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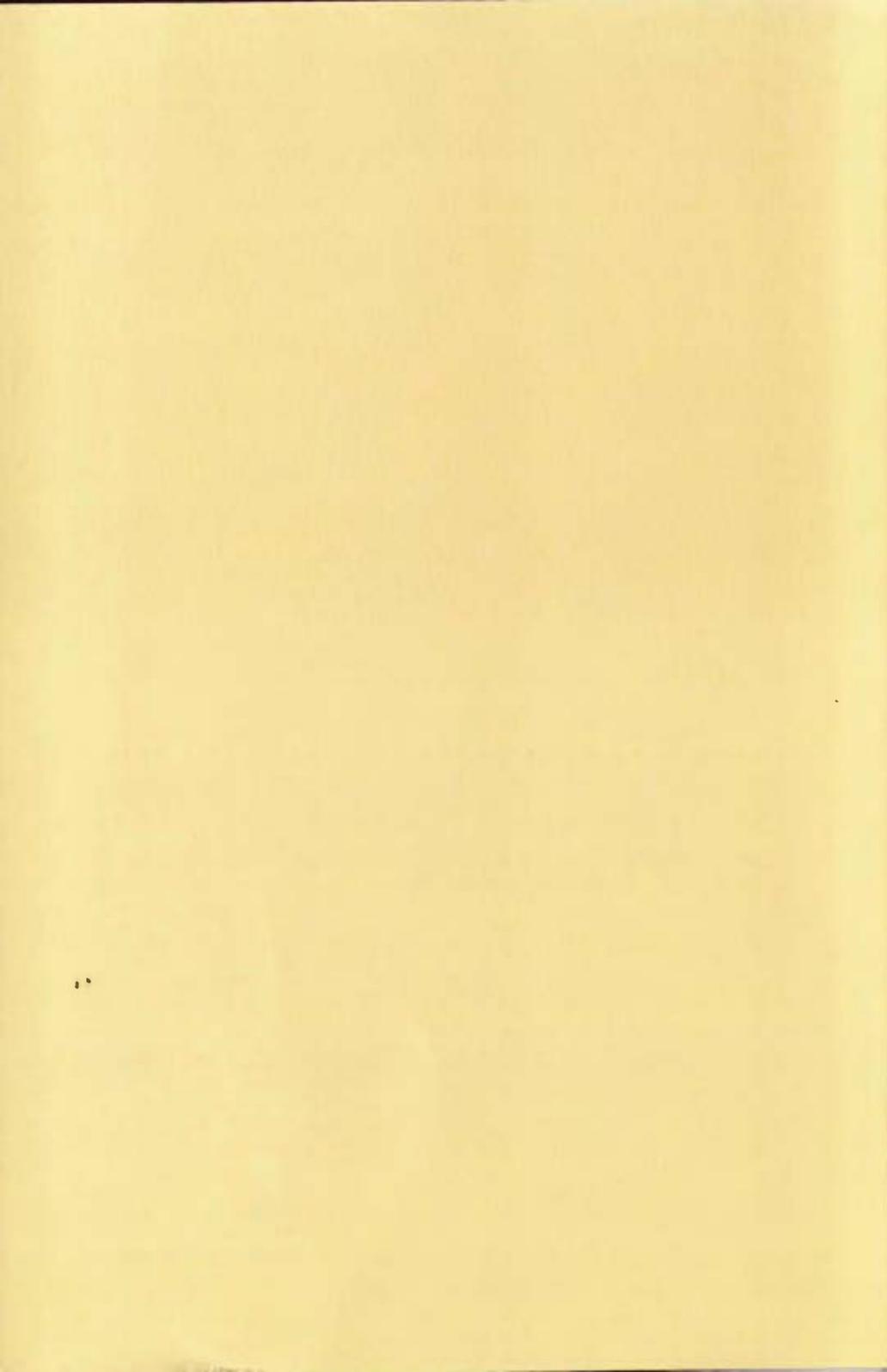
TRADE AND THE ENVIRONMENT

- towards a sustainable playing field



A report from the Swedish Environmental Advisory Council

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Trade and the Environment

- towards a sustainable playing field

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Foreword

When working with environment issues, it becomes clear that a great deal of energy must be focused on the relation between economics and ecology. It is vital that concern for the environment is recognized in frameworks for international trade. So far, this has been a neglected area.

In the 1993-94 Budget bill, the Swedish Government stated that the environmental debt must not be allowed to increase. Measures to achieve the objective of ensuring sustainable development are therefore a significant component of Swedish economic policy. The limits to the carrying capacity of the earth and the ability of the environment to absorb waste without damage have already been reached. The parallel to the state budget deficit is a simple one: insufficient finances represent a drain on capital.

It is essential to establish an accurate basis for evaluation of welfare and to set appropriate frameworks for trade policy.

The authors of this report have different backgrounds: the worlds of research, business and the Swedish Cabinet. They are responsible for the content of this report. The collected and integrated ecological economic view they present lays a foundation for the important task of creating a sustainable playing field for the environment and world trade.

Olof Johansson
Sweden's Minister of the Environment
Chairman of the
Environmental Advisory Council



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Authors' preface

Recent decades have seen a dramatic increase in human impact on the Earth's nature and environment and there is little to suggest that any improvement is in sight. There are few signs that the destruction of our environment is being kept in check, little cause for optimism about the global situation. On the contrary, most research findings suggest that the state of the environment will continue to deteriorate.

A European study has shown that if the five billion inhabitants of our Earth were to consume raw materials, energy, water and minerals at the same rate as the average European is doing at the moment, we would face an immediate need for two additional planets. Considering that the global population is likely to exceed ten billion within the next half lifetime, this fact in itself provides food for serious thought. As populations and economies grow, the pressure on our global life support systems such as the atmosphere, the oceans, the coastal areas and the forests will increase, and there are few mechanisms in place today to deal with these growing problems.

What part does trade play in all this? Should sweeping restrictions be imposed on trade in order to protect the environment? Or would the environment benefit from free trade, if the individual were in a position to influence the market and shoulder responsibility by choosing environment-friendly products? Does one country bear responsibility for any environmental degradation which may be caused when the commodities it produces are bought and used elsewhere?

The following pages contain no easy answers to these questions. We hope, however, that we can provide the reader with a combined ecological and economic view of the links between the environment and trade, and thereby help to develop a cleared idea of how future trade and environmental policies should be formulated. By adopting an integrated approach, principles for socio-economic development could be drawn up so that the various players in society can manage the available resources in the best possible manner, providing a sustainable platform for mankind to use the Earth's natural systems without destroying them.

We have also endeavoured to identify the conditions under which international trade could contribute to ecologically sustainable economic development, and have proposed certain changes in current regulations for international trade that would promote such a course.

We make no claims regarding the comprehensiveness of our analysis in this wide-ranging and complicated area. We do, however, hope that this book will promote understanding of issues which will play a crucial role in future trade and environment policies.

Chapter 1 has mainly been written by Carl Folke, Chapter 2 by Thomas Andersson and Chapter 3 by Stefan Nyström. Gunnel Nycander has contributed to the report and served as technical editor.

This is a preliminary version and we would therefore appreciate any comments and suggestions.

Stockholm, May 1994

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Introduction

Why trade and the environment?

At the end of the 1980's and the beginning of the 1990's, international interest in the linkage between trade and the environment mounted significantly. A major contributing factor to interest in the trade-environment issue was a conflict between the USA and Mexico on American trade restrictions over Mexican exports of tuna. The USA placed an embargo on import of Mexican tuna in 1990, as Mexico was considered to be taking insufficient precautions to prevent the accidental catching of dolphins. Mexico protested against this measure, claiming that the USA-imposed restrictions were not compatible either with international law or with the GATT rules.

This particular incident is only the tip of the iceberg. International industry, as well as a growing body of public opinion concerned with the health of the environment, is demanding new measures against countries which are considered to behave environmentally irresponsibly. Several EU countries have, for example, discussed trade restrictions against imports of tropical timber. In Sweden, import restrictions regarding the blue-finned tuna, a species threatened with extinction, have been debated. There are a variety of reasons as to why trade and the environment appear to be increasingly intertwined; a number of them will be presented in this chapter.

Different actors' perceptions of the problem

Some environmentalists regard trade itself as the root of the environmental problem. This belief has led to a desire to impose far-reaching restrictions against imports of, for example, goods which are regarded as having been produced under environmentally damaging production technology. The ethics of methods used in breeding or capturing certain animals have also led to demands for import restrictions.

Business interests in some countries advocate measures against the import of goods produced at a lower cost due to inferior environmental standards in other countries. A tendency towards traditional protectionism is quite often the real reason behind this argument for environmental protection, i.e. measures taken to favour indigenous industry in relation to foreign competitors. Environmental measures affecting goods produced in the home country are generally met with scepticism by industry, which protests that such measures will cause a decrease in employment and the company's eventual relocation to another country due to the high costs of measures to protect the environment.

Trade experts are primarily concerned that the liberalization which has occurred during the last 40 years, largely as part of the GATT rules, will be undermined by environmental measures which will in turn lead to a world-wide reduction in the free flow of goods. One of the additional aims of trade policies is a desire for "harmonization" of regulations. This goal is less likely to be realized due to the different environmental conditions, sensitivities and needs in different countries.

In developing countries concern has increased in the face of comprehensive demands for product information, not least when it comes to packaging. A swarm of symbols such as swans, evergreens, falcons, angels, dandelions and green dots are appearing more and more on packages and products as a marketing prerequisite for industrial economy markets. Less developed countries regard this trend as a new form of protectionism, since they have difficulty both in obtaining information on such classification systems and in fulfilling the demands.

Trends within the environmental area

Manufactured goods have an increasing influence on the environment. Many of the environmental problems which were identified during the 1960's and 70's, above all emissions from large, point sources, are at least partially on the way to being solved in many industrialized countries. For example, Sweden reduced emissions from the 1,000 largest sources by 70 per cent during the 1970's and 80's.¹ At the same time, new environmental problems are appearing, which are often connected to the array of new products constantly being developed and marketed.

In pace with increasing consumption of goods, environmental problems connected to either the utilization of consumer goods or the disposal of used items are growing. Many goods contain environmental risks, in the form of direct or delayed emission of harmful substances. There is, therefore, an increasing need for efforts directed towards adapting products to the

ecological cycle through recycling, re-utilization of material and the efficient use of both energy and materials.

Within environmental policy-making, demands are consequently being made today which have a more direct effect on trade with other countries than measures against large point source emissions, which generally only have an effect on manufacturing processes in the home country. Measures regulating the environmental effects of consumer goods also influence foreign producers.

Transboundary environmental problems. Attention has shifted from local environmental issues to regional and global problems. More diffuse and elusive challenges such as depletion of the ozone layer, the greenhouse effect and threats to biological diversity, are "replacing" local environmental concerns previously symbolized by filthy sewers and stinking smokestacks.

