacity of 2 tons/ shift;
- Japanese, Australian and US-made frozen storage system with a combined capacity of 1,300 tons;
- Two Japanese-made ice flake making systems with a total capacity of 45 tons/ day;
- US and UK-made diesel generators with a total capacity of 3,000 KVA;
- Mushroom and bamboo shoot processing workshop joint-ventured with Mitsui-Hayashiya (Japan); and
- Bottled arca production system joint-ventured with Pisciculture Magnenat (Switzerland).

4) Export outputs of the Enterprise in 1998 (mainly seafood and tea products) comprised:

- | | |
|----------------------------------|----------|
| • Frozen processed octopus | 418 tons |
| • Frozen processed fish | 67 tons |
| • Frozen processed crab | 126 tons |
| • Frozen processed meretrix | 373 tons |
| • Frozen squid | 23 tons |
| • Assorted frozen processed arca | 113 tons |
| • Processed food | 99 tons |
| • Processed mushrooms | 104 tons |
| • Assorted tea | 364 tons |
| • Processed algae | 52 tons |
| • Pineapple leaves | 15 tons |

The total export value was US\$ 7.6 million.

Environmental standards for production establishments

Implementation of international standards

So far, compulsory international environmental regulations are just in their initial stages of formulation.

Although the implementation of the principle proclaimed at Stockholm and Rio has been limited, the trend is towards creating necessary legal frameworks. Few international conventions have been made in Asia. Documents that have been promulgated include the 1981 Manila Declaration, the 1987 Jakarta Resolution, the 1990 Kuala Lumpur Resolution, the 1992 Singapore Resolution, the 1994 Dandan Seri Begawan Resolution, etc. Having joined ASEAN in 1995, Vietnam has to complete its legal framework.

For this reason, the Cau Tre Export Processing Enterprise is not facing major difficulties in the implementation of environmental standards. However, *the Enterprise in particular and other export processing enterprises in general are aware of necessary environmental protection and try to meet environmental standards of trading partners such as the European Union. The requirements put forth by these clients address production conditions, product quality and food hygiene.* In 1998, Cau Tre Export Processing Enterprise was one of the few production units with certified levels of quality and hygiene to export products to European Union.

Implementation of Vietnamese standards

The legal framework for Vietnam's environmental protection is based on the Law on Environmental Protection approved by the National Assembly and publicized by the Order No. 29-L/CTN dated January 10, 1994 by the State President.

Various by-law documents have been issued by management agencies at different levels. Those directly related to Cau Tre Export Processing Enterprise are the following documents:

- Government Decree No. 175-CP issued on October 18, 1994 guiding the implementation of the Law on Environmental Protection; and
- Decision No. 299-QD/TDC issued on March 25, 1995 by the Ministry of Science, Technology and Environment on Vietnam's standards.

Vietnam's system of environmental standards issued in attachment to Decision No. 229-QD/TDC dated February 25, 1995:

No.	Standard Code	Names of Standards
01	TCVN5937-1995	-Air quality- Standard of ambient air quality
02	TCVN5938-1995	- Air Quality- Maximum allowable concentration of some hazardous substances in ambient air
03	TCVN5939-1995	- Air Quality - Standard of the quality of industrial gas

		emission with regard to dust and inorganic substances
04	TCVN5940-1995	- Air Quality - Standard of the quality of industrial gas emission with regard to organic substances
05	TCVN5941-1995	- Soil Quality - Maximum allowable limit of chemical residue of pesticide in soil
06	TCVN5942-1995	- Water Quality - Standard of surface quality
07	TCVN5943-1995	- Water Quality - Standard of coastal sea water quality
08	TCVN5944-1995	- Water Quality - Standard of underground water quality
09	TCVN5945-1995	- Industrial waste water - Standard of discharge
10	TCVN5946-1995	- Waste paper

The above-mentioned standards measure the impacts on environment caused by production establishments, and help them operate in clean production conditions to meet international standards and breach the “Green barrier”.