Trends within trade

The volume of international trade is expanding. During this century, the volume of international trade has grown more quickly than international production. Different countries' economies are ever more intertwined and mutually interdependent. A country which trades with other countries becomes dependent on their production systems and patterns of consumption. This type of trade results in the different countries influencing each others' economies. Trade is especially important for small, open countries such as Sweden.

The overall picture

The sum of these trends is the recurring tendency within trade and environmental policies for measures in one sector to have a marked effect in the other area.

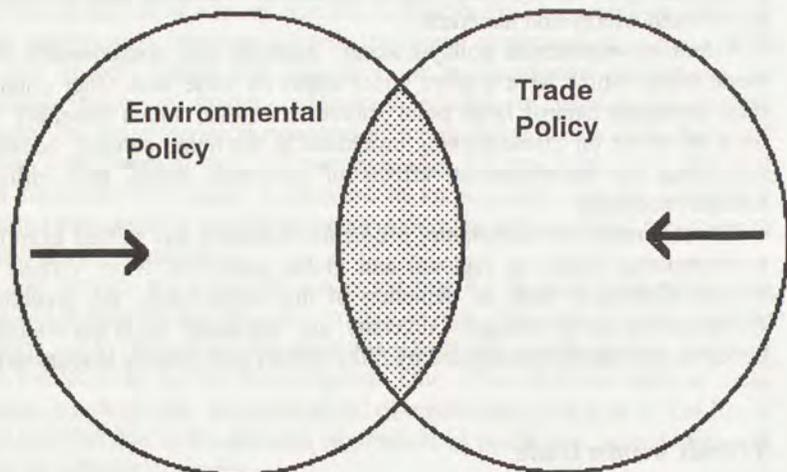


Figure 1. Trade and environmental policies increasingly overlap one another, as shown in the illustration.

International cooperation

Knowledge of the increased reciprocal effects of trade and environmental policies has resulted in the start of comprehensive work in several international forums with the explicit aim of further exploring this relationship.

Since the autumn of 1990, trade and environmental policy experts in the *OECD* have been working side by side to create mutual understanding between the two groups. One of their goals is to identify potential problem areas and create an information base which can be utilized during the coming GATT negotiations. The group has established specific guidelines for trade and environmental policy, with the aim of avoiding problems and conflicts. In a communiqué from the OECD annual meeting between trade and finance ministers (June 1993), the group's goal was clearly stated: to create an analytical foundation for the coming negotiations on trade regulations in other international forums.

Since the autumn of 1991, a technical group has been working on trade and environment issues within the *GATT*. The group has a specific agenda² and, within the framework of its work, offers GATT member countries an

opportunity to exchange views and present up-to-date analysis related to trade and environmental policy.

UNCTAD works with a variety of questions on trade and the environment. Continually growing interest in the subject can also be observed at universities and within environmental organizations throughout the world.

Brief summary of contents

Chapter 1. Life support systems as the foundation for international trade.

The importance of the ecological system as the basis for all economic activities is discussed in the first chapter. The role of the environment and the ecological services it provides are presented, as well as society's dependence on them. Environmental values from the economic theory perspective are briefly presented. In addition, economic growth, technological developments and the environment are discussed, and an ecological-economic synthesis is presented. This is followed by a description of international trade from the natural resource and environmental viewpoint. The significance of production and consumption patterns, society's carrying capacity, transportation and various driving forces in relation to increased internationalization are some of the themes explored.

The overall goal is a society which develops within the framework of functioning life-support systems, and where trade makes a positive contribution in this direction.

Chapter 2. Economic analysis of trade and the environment.

Economics is the theory of how scarce resources can be used to the greatest advantage. The environment can be included within the definition of resources — it is a resource which becomes more limited as degradation increases. In extreme terms, economics is about seeking the means to achieve certain goals, for example, to increase welfare. Therefore, the role of economics is to assist in finding suitable means to shape international trade so that it results in sustainable development.

First, a short introduction to basic trade theory is presented. The chapter then examines whether all countries should have the same environmental protection regulations. Further, the arguments for introduction of trade barriers under various conditions (environmental effects due to consumption or production, local or global environmental effects) are explored. Finally, the theoretical results in relation to the opportunities and risks posed by political reality are discussed.

Chapter 3. Trade regulations — the institutional framework and actual conditions.

This chapter begins with an exploration of the concept of free trade, followed by an overview of the ground rules for international trade outlined by the GATT, and also by the EU and NAFTA. In particular, the available opportunities for allowing environmental protection measures (which will affect trade) to take precedence over more general trade regulations, and what is most likely to happen in case of conflict, are examined and described. The growth of free trade in relation to environmental policies is then discussed in general terms.

Finally, with this analysis as a departure point, the directions are discussed in which trade restrictions should be developed in order to realize the measures needed to achieve ecologically sustainable economic development while at the same time retaining stable and respected regulations for international trade.

Chapter 4. The new playing field — towards sustainable development.

The final chapter summarizes the prerequisites for sustainable development. A number of ground rules which should be observed in order for trade to contribute to this development are presented. The need is stressed for the market to receive signals regarding actual environmental values and costs, which are often invisible today. The significance of improved international cooperation is also emphasized. It is in the interests of both trade and environmental policies to as soon as possible formulate regulation of trade which will hasten progress towards sustainable development. Finally, sixteen conclusions are presented.

Chapter 1

Life Support Systems as the Foundation for International Trade

Should society prioritize measures against environmental damage? Should we not put our own economic house in order before we can afford to care about nature and the environment? This type of question is still quite common and reflects how the development of society has mentally distanced us from our unavoidable dependence on functioning and healthy ecosystems.

The dependence of our society and its welfare on life support systems will be described in this chapter. This is followed by a discussion of economic growth and the environment and their relation to production, consumption and environmental technology. The next section explores the economic efficiency of society, the economic valuation of nature and the environment, and the role of functioning ecosystems as increasingly scarce resources. The section ends with an ecological-economic synthesis for sustainable development. The last part of the chapter offers an analysis of the role of trade in relation to, among other things, ecological limitations, vulnerability, transportation and technical development.

Life support systems — a prerequisite for welfare

Humankind has, especially during the last century, lived with the belief that we are above nature, with the ability to decide what value nature has, if any. In cities and industrial societies there is little evidence of our day-to-day dependency on nature. When problems with natural resources and the environment occur, we turn towards our wealth of inventions and technical development. Nature and the environment are treated as something outside society, which can be replaced by technology.

Fortunately, this attitude is changing, even though the pace is quite slow in many areas: fortunately, because life support systems are the basis of, and a prerequisite for, our general welfare. Human beings are dependent on and a part of the ecological cycle, whether we recognize it or not. In reality, it is

not only the environment which is saved when society strives towards sustainable development, but also present and future generations of human beings.

There are signs which indicate that the old world view, regarding humanity as above and independent of nature, is changing. People's understanding is growing, whether they are from the North, South, East or West; we are realizing we are merely a sub-system of the global ecosystem — the biosphere³. The survival of the human sub-system is dependent on the functioning of the overall system.

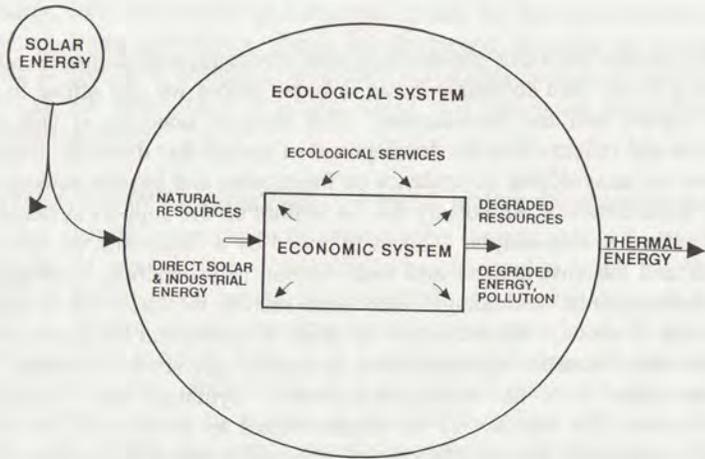


Figure 2. The socio-economy is a sub-section of the ecosphere and needs energy, natural resources and ecological services in order to function. Ecological services are generated by species functioning in synergy within their particular environment; they supply a basic production factor for the socio-economy.

Human beings need energy, natural resources and sustenance from the ecosystem on a daily basis in order for society and the economy to function.⁴ Without natural resources it is not possible for the machines, cars and technologies which have been developed to be built.⁵

We require food, air and water to live. Nature cannot be entirely replaced and mankind cannot fully substitute its dependency on the life-support environment. "Natural capital"⁶ will always be needed, and human beings will always be dependent on it. Therefore, we must conserve, rather than use up, this capital.⁷

Life-supporting ecosystems and ecological services

The life-supporting environment is that part of the earth which supplies the biophysical preconditions we need in order to survive: water, air, food, other types of energy and mineral nutrients. The earth's many species are closely intertwined with their respective environments in an eternal cycle of time and space which also contributes to providing the preconditions essential for life itself, including human life. This constitutes nature's support for society and its economy; it is sustained by the ecosystems: species interacting and evolving with their environment.

The ecosystems produce *renewable resources* such as fish, crops, trees, drinking water and so on. They provide society with a variety of *ecological services*, for example the circulation of nutrients essential to agriculture, forestry and fishing. The ecosystems create fertile fields, pollinate crops, produce nourishment from the sea, maintain genetic diversity and the quality of the atmosphere, provide pure air to breathe and water to drink. The ecosystems are "in charge of" the crucial water cycle, and transform and also utilize part of the waste produced by society. Furthermore, all these functions and processes within the ecosystems occur in a way which creates the basis for humankind's recreation in and enjoyment of the environment.

The ecosystems' dynamic structure forms the requirements for life support systems for society. Without functioning ecosystems, neither renewable resources nor ecological services would be generated. If soil acidification negatively affects the basic compounds required for flora and fauna, the ecosystem's ability to renew itself and create new structures which will generate renewable resources and ecological services is dramatically reduced. The production of environmental "goods and services" is, in other words, dependent upon a functioning and healthy ecosystem.

The importance of the ecosystems to social welfare is rarely included in financial or developmental discussions. Only a negligible proportion of the renewable resources and ecological services is appreciated and an even lower proportion is considered to have an economic value⁸ (see p. 27). Environmental debates are often more concerned that fish are being poisoned and trees are suffering from acid rain than that the basic carrying capacity of the ecosystem to support society has been seriously undermined.

This situation is serious, since society cannot function without healthy ecosystems. Despite our sophisticated societies, humans remain biological creatures who are undeniably just a part of the whole ecological puzzle. Life support systems and ecological services are needed for a functioning society, and cannot be completely exchanged for capital or machines. On the contrary, they are two elements which are *absolutely necessary* for continued positive development of human society.

Ecological boundaries and society's carrying capacity

Ecological (bio-physical) carrying capacity marks the maximal population size which can be maintained by nature with a given technology within a specific area. Societal carrying capacity is the maximal population size which can be supported given the different societal systems.

In order to be able to discuss sustainable development, societal carrying capacity must stay within ecological carrying capacity.⁹ This is not to say that ecological carrying capacity is static or absolute but rather that *a society which degrades the ecosystem moves closer to the ecological boundaries and therefore reduces the potential for society's economic development.*

Carrying capacity is not a static concept since ecological as well as human systems are constantly evolving. It is not possible to prevent them from changing. It is possible, however, to harm them, and if that leads to irrevocable changes in nature's ability to sustain our society with ecological goods and services then the choices available to our generation as well as future generations have been distinctly restricted. The challenge lies instead in improving our handling of the system's *resilience*, that is to say, ability to renew itself after unforeseen disturbances, to absorb them, and to adapt itself to a changing situation.¹⁰ The goal should be to retain flexibility and the freedom of choice to choose new paths of development in both the ecosystem and society.

How society uses resources and the limits of expansion

Production and consumption are often handled quite ineffectively today. Natural resources are pumped into one end of society and goods are produced. The goods are utilized for shorter or longer periods of time and then discarded at the other end as waste.

This process is characterized by resources being collected from vast ecosystem areas, often outside the country in question (see page 38 on shadow areas) and concentrated within cities and industries. The concentration of resources in a limited area creates a situation where the surrounding ecosystems are not able to efficiently process the resulting pollution and waste products. Combined with the use of fossil fuel to run the infrastructure for industry and urbanization, this has led to a plethora of environmental problems.

The availability of inexpensive industrial energy, especially fossil fuels, has created this throughput-based, and often wasteful production system which lacks any connections to its life support ecosystem.¹¹ *The way that natural resources and fossil fuel have been used has caused severe environmental problems, rather than the fact that they are used at all.* History shows that more and more industrial energy, natural resources and

ecosystems are needed in order to extract natural resources of increasingly lower quality. This has led to a deterioration of the natural environment. Even more industrial energy and natural resources are required to balance out the process. ¹²

Developments in intensive agriculture, fishing and the timber industry are examples of this phenomenon. Soil erosion is compensated for in a variety of ways, such as the use of artificial fertilizer produced using fossil fuel. Decreasing fish populations are compensated for by the use of larger boats which cover larger areas of the ocean, and which are powered and produced with fossil fuels. In many cases fish populations are heavily exploited, which results in consequences for other economic sectors. Acidification has made it necessary to "doctor" the forests with products manufactured using fossil fuel. Therefore technical advancement is in itself no guarantee for a more intelligent and effective utilization of natural resources. However, given the right signals, technical development can be the key needed to guide society in the right direction.

At an earlier point in time, expansion of national economies was not limited, since their size was small in comparison to the global ecosystem's size and buffer capacity. Local environmental problems arose, but were often solved by techniques which simply moved them to other areas or other countries (higher smokestacks, extended pipe systems and transportation of waste). This method delays the solving of the problem at hand and leaves it in the lap of future generations (the collecting of sludge from sewage treatment plants, eutrofication, acidification, etc).¹³ A technical development which freed societal developments from local ecological limits and natural variations in the ecosystem dominated. Scope for developing such technologies was an important limiting factor for national economies.

Today, the state of the ecosystems is increasingly important for societal development and well-functioning life support systems become an even more limiting factor. This is partially due to the population explosion but also due to the fact that utilization of the earth's resources has increased enormously (*Figure 3*), without any active method of revitalization or recycling. ¹⁴

It is the population explosion, the increase of the scale of human activities and, above all, the way in which these two factors have grown in relation to the base of ecological resources, which together have led to natural capital being increasingly regarded as a scarce resource for society's continued development (*Figure 4*). The longer it takes for us to recognize this, the more difficult it becomes to turn around the whole process, greatly increasing the risk for catastrophic results. We have begun to reach the limits of how much of our activities the global ecosystem can handle, which is reflected in such things as: changing climate, depletion of the ozone layer and other serious environmental threats. Human beings alone utilize 40 per

cent of the land ecosystem's life-supporting ability today¹⁵ and the world population is expected to double in approximately thirty years¹⁶. Bearing these factors in mind, it is obvious that we must take good care of our own life support systems in order to sustain our own existence; we should use them but not abuse them.

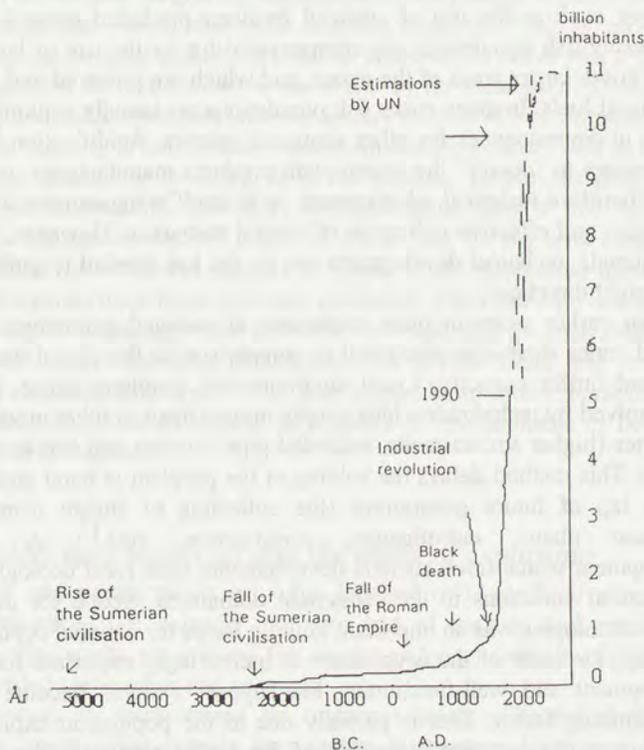


Figure 3. The population explosion. If human beings are to be prevented from draining the earth's resources then a material standard equal to the present-day Western standard is available for 500 million people. Today close to a billion already have that standard and there are 5 billion people to share the world's resources.¹⁷

Source: Pezzey, J. (1992). Sustainability. *Environmental Values* 1:321-362.

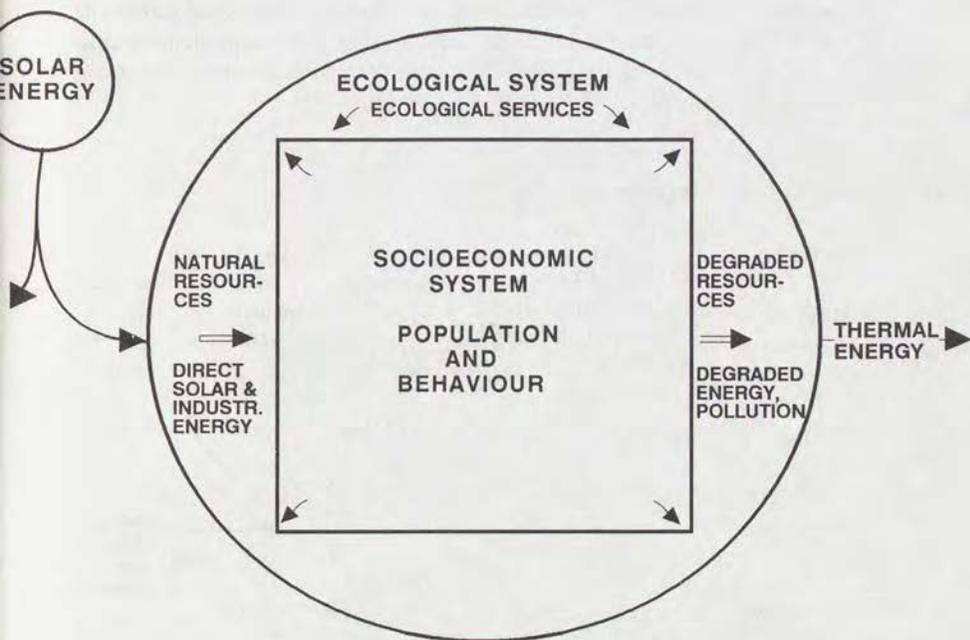


Figure 4. Population growth, expansion of human activities, and above all how they behave towards the ecological resource base, have led to a situation where nature's ability to provide society with natural resources and ecological services increasingly restricts the development of society.

Growth and the environment

An example of the above reasoning is how strongly rooted the view is that economic growth is a goal in itself in Western culture, without regard to how this growth is achieved. From this perspective, free trade is regarded as positive, since it leads to economic growth and the achievement of other economical goals, including a healthy environment. An example of this is Principal 12 of the Rio Declaration, stating: "States should cooperate to promote a supportive and open international economic system that would

lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation."

The linkage between growth and the environment can be seen from the perspective of differing characteristics of individual environmental problems. The development which we have seen indicates that point emissions tend to decrease as income rises but that diffuse emissions increase under the same circumstances (see *Figure 5*).

Environmental degradation

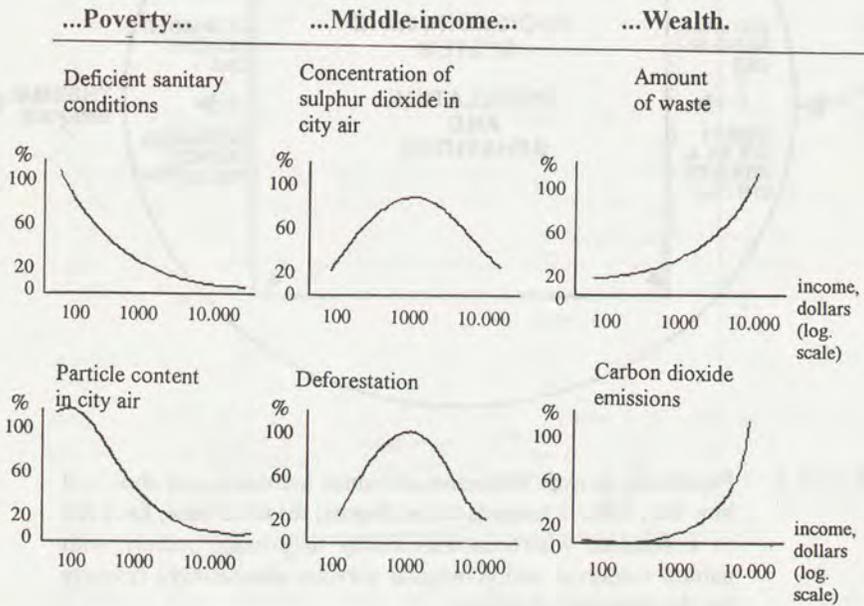


Figure 5. How environmental problems evolve in relation to increasing income. The problems are transferred from a local to a regional level, and eventually become global.

Source: *The Economist*, May 30, 1992.

Local environmental problems, such as sewage disposal in urban areas or toxic discharge into lakes often decrease as the population's income increases. Apparently, regional problems like sulphur emissions increase along with the population's income but arrive at a "breaking point" when incomes reach a certain level, approximately equal to \$5,000-5,500 per capita per year. After they reach that level the regional problems start to decrease.¹⁸ This can be interpreted as a case of rising incomes creating the possibilities to invest in more effective technology which pollutes less.