Environmental problems for the enterprise and suggested solutions

Under the above mentioned standards, environmental problems for the Enterprise can be summarized in the following table

Sources	Emission/ Source of pollution	Environmental impacts
1. Boilers	- Thermal surplus - Gas emission due to using FO and DO	- Pollution of ambient air and production area
2. Operation of refrigeration systems	- Noise, vibration - Thermal surplus -CFC gas	- Pollution of the air in the production area - Pollution of water
3. Operation of the seafood processing workshop	- Noise, humidity - Discharged water - Solid wastes - Bad smell	- Pollution of the air in the production area and workers' health - Pollution of water
4. Operation of the food processing workshop	- Discharged water - Solid wastes	- Pollution of water
5. Operation of agriculture product processing workshop	- Dust - Generated heat - Solid wastes - Discharged water	- Pollution of the air in the production areas - Hazardous to workers' health - Pollution of water
6. Thiennhien food processing joint venture	- Discharged water - Wastes	- Discharged water
7. Spare generators	- Gas emission - Noise - Thermal surplus	- Pollution of the air in the production area - Pollution of water

8. Daily activities of workers and staff	- Discharged water - Domestic wastes	- Pollution of water and soil, hazardous to the ecosystems
9. Water supply systems	- Waste water, mud	- Pollution of water and soil, hazardous to the ecosystems
10. Packaging	- Solid wastes	- Pollution of underground water and soil
11. Operation of means of transport	- Traffic gas emission - Noise	- Pollution of ambient air

Air pollution controlling measures

Measures to control pollution caused by boiler air emissions

The following measures have been studied and applied:

- Replacement of fuel;
- Installation of treatment facilities for boiler gas emission;
- Raising the height of the stack; and
- Emulsifying fuel before firing.

Measures to control pollution by operation of stand-by generators

To mitigate negative impacts from the operation of spare generators, the following measures have been applied:

- Installation of devices in generators' house to reduce noise;
- Installation of noise reducing pipe for gutters of the generators;
- Replacement of fuel by lower sulfur fuel; and
- Raising the height of the stack of the generators.

Because the spare generators only operate when power from the national grids is cut off, their negative impacts are not constant. Therefore the defusing measure is raising the height of the stack.

Measures to control pollution caused by Chlorine gas

Chlorine gas emissions during the cleaning materials process can be treated with different measures:

- Using absorbent light alkaline solution; and
- Using active coal to absorb chlorine.

Of these measures, using active coal to absorb chlorine is highly appreciated.

Options for treatment of industrial wastewater

Improvement of the water collecting system

The first priority is to reduce pollution by wastewater by separating rainwater from wastewater with gravity tanks built at the existing discharge outlets of the Enterprise.

The characteristics of the Enterprise's waste water

When the Enterprise is operating at full capacity, the total volume of wastewater discharged from the Enterprise compound will be 1,300 m³/day. The chemical characteristics of the Enterprise's wastewater are analyzed in the bellow table:

No.	Characteristics	Value
01	- Discharging regime	Continuous
02	- Average volume (m ³ /day)	1300
03	- pH	5.6-7.6
04	-SS (mg/L)	110
05	-COD (mg/L)	1400
06	-BOD (mg/L)	1020

Source: Environment Protection Center

Requirements for treatment

The Enterprise's wastewater is discharged into canals. So the host of its waste water is classified as Class B source. The waste water from the Enterprise should be treated to meet discharge standards of Class B source (according to TCVN 5945 - 1995) as follows:

+ Temperature	≤ 40 ⁰ C
+ pH	≤5.5-9
+ BOD ₅ ²⁰	≤ 50 mg/L
+ COD	≤ 100 mg/L
+ Suspended Solid waste	≤ 100 mg/L
+ Oil, grease	≤ 1 mg/L
+ Chlorine	≤ 2 g/L

Based on the characteristics of wastewater from the Enterprise's production and requirements for treatment, the options for wastewater treatment proposed by the Enterprise are:

- Application of aerobic biological disintegration; and
- Combining aerobic and fastidious biological disintegration.

In nature, both options are based on the process of two-level biological disintegration to ensure treated water meets the required standards.

In 1998, the Enterprise invested more than VND 4 billion in environmental improvement facilities, which was highly valued by functional agencies of the Ministry of Fisheries, as well as the European Union and other customers.

At present, the Enterprise is negotiating with a prestigious US company specialized in production of wastewater treatment facilities to import a three-cluster wastewater treatment system with a capacity of 500 m³/ day for each cluster. The total cost is US\$ 900,000.