One example of global pollution is the emission of carbon dioxide. This problem has also been analyzed using the same factors; the breaking point was found to be approximately \$5,000. However, this analysis only concerns pollution per capital unit. In this case, the sharp rise in production (an overall scale increase) overtook the reduction in pollution which was the result of more resource-efficient technical development. Using technological advancement as the point of departure, further analysis was completed using data from 109 countries (from 1960-87). It was estimated that annual income per capita would have to reach \$80 million for carbon dioxide emission to begin to decrease.¹⁹ Naturally, the result is unreasonable but it illustrates that the total carbon dioxide emission seems to increase exponentially in relation to increasing incomes despite technological advancements.

It seems that many technological achievements have not compensated for the increasing pollution which has proceeded increased income per capita. Despite the technological improvements that have been implemented and the decrease of annual European sulphur emissions, emissions over most of Europe are greater than can be absorbed by the soils. Acidification in these areas continues.²⁰ One explanation is that the technical improvements which have been achieved and the infrastructure within which they function are based upon the use of fossil fuels.

Economic growth built upon the increased utilization of natural resources and continued deterioration of life support systems cannot be combined with long-term sustainable development. The need for a new type of infrastructure is obvious. Society must establish an infrastructure which also reduces diffuse emissions and develops opportunities for an ecocyclical society. This means that production and consumption will have to be more and more integrated with the ecosystems' processes. (See page 22.)

If economic growth is to remain in line with environmental protection, it must be based on quality improvement rather than on throughput-based production and consumption. Improving quality means, among other things, that economic development is based on a more effective utilization of natural resources when goods and services are produced and consumed.²¹ Economic growth must also be measured in such a way that takes all these factors into account.²²

This does not mean that the development of human societies and economies should be constrained. It does mean that irreversible changes in the ecosystem as a result of production and consumption should be avoided. Such changes can cause a reduction in the ability of society and its environment to absorb and buffer disturbances, and the ability to recover may be lost.

The conventional attitude towards growth and the way that growth is measured today only takes one part of the world situation into account. Economic growth can be a way to increase welfare but is not a guarantee, in itself, for an improvement in welfare. To develop society and its resource base towards sustainability involves not only an ethical or moral responsibility towards our fellow human beings and future generations. If we destroy the ecological system we are dependent upon, then we destroy our own chances for well-being and advancement. Caring about the Earth and its life support systems is therefore directly in our interests.²³

Environmental technology of the future

Technological development plays a decisive role regarding opportunities to actively re-use and recycle natural resources and develop a sustainable society. The challenge of technology lies in the ability to build future products and production processes at a high level of quality, to create recyclable or re-usable products which are manufactured using energy-efficient processes. Perhaps the biggest challenge is to develop renewable energy sources to replace fossil fuel, which is the most significant contributor to such complex environmental problems as acidification and climate changes.

Sweden has started the move towards an ecocyclic society by, for instance, reducing and in many cases stopping altogether the use of poisons and hazardous chemicals.²⁴ The next logical step would be to actively connect our production and consumption patterns to ecocycles.²⁵ A resource-effective ecocyclic society is a way of working with, rather than against, ecological processes and flows. It is also more in tune with sustainable economic and environmental development. The goal is to conserve rather than to use up natural capital. To respect ecological limits and thresholds and develop an economically efficient approach which works in correspondence with natural rhythms is a difficult but essential task.

A first step is to move away from the type of production and consumption which is quite obviously environmentally damaging and reduces the capacity of ecosystems to support society. The advancement of environmental technology is therefore of the utmost importance. The direction of such technology has changed course over time, partly as a reflection of the

changing face of environmental problems. The development of environmental technology can be roughly divided into the following areas:

1. Chimney filters and other end-of-pipe solutions which reduce point emissions.
2. Input management: examine how resources are utilized; from raw material to waste; reduce the use of chemicals and poisonous materials in the manufacturing process which results in more energy- and resource-effective production processes.
3. Recycling of products. This further reduces both point emissions and diffuse emissions, assuming that recycling is not based on an increased use of fossil fuel and non-renewable natural resources.
4. Ecocycles and integration with the processes of the ecosystem. Both point emissions and diffuse emissions are reduced since waste is regarded as resources which have simply ended up in the wrong place. These resources are used to generate new products in cooperation with the ecosystem.

The first two groups listed above are based on fairly conventional methods of industrial thinking. Recycling, and above all a cycle which works in harmony with the ecosystem, is a relatively new way for industrial society to use the environment without degrading it. This is called ecological technology and is an example of how society can take the challenge of actively connecting production and consumption in cooperation with the ecosystem's support.²⁶ One example is the restoration of wetlands to collect and purify water from nitrogen and pollution from agricultural areas.²⁷ Another example is breeding fish in an ecocyclical system as a part of agriculture and industry, instead of on a throughput based system.²⁸ Products resulting from ecological agriculture which are increasingly sold in markets throughout Sweden are yet another example. Knowledge of this type of technological advancement is available in many developing countries²⁹ and can be of great service to the development of modern ecological technology.

Local, international or global environmental problems?

In public debate, only a few environmental problems, even if they are serious, are considered international and global. Most of the problems are regarded as local and, according to international law, are the problem of the people who live in the respective country (see page 95). We believe, however, that many more effects of pollution than those in focus today should be regarded as crossing national boundaries and in the long term even

as being global problems. The fact that they are today considered as local is mainly due to a lack of knowledge and understanding, of ecosystems since they are interlinked. A disturbance in one ecosystem which occurs once or is relatively minor in scale often has a very limited effect on that ecosystem. The effects are then slight or local and temporary. But if the same disturbance occurs repeatedly and more often, that is to say if a certain development trend is shared by more and more players, then its influence can spread to a regional system and eventually to the global ecosystem. The greenhouse effect, depletion of the ozone layer and acidification are all well-known examples. It is important to remember that just a few decades ago these problems were not included on the ecological agenda as serious problems.

Figuratively speaking, waves are created which are then transmitted to other ecosystems and cause environmental problems across national borders. An example of the effects of local damage to the environment is that when mangrove forests on the coasts of South America and Asia are chopped down, fish reproduction decreases, resulting in fewer fishing catches outside the countries where the problem originated. An increase of cattle in Holland causes downfall of nitrogenous compounds in the surrounding countries. The destruction of wetlands leads to eutrophication of coastal zones and coastal waters (the countries surrounding the Baltic are an example). Environmental problems which have no boundaries are not just about sulphur, nitrogen, CFC and so on, but also about the indirect effects on surrounding ecosystems which occurs as a result of the original, "local" environmental effects. The ability of ecosystems to recover after changes deteriorates, and their ability to generate ecological services and support for the socio-economy therefore also deteriorates.

"Local" environmental damage can also lead to waves which influence other countries through negative effects on the social structure. Examples of this are deforestation, over-exploitation of farmland and specialization in export crops.³⁰ These can compromise the resource base for large sections of the population, cause an increase in the population and even cause "environmental refugees" to flee their homeland. Discovering ways of developing society which promote ecological security is therefore of great importance.³¹

Local environmental damage can also lead to changes in welfare in other countries, regardless of whether or not their ecosystems are affected. The extinction of certain species may, for example, lead people in other countries to feel such disgust that their well-being is damaged by the extinction. The costs of preserving species in national parks in developing countries has shown itself to be high on a local level, lower on a regional or national level and lower still on a global level. When it comes to revenue from or value of saving a species in a national park, the situation is the opposite.³² Purely

aesthetic aspects of our relationship to the ecological system, biological diversity and other human beings' quality of life and environment, e.g. their work environment, also often mean that it may be justified to treat local problems as global.³³

The conclusion is that many more environmental effects are transboundary and therefore international than those receiving attention today. The effects of local environmental damage should therefore be regarded as, and be handled as, being without geographical boundaries.

Fact Sheet 1. Environmental technology — a growth sector for the 1990's

The environmental industry is growing quickly, and today the market has reached 200 billion dollars. There are no clear parameters for the area — it includes a wide range of various purification techniques, products and consulting services which are registered in many different industries. The market for water conservation is the oldest. Europe (Germany specifically) is at the forefront, while the USA dominates the waste disposal area and Japan leads air conservation.

Sectors of the environmental technology industry: relative importance and expected growth.

	Relative distribution within OECD	Expected annual growth, %
Pollution-abatement equipment and services	76	5.0
of which: water conservation	29	4.0
air	15	4.4
waste & recycling	21	6.4
miscellaneous	11	5.1
Consulting services and clean technology	24	7.4
Total	100	5.5

Source: OECD (1992), The OECD Environment Industry: Situation, Prospects and Government Policies. OECD/GD (92) 1, Tables 1 and 6.

The whole environmental sector is expected to grow by approximately 5.5 per cent a year, and to reach 300 billion dollars by the year 2000. This can be compared to the chemical product industry which should reach 500 billion dollars. Air and water conservation are the two oldest and best established markets. The sectors which are expected to grow the most quickly, however, are waste disposal, recycling techniques, environmental consulting services and clean technological developments. These areas are growing while at the same time "end-of-pipe solutions" are declining and conservation of the environment

is integrated into the entire production process. Sweden is well-placed in two sectors: Alfa Laval is one of the three leading companies in water technology, as is Fläkt for air purification.

Germany has been heavily involved from an early stage and today holds 1/3 of the European environmental technology market. This market is expected to grow at a slightly slower rate, 4 per cent. The market is growing most rapidly in Canada at 7.9 per cent, England 6.3 per cent, Japan 6.7 per cent; in the three new EU member states, Portugal, Greece and Spain (7.4 per cent - 8.3 per cent), Sweden is further down on the list with 7 per cent, with only Switzerland, Finland and Denmark placed lower.

The market for environmental technology: volume 1990 and growth

	North America	Europe	Japan	Sweden	OECD	All coun- tries
Total market, billion dollars	84	54	24	1.5	164	200
Expected annual growth %	5.4	4.9	6.7	3.7	5.5	5.5

Source: OECD (1992), *The OECD Environment Industry: Situation, Prospects and Government Policies*. OECD/GD (92)1, Table 7.

The market is quite dependent on government policies, since environmental policies create new markets. The largest and most technologically advanced companies have developed in countries with strict environmental legislation. Other compelling forces for companies to acquire environmental technology are the desire for a good reputation - not just with the public, but also with employees, customers, employers and investors. Growing understanding of both the financial and general value of environmental conservation causes companies to occasionally precede legislation in the area. Having an environmentally-friendly product is recognized as an increasingly important competitive strategy.

A total of 1.7 million people work within environmental technology companies: 800,000 in the USA; 250,000 in Germany and 200,000 in Japan. It is a highly international business area, with a high proportion of international trade. Germany exports 40 per cent of production, other net exporters in Europe are England, Sweden, France and Holland.

The environmental technology sector is strategically important, partly because it is growing and partly because it is becoming a prerequisite for growth and competition in other sectors. Apart from strict domestic legislation, research and development are important factors needed to develop competitive environmental technology companies. Today 2 billion dollars, or 2 per cent of

the governments' available research funds are invested in environmental research. Sweden is above the average with 2.5 per cent, but behind Denmark (3 per cent), Holland (3.8 per cent), and Germany (3.4 per cent).

Source: OECD (1992), *The OECD Environment Industry: Situation, Prospects and Government Policies*. OECD/GD (92)1.

Economy and ecosystems

The efficiency of an economy implies that scarce resources are used and managed to achieve maximum benefit to society. According to economic theory, there is no price of a utility until its supply becomes scarce, that is, when demand is as great or greater than the supply. It is only when this happens that the resource suddenly becomes a "visible" element of the economy.

In a market with perfect competition, prices of goods and services are decided by the relationship between supply and demand. In practice, there should be few perfect markets. When different factors restrict or distort competition, market prices do not reflect society's actual costs and benefits. Lack of information is also of significance in this respect. For the most part, markets lack the tools to handle lack of information and risks. In addition, vital resources fall outside the market when there are no well-defined property rights. There can be no market price if a "seller" does not possess full ownership and cannot defend his rights as an owner. But who owns the climate? How much does a new ozone layer cost?

It is therefore quite seldom that market prices reflect all the changes in society's welfare when goods or service are utilized. This results in external effects, that is, costs and benefits which fall outside market prices. That they fall outside the market means that the individual or company responsible for a change is not confronted with the costs and benefits of their actions, even though their actions have resulted in a change in the welfare of others. Hence, there will be a difference between private and social values. The private value is the change in welfare which consumption of goods or services offers the individual and the social value reflects the total changes in the welfare of all individuals, both present and future generations.

This difference between private and social economic values is of great importance for the environment and life support systems. These utilities rarely carry a price tag, whether on markets or indirectly through various policies. An example of an external effect is the case of a factory which discharges toxic waste, killing fish in an adjacent lake without the factory owner having to compensate fishermen for their losses.

Internalization of external effects

External effects can result in substantial costs for society. One way to reduce environmental problems from this viewpoint is to *internalize* the external effects, that is to correct for the existence of externalities so that costs and benefits are debited to the agents who incur them. *By internalizing environmental costs we mean all measures, direct as well as indirect, which influence the costs and benefits of the actors in society so that the differences between private and social value decrease.*

In practice, internalization means that the costs of environmental damage are included in the price of those goods and services which cause that damage. For example, the cost of cancer-related illnesses and harmful effects on plants and animals would be included in the price of products which cause depletion of the ozone layer. An increased internalization of environmental costs would change production into energy and resource-effective processes and products would be better suited to the basic ecological conditions. New types of investment would be generated and the prerequisites for competition would change.

An indication of the degree of internalization of environmental costs throughout the world is given in the 1993 World Watch Institute report. The institute presents information on the global state of the environment on an annual basis. A complete internalization of environmental costs would, in principle, mean that the boundaries of the long-term carrying capacity of the natural environment could not be crossed under any circumstances.

Unfortunately most signs point to an opposing trend: continued *externalization*. The global forestry acreage is decreasing. According to the World Watch Institute, destruction of tropical rain forests is continuing, desert areas are expanding, and one-third of the world's agricultural area suffers serious erosion problems. Furthermore, the number of plant and animal species is quickly being decimated (approx. 3/4 of the world's 9,000 known species of birds are at risk of either depopulation or extinction). The concentration of "greenhouse" gases in the atmosphere is increasing annually and virtually every study of the ozone layer shows that it is being depleted at an ever faster rate. Experience has proved that the market is not able to handle the internalization of environmental costs on its own. Society therefore has a vital role to play. With the right signals from society, it would be profitable for companies and other actors to develop ecocyclical, resource-effective technology that works in cooperation with the environment.

Environmental costs can be internalized directly via laws and regulation of products and production technology, via markets for emission rights, environmental charges and taxes, and by controlling resource use and waste and pollution through better defined property rights. It is more difficult to get an overview of indirect measures because of the complex nature of social

structure. Indirect measures can be created through changes in macro-economic policy, legislation, consumer behaviour or changes in social values.

In this context, the establishment of institutional frameworks, national and international, become extremely important. How the ground rules for individuals and markets are shaped plays a decisive role in the internalization of environmental costs. The formulation of these rules relates to society's view of the natural environment (see page 45). Various institutional frameworks are discussed in Chapter 3.

Valuation of changes in welfare

In order to determine the extent of external effects and thereby to internalize them, a number of methods within environmental economic theory have been developed to evaluate environmental resources and changes. The foundation for the evaluation of costs and benefits is changes in human welfare, based on human preferences and expressed as people's direct or indirect willingness to pay.³⁴

The methods and their application are obstructed because many environmental effects of human activities are not known at the time of valuation. It is also difficult to take into account the values of future generations. Environmental effects tend to first become visible many years after the original event and the dimensions are often dependent on a complicated relationship to other external effects, as well as on the resilience of the ecosystem. The amount of uncertainty creates a situation where various risks must be weighed against one another. Valuation is further hindered by the lack of real markets. Artificial markets either cannot or should perhaps not even be constructed in order to measure the willingness to pay.³⁵

A complete valuation of external costs can of course not be achieved. Nevertheless, valuation of environmental costs and benefits plays an essential role to bring environmental concerns into economic decisions, both concerning the formation of regulations and laws from society's viewpoint, and companies' and consumers' actions. An example of this is salmon farming in coastal areas, an industry which has expanded rapidly during the last ten years. Production is the type described on page 16; that is, a linear throughput type which does not relate to the resource base. It has been said that salmon production is not ecologically feasible.³⁶ The process causes a variety of environmental effects, such as eutrophication of coastal waters. Manufacturers do not pay for the cost of the external effects they cause society. Calculations show that if the cost of eutrophication were to be internalized (based on society's actual willingness to pay for technology that prevents the eutrophication) then the cost of producing salmon would exceed

the highest price the manufacturer received for salmon on the market. In this case, it is sufficient to internalize one of the many environmental effects in order to judge whether production is economically feasible or not.³⁷

As mentioned earlier in this chapter, the ecological preconditions determine the framework for economic activity. Society can reformulate this in terms of absolute environmental goals, such as a ceiling on the amount of sulphur dioxide allowed in the air.³⁸ Bearing in mind the difficulty in valuing the environment in monetary terms, an important task is to find a cost-effective way of reaching those goals within the ecological framework.³⁹

A functioning ecosystem — "the new scarcity"

Today a number of ecological services are already scarce, even though this is seldom visible in market prices. There are reasons to expect increased shortages. If the availability of clean air, drinking water and other ecological services was unrestricted, then they would not be scarce resources. There also would not be any reason to include them in economic analysis. In relation to our previous statements, we regard life support systems and ecological services as increasingly scarce resources, in addition to the fact that they represent fundamental production factors for national economies. This is illustrated in *Figure 6*.

The first picture shows a situation where a large proportion of life support systems, for example the availability of water, fresh air, tropical rain forests and wetland, are unrestricted for economic development from a global perspective. The variety of life support systems and ecological services is sizeable in relation to demand. Local limitations occur nevertheless.

In the second picture, the demand for clean air, water and other ecological services has increased and has been "pushed" to the right. This is because the earth's population and the consumption of resources have both increased substantially. The way in which this has taken place has led to damage to the natural environment⁴⁰, causing the availability of ecological support to shift towards the left.

It is difficult to survey the total consequences of many individual actions, and thereby to absolutely determine exactly when life support systems should be regarded as a scarce resource. We do know, however, that there is always true uncertainty and a lack of information when complex ecological and economic systems must be managed and that irreversible changes can develop when an ecosystem's resilience deteriorates.⁴¹ The social costs for unforeseeable changes can be enormous and have an influence far beyond the national borders.

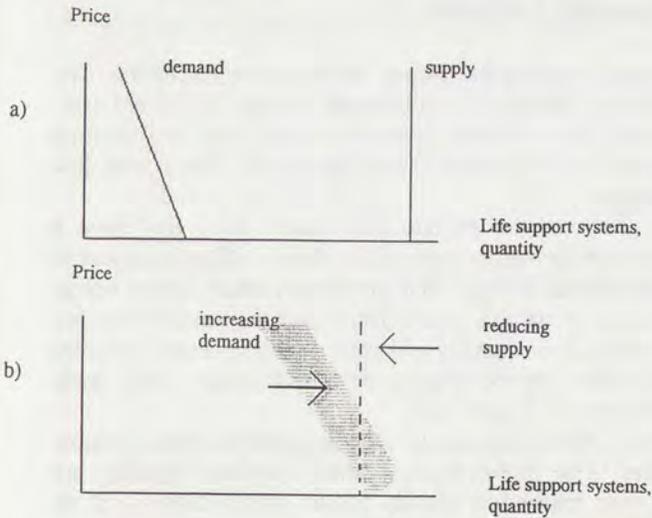


Figure 6. The ecosystem as a scarce resource. a) The supply of ecosystems and services was not previously scarce. b) An increased scale of economic activities and the population explosion have created a situation where the ecosystem's support and services should be regarded as a scarce resource.

We do not know exactly where the curves in *Figure 6b* are. But as seen from previous statements in this chapter, it is no longer rational to believe that the capacity of ecosystems to support human society is still unrestricted, that the price is still zero. The reason for the difficulty in determining exactly when resources become restricted is that environmental effects are often *delayed in terms of time and space*. They accumulate and spread geographically and it takes time before the effect on the environment becomes visible. It takes even longer before an actual environmental problem is identified and longer still before information leads to measures which send signals to society and business that there is a new scarcity.

Certain types of ecological services have become so damaged that by the time the damage is visible it is too late to start managing resources. From a global perspective, resources can be scarce because of different systems' interdependence, even though the same resources are not considered to be scarce locally and from the perspective of a certain sector (see page 23). It is necessary to try to foresee this and to avoid a situation where there is serious scarcity ("pro-active" rather than "re-active" management); the goal is to manage *all* of society's resources efficiently.

An ecological-economic synthesis

In *Figure 7* we present a conceptual picture of the above discussion. The illustration shows the simplified relations between natural capital and man-made capital, seen from three different viewpoints. In all three cases natural capital has decreased and man-made capital increased. The dotted line indicates today's situation.

The first picture illustrates the attitude that society must first have a functioning economy with growth in order to be able to afford to invest in the environment. This attitude is based on a world view where human beings believe that they are above nature, where nature and the environment are regarded as separate from the economy and where environmental problems are solved as they arise by developing new technology. Free trade encourages economic growth. (*Figure 7a*).

In the second picture, human beings are seen as parasites whose society has destroyed nature. The limits of the earth's carrying capacity are considered to have been reached or already passed, and a decrease in all human activities is regarded as essential in order to avoid ecological collapse. A move towards free trade is thought to increase environmental destruction (*Figure 7b*).

Both these viewpoints segregate society and the environment and do not examine the whole picture of the relationship between ecology and economy. Such segregation does not lead to constructive solutions for the future and cannot guide society towards an ecologically sustainable economic development. This report strives for an integrated systems view of the relationship between nature and human society, between ecology and economy. This is presented in *Figure 7c*.