Solid waste pollution control

Wastes discharged by the Enterprise have two main components:

Industrial wastes

Industrial wastes of the Enterprise include arca, squid and crab shells, etc. from seafood processing. These wastes are collected by the Enterprise and sold to animal food processing enterprises. Used packages and cartons are put into dustbins and transported together with domestic wastes to the landfills of the City.

Domestic wastes

Domestic wastes discharged by workers in the Enterprise are estimated at 100 - 300 kg/ day to be collected to the landfills of the City.

Prevention of environmental mishaps

Environmental incidents from the refrigerating system:

At present the Enterprise has five refrigerating systems including ones using CFC₃ and NH₃. CFC₃ (Chlorofluorocarbons) has long been used for refrigerating equipment but is a pollutant that causes depletion of the Ozone layer (O₃). Thus it has been recommended not to use it any more. Moreover, CFC is a hazardous gas at high concentration and may lead to death. At present, the trend is to use NH₃ (safer for the ozone layer) instead of CFC. Therefore the Enterprise has planed to gradually replace the CFC refrigerating system by NH₃.

The incidents caused by NH₃ are explosions and leakages. To reduce and prevent such incidents, some measures have been applied including installation of devices to detect NH₃ leakage, regular inspection of equipment and sufficient rescue facilities, etc.

Environment and Working Sanitation Monitoring Program

Air Quality Monitoring

- Parameters:
 - Dust
 - Sox
 - Nox
 - THC
 - Cl
 - Temperature
 - Humidity

Monitoring Frequency : Quarterly

Monitoring sites : All workshops

Waste water Quality Monitoring

- Parameters:
 - PH
 - SS
 - TSS
 - Chlorine
 - COD
 - BOD
 - Total nitrogen
 - Total phosphate
 - Oil, grease

Monitoring Frequency : Quarterly

Interaction between environmental protection and the enterprise's production and business

Ensuring a clean environment for sustainable development has positive impacts on the Enterprise's production and business in the following respects:

Product quality has been improved, particularly with regard to food hygiene. Thus we have won trust from customers and increasingly meet the requirements and standards of the importers. The enterprise has become more competitive, getting more access to foreign markets and consequently an increased market share in both scale and scope. After Cau Tre Export Processing Enterprise was included on the list of enterprises authorized to export seafood to European Union markets, customers increased from 1-2 to 5-6. The products are diversified, and the volume increased. New markets have been found France, Italy, Holland, Germany, and Switzerland.

Working conditions at the enterprise have been improved, and workers' health has been better protected.

With a clean production environment, workers have been gradually conscious of the imperative need to protect the environment and build up good practices in production and daily activities following the principle "*All for clean production and sustainable development*".

In addition, the Enterprise has contributed to improving the environment in the area, in accordance with the City's master plan.

By contrast, the need to protect the environment also requires substantial investments in treatment facilities, particularly for wastewater treatment. The Enterprise must plan its investment appropriately to safeguard the environment without causing major disruptions to its production and business.

Due to financial constraints, those investment projects have been implemented on a "one-by-one basis", which has more or less delayed the planned implementation. This is a common situation of production units, particularly for those established at the time when the master plan still contained lots of defects. These units need time to restructure their production so as not to hamper production.

Factors affecting efforts for environmental protection and recommendations

To different extents, the bulk of local production establishments and industries have perceived the necessity to safeguard the environment. They are very interested in the UN Environment Program's definition of clean production: "Clean production is the continuous and uniformed application of the pollution control strategy to production lines and services with an aim to improving the efficiency and reducing hazard to human and environment".

However, in its efforts for environmental protection, Cau Tre Export Processing Enterprise, like other production enterprises, is facing the following difficulties:

1. ***Lack of investment*** to renew equipment and upgrade production facilities, such as the replacement of CFC refrigerating systems by NH₃ systems to preserve the ozone layer, as stipulated in the 1985 Vienna Convention and the Helsinki Declaration.

Wastewater treatment facilities also demand substantial investments. We are convinced that there should be supportive policies from environmental protection funds or from domestic and international credit institutions.

2. ***Absence of a master plan*** in which environment policies and systematic measures for environmental protection are clearly spelled out. This is another factor contributing to delayed environmental protection activities and even placing constraints on agencies that have good will to conduct environmental protection activities.

Moreover, the policy of levying environment taxes or fees on production and business establishments which pollute the environment is still being investigated, thus contributing little to limiting environmental pollution and raising revenue to invest in the improvement of facilities.