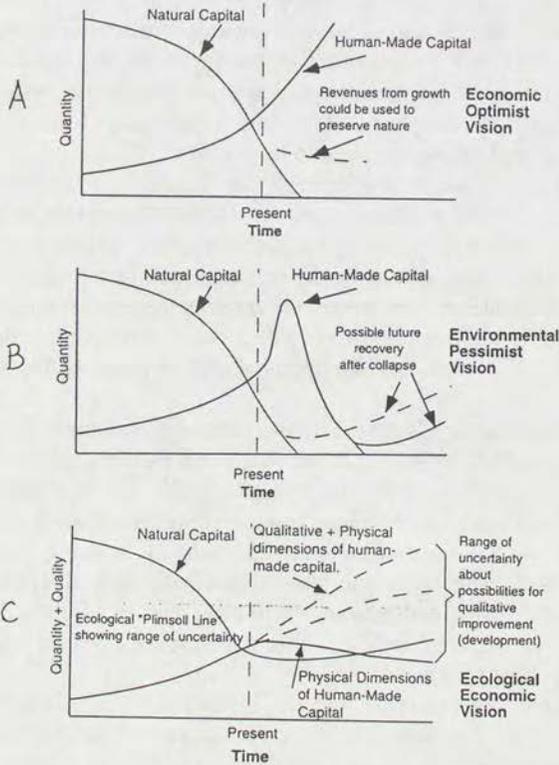


Figure 7. Three different perspectives of the socio-economy's relationship to nature. A) Growth and technical optimism. B) Environmental pessimism. C) The ecological-economic perspective.

Source: Folke, C.; Hammer, M.; Costanza, R.; Jansson, A-M. (1994) Investing in Natural Capital: Why, What and How? In: Jansson, A-M; Hammer, M; Folke, C.; Costanza, R. (eds.), Investing in Natural Capital: The Ecological Economics Approach to Sustainability. ISEE/Island Press, Washington.

The socio-economy represents a part of the overall ecological system. Life support systems determine the ultimate limits for society's expansion. The closer we get to those limits the less room there is for economic development. The limits are not fixed, rather they are constantly changing largely due to human behaviour towards the resource base. An important challenge is the task of turning societal development from a continued rapid expansion of material consumption towards a development which is resource-efficient and is connected to the functions and processes of the ecosystems. The ecosystems and ecological services that they provide must be appreciated as the basic founding production factors which, as increasingly scarce resources, need to be managed efficiently.

Growth and technical development by themselves cannot guarantee solutions. It is *how economic growth* (as a measurement of societal development) *occurs* and *how technology develops* which determine if an ecologically sustainable economic development will take place. Free trade in itself is no guarantee of an improved environment. Whether a liberalised trade will have a positive or negative effect on the environment depends to a great extent on the economic development and structure within which trade takes place.

This interplay can be illustrated by the following metaphor. If a large boat is awkwardly loaded, its ballast is uneven, and it cannot effectively transport its cargo of goods without the risk of sinking. We set up a market, a price system, where the price of loading the boat is higher or lower depending on how near or far to the waterline the boat is when it is being loaded. In this way, the market ensures that the boat is efficiently loaded. However, if we go on loading the boat with goods, it will sink. This is why the Plimsoll line (see *Figure 7c*) exists; it indicates that goods loaded over a specific mark will cause the boat to sink.⁴²

The metaphor demonstrates that the market plays an important role in improving the management of natural resources and the environment and that the internalization of environmental values and costs is essential since it will encourage markets to work more efficiently than previously, from a social perspective. But if the scale of activity constantly rises, then internalization is no guarantee of long-term sustainable development since in practice it cannot be complete, partly due to true uncertainty, market and policy distortions, and a lack of information. The importance of clear and basic rules and long-term signals from society increases the faster human society approaches the ecological limits.

That is why this publication constantly emphasizes that it is the ecological limits that provide the framework and the preconditions for society and human welfare, and that society should strive to manage all resources in the most efficient way possible within this framework. Inefficient use of resources increases the risk of "a sinking ship", the ecological limits come

closer and freedom of choice and action continues to shrink. It is an important challenge to interpret and manage the signals that we are getting from the ecosystems.

Trade from a natural resource and environmental perspective

Trade strengthens economic development

Trade originates in markets, which in turn coordinate production and consumption of goods and services. Trade is therefore connected to the environmental effect which can occur when goods and services are produced and consumed. Trade between two countries influences both the prices of goods and resources as income, production and consumption patterns, etc. in both countries. Since trade affects national economies and national economies affect the ecosystem, trade can be said to indirectly influence the environment. How that influence appears — if it is positive or negative — is difficult to determine ahead of time due to the complexity of the socio-economic system and its relationship to the ecosystem.

If the institutional structure in a country ignores the fact that goods are produced in a way that deteriorates life support systems, then trade with these goods will strengthen this trend. That is to say that it will increase the environmental effects which occur when goods are produced and consumed. If institutions, on the other hand, create ground rules which point production and consumption towards a sustainable development, then trade can add to this process.

.../None of the/ aspects of sustainable development is intrinsically linked to international trade. A failure to place a value on environmental resources would undermine sustainable development even in a completely closed economy. Trade is seen, rather, as a "magnifier". If the policies necessary for sustainable development are in place, trade promotes development that is sustainable.

Trade and Environment, Chapter 3 in International Trade, 1990-91, GATT 1992, page 25.

We are highly dependent on imported goods in order to maintain the material prosperity existing in a country like Sweden today. If production of imports destroys the environment then our demand adds to the degradation occurring in other countries, even if it is unintended. Cotton raised for export accounts for 25 per cent of international consumption of insecticides; an

instance where Swedish consumers indirectly contribute to an environmental problem through their purchase of cotton clothing.⁴³ The decisions of individual consumers seldom have the ability to influence production, but the collective impact of consumer demand does.

The illustration (below) symbolizes a simple life cycle for one product, commonly referred to as "from the cradle to the grave". No single link in the life-cycle chain can be skipped; each link is necessary for production, trade, transportation and consumption to take place. Trade is an integrated part of the chain and therefore cannot be removed and regarded as a separate entity in a discussion of the different steps involved in environmental influence.

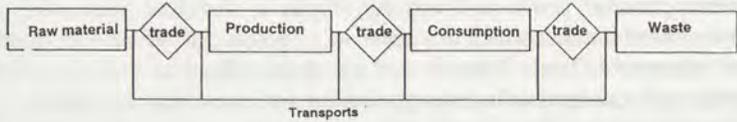


Figure 8. The role of trade in relation to the life-cycle of a product.

Trade internationalizes the environmental problem

Environmental problems can be divided into such categories as what happens during production or what happens when goods are consumed or become waste. It is not easy to make this type of division in reality. At the intermediary stage, effects on the ecosystem from, for example, the petrochemical industry can be regarded as environmental effects from either oil consumption or plastic production. Both consumption and production effects can be local or spread across borders. Using this schematic division, situations can be differentiated where the presence of trade contributes to the development of an international environmental problem. See Figure 9.

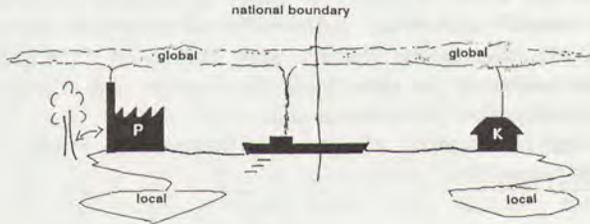


Figure 9. Simplified picture of production (P), consumption (C), local and transboundary environmental problems and how trade contributes to the internationalization of environmental problems.

Environmental problems become international, partly when pollution and changes in the ecosystem cross national boundaries, partly when the *cause* of the environmental effects — a product or a producer — crosses national boundaries. The connection between trade and people's effect on life support systems can be organized in the following manner:

- * Trade creates dependency on ecosystems in other countries.
- * Trade has a direct effect on the environment, via transportation.
- * Many imported and exported goods cause environmental effects during the consumption of the goods. Waste is a special case.
- * With regard to goods which cause environmental effects during production, environmental regulations and taxes should be introduced in order to affect production costs and competitiveness. If environmental demands become too extreme, there is a risk that production will cease in one country and simply move to another country with less stringent laws (see pages 60 & 68). Trade can therefore lead to production moving out of the country or, put in another way, cause politicians to hinder environmental legislation. This is the case for both local and global environmental effects but especially global effects, since the environmental cost of having little or no protective legislation is spread all over the world.

The first two points are discussed in this chapter. The other points are discussed in Chapter 2, where we will also examine the general question of how trade affects the environment and if and how trade barriers can be used to reach environmental objectives.

Trade dissolves local boundaries

Sustainable development requires society to remain within ecological boundaries. These boundaries exist on different temporal and spatial levels, from global (e.g., the greenhouse effect) to local (e.g., fish production in lakes).

Trade between different countries offers an opportunity for people to free themselves from local limitations by importing resources (raw or processed materials) and ecological services from other countries. Access is thereby gained to information, capital, resources or products not available in the home country.

Even though trade dissolves local boundaries, it cannot do away with ecological boundaries. These limits can be moved but not eradicated and at the same time they are shared by many people. Continued unsustainable production and consumption patterns threaten nature's capacity to sustain national economies and bring us closer to the total ecological boundaries, the risk being that our collective human society will hit a ceiling simultaneously.⁴⁴

Hence, the majority of the world's economic communities are dependent not only on imports from other countries but also on the support of the ecosystem which produces those import goods. Trade means that people in one country are indirectly dependent on their access to resources and ecosystem functions outside their own country. Trade moves ecological boundaries outside national boundaries, and large ecosystem areas, or shadow areas, are required to produce the imported goods and services.

Shadow areas

Estimating the scale of ecological support, or shadow area⁴⁵, a city needs is one way to illustrate the importance of functioning ecosystems. The shadow area is the area needed to produce the goods and services which are consumed, for example, in a city. The city's "footprint" is not just the actual area but also includes the natural life support area, see *Figure 10*. The footprint needed to support the residents of a typical city in the industrial world, of 300 people per square kilometre, basically with products from modern agriculture have in one study been estimated to an area approximately 20 times larger than the area of the region itself.⁴⁶ The shadow area for modern agriculture in the form of raw materials, imported animal fodder, etc is not included in this estimate. The same reasoning is true for the production of individual goods. Farmed salmon needs, for example, a life support area from the environment which is approximately 50,000 times larger than the area of the netpens in which salmon are farmed. The shadow areas are often outside the country in question.⁴⁷

Japan and many other nations with a concentrated population and intensive industrial activity would not be able to maintain their level of production and material standard of living through their own natural resources and indigenous ecosystems.⁴⁸ They are dependent upon shadow areas which exist far beyond their national borders.