3. Environmental and sustainable development awareness during the process of development is not effective in many enterprises and segments of the

population. Polluted canals in Ho Chi Minh City have affected enterprises in different ways such as causing pollution outside the production areas or underground water sources. For example, due to heavy traffic during the rainy season, Cau Tre Enterprise suffers heavy water pollution from outside canals, the parameters of dust in the Enterprise are measured at 0.52-0.74 mg/m³, 0.3mg/m³ higher than Vietnam's standard.

To respond to the root causes of environmental problems, we believe that a comprehensive plan for the whole production zone should be formulated, though it might be very costly and time consuming.

4. Lack of environment technical staff and monitoring equipment has hindered preventive actions. Training is also imperative.

Conclusion

Environment, production and business, particularly export production and trading are interrelated. However, environmental protection requires a comprehensive plan of action and sufficient resources, including investment and new technologies, to succeed.

10. The way forward

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A number of important issues relating to the development of international trade and its potential impacts on the environment have been discussed in the Conference. In order to deal with these issues effectively and positively, actions should be taken in three inter-related areas:

- Research;
- Capacity building; and
- Information control.

Research

We have seen how complicated the linkages between the trend of increasing international trade and its potential impacts on the environment are. These implications and potential impacts are closely associated with national economic and environmental policies. We have also seen how complex the interrelated areas of the regime of international trade regulations and international environmental agreements are.

It is vital that Vietnam develop appropriate economic and environmental policies to ensure both economic expansion and environmental protection. Research plays an important role in meeting this challenge and is required particularly in a number of areas.

First, there is a need to define the exact linkages between Vietnam's accession into the regional and global trade regimes of ASEAN, APEC, WTO and the possible effects on our economy. Secondly, we need to clarify the implications of economic development on the environment. The results of this research provide background for detailed analysis to develop optimum economic and environmental policies for the goals of economic development and environmental protection.

Another crucial field of research relates to the complex nexus of the regional and global trade regulations and the increased number of multilateral environmental agreements (MEAs) with trade-related rules. We need to identify the economic effects of Vietnam becoming a signatory of these MEAs. Particular dimensions of concern for Vietnam are trade transaction in solid wastes, wild animal and plant products and genetic resources. Research should be practical and take into consideration the current context of Vietnam.

Capacity building

The increase in both number and complexity of international trade regulations bilaterally, regionally and globally is an emerging tendency in the world. There is also an increase in the number of agreements and instruments on international environment associated with trade provisions. Together with the official trade agreements, there are an increasing number of unilateral declarations on environmentally related trade rules.

It is crucial that Vietnam should actively take part in and make substantial contributions to international negotiations. This is a significant task as it encourages Vietnam to implement effectively the rules and regulations of the international trade regime, as well as the voluntary environmental conventions to which Vietnam becomes a signatory.

There is a need to disseminate the results of this research to officials working in Government agencies responsible for all aspects of international trade and environment. It is also important to raise their knowledge and understanding about the linkages between environment and international trade. Capacity building is required in the following:

- Skills of international trade, economic and environmental policy analysis; and
- Capability of specifying multilateral and unilateral agreements, regulations and instruments on trade and environment (eco-labeling, certification, etc.) and trade restrictions based on environmental criteria.

Capacity building will also be required in the business sector, particularly in small and medium enterprises (SMEs). There is a need for capacity building to cope with the complex system of multilateral and unilateral agreements, regulations and instruments on trade and environment, and thus meet the rising consumer demand for goods that have been produced and harvested in an "eco friendly" manner. Additionally, the business community should become aware of the advantages of internationally recognized certifications for their production methods, e.g., ISO 14001, and of how to achieve such certificates.

Information Control

Information is needed for research and capacity building. Given the complexity of the subject matter and the diversity of information sources, it will be necessary to have one or more coordinators in Vietnam. These coordinators would play a role as clearing houses of information and disseminate relevant information to specific interested parties.

Information dissemination also includes communicating research results and applying them in policy making and analysis.

Conclusion

It will be important to develop an action plan to realize these recommendations, focusing on the following key areas:

- Specifying the major subjects in need of research and of development of research programs;
- Identifying the competent research institutes and seeking funding sources.
- Defining the specific needs of the state management organs and business community
- Developing programs of technical assistance; and
- Developing measures and ways to facilitate multi-national corporations in providing technical assistance to SMEs.