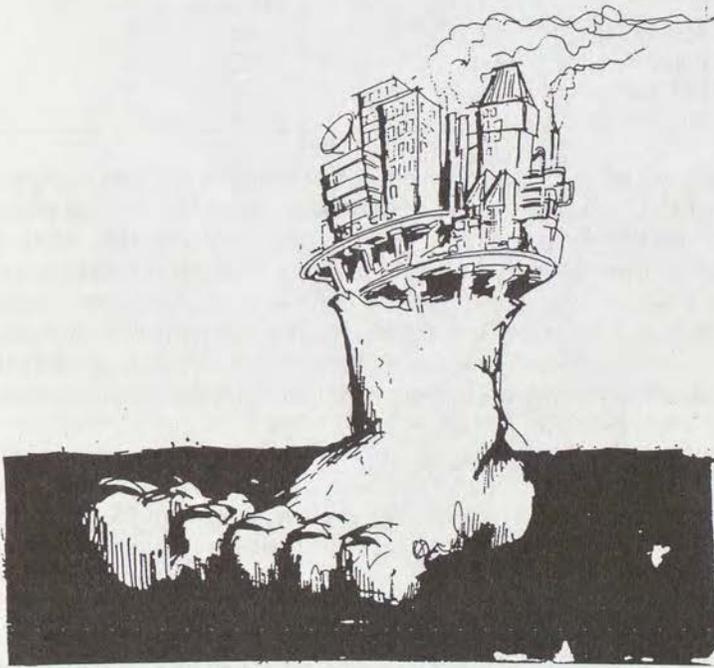


Figure 10. The city's "footprint".

Source: Rees, W.E. and Wackernagel, M. (1994). Ecological Footprints and Appropriated Carrying Capacity. Measuring the Natural Capital Requirements of the Human Economy (Ref. 93).

A concrete example of this type of relationship from Sweden's trade with fish and fish products is as follows: Sweden is a net importer of fish products in monetary terms and it is therefore asserted that Sweden should decrease its import and concentrate more on building up its domestic fishing industry.⁴⁹ Ecological and economic relationships between Swedish import and export of fish products are summarized in the following table.

Relationship between Swedish imports and exports of fish products in 1986⁵⁰

	Import/export
Money (SEK)	2.5
Purchased goods (ton)	2.8
Fish biomass caught(ton)	9.1
Shadow area (km ²)	8.3

This table shows that Sweden imports 2.5 times more fish than it exports, measured in monetary terms. But the results also show that Sweden utilizes more of the life support system (shadow area) per Swedish crown of imported products than per crown of exported products. In other words, Sweden indirectly buys support which is provided by the ecosystem in other countries at a considerably lower price than we sell equivalent ecological work to other countries. This balance of trade is advantageous for Sweden and illustrates a relationship between developed and developing countries which is not uncommon.

The majority of developing countries are net exporters of food, raw material, minerals and fuel to developed countries; raw materials often dominate their total export figures. For example, more than 98 per cent of the value of Bolivia's, Ethiopia's, Ghana's and Nigeria's exports consists of raw materials, as compared with 24 per cent for the USA and a bare 2 per cent for Japan.⁵¹

In certain cases, excessive exploitation of natural resources has transformed countries from net exporters to net importers of raw materials. Such is the case for Thailand, Nigeria and the Philippines regarding timber products. The Gold Coast and Ghana will soon be in the same position.⁵² Ecological analysis of New Zealand's export of natural resources and of Ecuador's export of intensively cultivated prawns suggests that the countries importing these resources assimilate substantially more of the ecosystem's work than they actually pay for. Export leads to an impoverishment of the export countries' ecological resource base and affects their ability to attain long-term economic stability.⁵³ The increasing scarcity is not reflected in the export prices.

Ecological services with a high value to society have fallen outside the market prices and outside the institutions which regulate production, consumption and trade. The monetary flow is mainly related to labour and capital produced by human activity, and partly to natural resources and ecosystems with well-defined property rights. But they seldom cover the ecosystem support which is needed in order for trade with goods and services to be possible (illustrated in *Figure 11*).

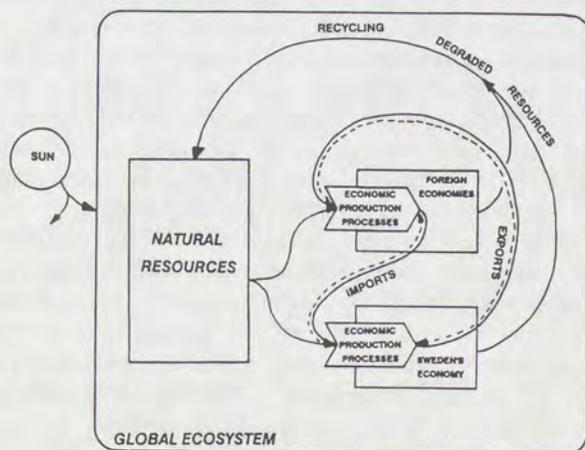


Figure 11. Conceptual picture of the economy, trade and the environment. The significance of the environmental resource base for a national economy's welfare falls outside the economic arena.

Source: Hammer, M. (1991), Marine Ecosystems Support to Fisheries and Fish Trade. In: Folke, C. and Kåberger, T. (eds.) Linking the Natural Environment and the Economy: Essays from the Eco-Eco Group, Kluwer Academic Publishers, Dordrecht.

Specialization leads to vulnerability

The resilience of the ecosystem can be compared with society's flexibility and ability to adapt to changes.⁵⁴ As discussed in Chapter 2, as trade becomes more sophisticated, production becomes more specialized. Specialization results in increased vulnerability and a greater dependence on conditions in other areas, with less opportunity to influence the situation as a result. Widespread specialization can also make it difficult and costly to adapt as surroundings change.

Specialization has often led to throughput-based production systems (see page 16). Modern monocultures are an example of a type of specialization which is made possible by substantial contributions of auxiliary inputs to

sustain production, for example, artificial fertilizer, pesticides, a high degree of mechanization, etc. Many of these inputs are imported and large shadow areas outside the monoculture are needed to maintain the system and avoid disturbances. But vulnerability to external disturbances increases. There are many similarities between monoculture and a stressed ecosystem. Both have an imperfect ability to retain energy, nutrients and organic material in addition to being sensitive to attacks by parasites. Recycling occurs on a very restricted scale. Food webs are short, the structures are simple, the diversity and the system's efficiency is low.⁵⁵ Stressed systems function less efficiently than systems which contain diversity and variation.

It is very difficult to say with certainty whether the environment is capable of recovering after a serious disturbance. People will always need to live with uncertainty regarding how we can handle complex and interrelated ecological and economic systems. Society should seek to avoid production and consumption patterns which obviously lead to degradation of resources, risking irreversible changes. The phrase "sustainable development" means that the potential for ecological systems to support present and future generations should not be tampered with.

Vulnerability can be reduced if society endeavors to complete the ecocycle and actively manage the environmental feedbacks within both production and consumption. Recycling of resources and nutrients, ideally in tune with the ecosystem's processes, creates diversification and resilience while reducing vulnerability.

Trade, transportation and the environment

Without transportation, trade cannot take place and since transportation adds to environmental problems then trade has a direct influence on the environment in this instance. It has been estimated that international truck transportation within the EU will increase by 30-50 per cent as a result of the development of common markets and deregulation within the transportation sector. Truck traffic over geographical boundaries in North America is expected to increase seven-fold during the next decade as a result of the North American Free Trade Agreement (NAFTA).⁵⁶

One of the major problems of today's transportation is that the means of transportation are largely driven by fossil fuel, resulting in air and water pollution. Air and sea transportation of people and goods account for one eighth of the world's oil consumption⁵⁷ and are responsible for an already large and increasing proportion of carbon dioxide, nitrogen oxides, sulphur dioxide and hydrocarbon. Direct oil discharge when transporting oil must be added to this.

Transportation represents a *diffuse* emission source which in several respects is more difficult to regulate than point emissions from stationary

emission sources, such as individual industries. In practice, it is very difficult to tax aircraft fuel and bunker oil for ships. Such measures must be coordinated by many countries since it is otherwise easy to fill fuel tanks in countries without a fuel tax. This has resulted in plane and ship fuel being relatively untaxed in most countries, while taxation of, for example, gasoline for cars and oil for central heating of private homes often amounts to several hundred per cent of the actual market price.

If the total costs of all the environmental effects of fossil fuel use were reflected in the price of oil, it would be markedly higher and transportation would be distinctly more expensive. Then not only trade but also production and consumption patterns would be quite different. It would be increasingly profitable to bring the material ecocycle full course, above all on a local level, and the need for transportation dependent on fossil fuel would decrease too.⁵⁸ The motivation to develop efficient and environmentally-friendly modes of transportation, for example cleaner boats and trains, would also increase. Today, however, transportation costs are so low that extreme price changes would be needed for such a change to take place (see *Fact Sheet 2* for the environmental effects of transportation).

Other environmental effects of transportation are, for example, noise, changes in the landscape due to changed land usage and the "barrier effect" of roads and railways. Transportation affects the environment via the use of fossil fuel, minerals and other resources when trucks, boats, railroads, airports, gas stations, etc are manufactured or established. The way the transportation system is set up has strategic importance for society's advancement. Planning of housing, the workplace and service within communities and regions in addition to a company's production planning are all influenced by the type of transportation available. Society's choice of transportation has far-reaching effects for the entire community.

Direct and indirect driving forces

Whether trade and the environment are in conflict or cooperate with each other is determined by the institutional structures within and between countries and the various driving forces which cause environmental destruction — economic, social, political, cultural — that exist within these structures. Direct driving forces can be: changes in land usage, resource exploitation, discharge of harmful elements, urbanization, industrialization, the building of the infrastructure, etc. Indirect driving forces are less obvious and often are connected to society's institutional structures and the behaviour which these structures promote. Some examples of indirect driving forces are the structures of property rights, taxes, legislation, macro-economic policies and the attitudes of culture and religion.

In Sweden, subsidization of road construction in forests (close to the ecologically sensitive northern mountain areas or *ffell*) has been a decisive indirect driving force for the timber exploitation of these ecosystems. Until a few years ago, land property rights in Madagascar were not well defined. There was therefore little motivation to conserve land, which led to serious soil erosion.

Diamonds and meat are two vital export products for Botswana. Meat production has increased substantially during the most recent decades. It is based on raising of cattle on pastureland which has, in turn, caused excessive grazing and had a distinct influence on plant and animal life in the nearby savanna. Cattle breeding is subsidized in many different ways by the Botswana government and promoted by the EU which indirectly guarantees the importation of a certain quantity of meat annually. A total of 45 per cent of export proceeds to the EU (1982) went to commercial cattle breeders, who amount to a bare 0.6 per cent of total cattle breeders. Small local breeders — 94 per cent of cattle breeders — received only 33 per cent of the EU proceeds during the same year.⁵⁹ Analysis shows that a drop of just a few per cent in world market diamond prices has a definite effect on Botswana's diamond exports and economy makes it more profitable to expand cattle breeding activities. This will lead to even more excessive grazing and the spreading of the desert.⁶⁰

Clear cutting of forest in the Amazonas has been speeded up by other indirect driving forces. In Brazil, taxes on agricultural income, rules for land allocation, land taxes, regional and sector taxes and the possibility of obtaining loans have only added to the problem.⁶¹ Tax regulations were changed in the late 1980's, but many people who do not own land continue to move to the Amazon area because of the lack of implementation of land reform regulations.

As a result of complex socio-economic relationships, the effects of trade on the resource base are difficult to predict. It is therefore difficult to argue that increased trade barriers or liberalized trade will automatically lead to a sustainable utilization of life support systems. It is better to work with the existing institutions that provide the framework for national economies, so that production and consumption of goods and services are realigned in a sustainable direction.

If environmental effects are not heeded and trade is opened up, then the prospects for export incomes and short-term economic profit increase the temptation to implement unsustainable production. Powerful interests in such situations take advantage of the lack of environmental policy. When this occurs, property rights structures and production systems which have functioned for thousands of years are often completely destroyed.

This type of event occurs today in many coastal areas where mangrove forests are cut down to accommodate intensive shrimp farming, an activity where the product is designated for export. The lost worth of the mangrove forests as a life support system for, among other things, fuel and fish production for a large proportion of the local population is not included in the market price of the giant shrimp. In such cases, trade raises the need for the internalizing of these external costs. At the same time, those who profit by such trade activities are highly motivated to fight the internalization process.⁶²

Ethics and technology in an internationalized world

Our world view, values, knowledge and institutions influence to a great extent the way in which society relates to nature and the environment. If people believe they rule over and are separated from nature then a "conquering" technology will develop which strives to create a society that is not dependent on nature. If people regard themselves as a part of nature and recognize their dependence on its support then a more collaborative type of technology, known as ecotechnology, will develop.

Technology is not just a tool which can be used for positive or negative purposes — it is a reflection of the world view, values, knowledge and institutions in the society where it is formed. This is known as cultural capital.⁶³ A simplified illustration of a systems view of the relationship between nature, technical advancement and culture can be seen in *Figure 12*.

If technology camouflages society's dependence on life support systems and continues to procrastinate over environmental problems, then people will be lulled into believing that we are "above" nature and can manage without it. This will lead to institutions basing their policy on this way of thinking, which in turn influences teaching, research, information, problem solving, aid to developing countries, decision making, etc.

If a country continues to damage its ecosystems this means that human beings rely on a technology which seems to make it possible to exchange those goods and services generated by the domestic ecosystems for the imported goods and services from other countries. But the scale of human activity continues to grow and environmental damage does not only occur in indigenous ecosystems. From the perspective of sustainability, such an exchange is therefore merely an illusion.⁶⁴

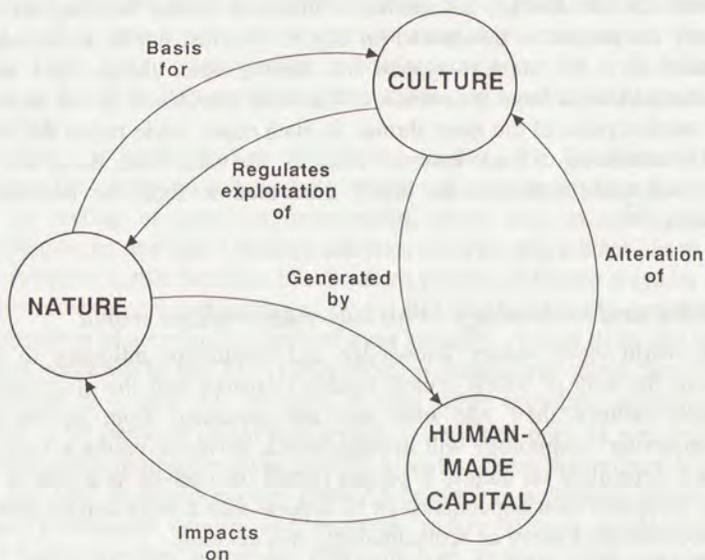


Figure 12. Life support systems are a prerequisite, a necessary but insufficient condition for culture and welfare. Tools and techniques are created by an interplay between nature and culture. Technical development influences nature, and also the cultural view of nature in a sustainable or non-sustainable direction.

Source: Berkes, F. and C. Folke (1994), Investing in cultural capital for a sustainable use of natural capital. In: Jansson, A.-M., Hammer, M., Folke, C., Costanza, R. and M. (eds.), Investing in Natural Capital: The Ecological Economic Approach to Sustainability. ISEE/Island Press, Washington.

People are becoming more and more dependent on and are wielding greater influence — even if it is unconscious — over situations which occur in other countries. This trend is strengthened by increasing trade and environmental effects which are spreading over a larger and larger geographical area. The scope of the individual's influence includes a larger responsibility, especially in our roles as consumers. There is also a need for new norms and ethics of people's actions.

The internationalization of the world economy can nevertheless result in people having greater difficulty in taking responsibility for their behaviour. The individual's own actions can be regarded as a drop in the ocean. One of the challenges of creating sustainable development lies in turning human interest away from the level of the individual and getting them to recognize that it is in their self-interest to contribute to the maintenance of functional life-supporting ecosystems. An increased recognition of our dependence on resources produced by ecosystems in other countries would add to the motivation to contribute to the conservation of those ecosystems. For this to occur, more information and an inner desire to connect remote occurrences with our own actions are required.

At the same time, experience suggests that ethical rules for sustainable behaviour develop when people are directly confronted with the consequences of their actions.⁶⁵ Society can partially speed up this process by introducing different forms of policy. One example would be prohibiting the export of hazardous waste to other areas and countries. By removing the possibility to ship away all the unpleasant consequences of consumption, people would be forced to tackle their problems themselves or prevent them from occurring in the first place.

History shows that many societies which are dependent on a nearby ecosystem have developed sophisticated ecological knowledge with social and ethic rules for how the local resource base can be utilized in a sustainable manner. This knowledge and these relationships to life support systems have developed as a necessity. These societies have learned how to handle *feedbacks from the ecosystem* in order to survive. The global move towards sustainable development can be seen as an international effort to handle feedbacks from the global ecosystem.⁶⁶

Many local societies have knowledge of how to use resources in a sustainable fashion. The shift from local support to globalization can include negative external effects in the form of loss of such knowledge and of the institutions and rights which preserve knowledge of a sustainable utilization of the ecosystems.⁶⁷

As traditional peoples are integrated into the global economy, they lose their attachment to their own restricted resource catchments. This could lead to a loss of motivation to observe social restraints towards the sustainable use of a diversity of local resources, along with the pertinent indigenous knowledge that goes with it.

Fikret Berkes, Carl Folke och Madhav Gadgil, (1993), Traditional Ecological Knowledge, Biodiversity, Resilience and Sustainability. Beijer Discussion Paper no. 31. The Beijer International Institute of Ecological Economics, Stockholm.

Fact Sheet 2. Environmental effects of transportation

In a study at Uppsala University, air pollution emission and transport routes for single products have been examined. The products are: 1) Shirts produced in India, transported via ship from Bombay to Gothenburg via Hamburg and truck to Stockholm. 2) Tomatoes flown from the Canary Islands to Stockholm or Rotterdam and then trucked. 3) French bread trucked from Malmö in the south of Sweden to Jokkmokk in the north of Sweden. 4) Yoghurt trucked from Le Mans, France, to Stockholm.

Emissions of carbon dioxide, sulphur dioxide and nitrogen oxide per transported product.

Product	carbon dioxide	sulphur dioxide	nitrogen oxide
1 shirt	222 g	2.9 g	6.4 g
1 kg tomatoes*	1.7 kg	-	5.0 g
1 kg tomatoes**	1.4 g	0.15 g	5.5 g
1 kg bread	144 g	0.23 g	2.7 g
1 kg yogurt	121 g	0.20 g	2.3 g

* Direct air transportation. ** Combination of air and truck.

Discharge of sulphur dioxide is especially high for the shirts even though they do not weigh much. This is because the ship fuel is of poor quality and not purified, although it is not difficult to achieve this technically. Boat transport is responsible for 10 per cent of the world's sulphur pollution today. Carbon dioxide emission from air transportation is especially high, because fuel consumption per unit of weight is greater than for other forms of transportation. 1.5 kilograms of carbon dioxide per kilogram can be compared with the annual global carbon dioxide discharge from fossil fuel, 22 billion tons or just over 4,000 kilograms per person per year.

How would charges for air polluting discharge influence the flow of trade? Environmental charges for individual goods were determined as part of this study and it was assumed that diesel fuel would receive an extra tax of 3.30 Swedish crowns, respectively 10 SEK per litre.

Environmental charges in relation to the price of products.

Product	Environmental charges (hundredths of a crown)	Charges proportionate to product price	Charges proportionate to the cost of transport	The cost of transport proportionate to product price
1 shirt	40 (98)	< 1%	30 (80) %	< 1 %
1kg tomatoes*	88 (260)	4 (10) %	15 (45) %	25 %
1kg tomatoes**	77 (230)	3 (9) %	13 (39) %	25 %
1 kg bread	18 (55)	0.5 (1.5) %	7 (24) %	7 %
1 kg yoghurt	17 (52)	0.6 (1.7) %	no info	no info

The figures within parentheses refer to higher environmental charges.

* Direct air transportation. ** Combination of air and truck.

The price of goods is marginally influenced, which implies that trade would be affected very slightly by environmental charges on transportation. This is partly due to transportation costs being very low today, so low that they add an insignificant amount to the total price of the goods. Transportation costs themselves would be drastically affected, which would stimulate transporters to search for environmentally-friendly solutions. However, it is difficult in practice to introduce environmental charges for international transport — if one country has high charges on boat or aircraft fuel, companies will simply fill their tanks where the prices are lower. The need for international cooperation in this particular field is therefore enormous.

Source: Nycander, G. (1992), *The Environmental Effects of Long Distance Trade*, paper written for the Department of Economic History, Uppsala University.

Chapter 2

Economic Analysis of Trade and the Environment

Interest in the linkage between trade and the environment has grown rapidly during recent years, although there is still little literature available on the subject. As the character of environmental values has been discussed in the previous chapter, a short summary of the economic view of trade will be presented here. Thereafter the chapter focuses on the connection between trade and the environment. The environment's international aspects are presented and possible ways of handling problems through harmonization and international cooperation are discussed. The chapter further examines arguments surrounding trade barriers as an instrument for handling environmental problems, localizing activities which damage the environment, and political factors.

Theories of trade

Traditional theories explain international trade of goods as countries having different conditions, or comparative advantages, for different types of production. According to Heckscher-Ohlin, a country's comparative advantages are determined by the availability of production factors relative to other countries and the input that is required within different industries.⁶⁸ A country rich in labour power but with little capital has comparative advantages in work-intensive production. That country will most likely export goods such as clothing, and import capital-intensive items, such as machinery. An alternative explanation of comparative advantages, developed by Ricardo-Viner, proceeds from differences between countries regarding technology. Simply put, five types of resources can be identified: natural resources, real capital, labour power, capital in the form of labour power-knowledge (human capital) and the ability to produce new knowledge through research and development (R&D), see *Figure 13*. The environment should be regarded as an additional resource, which will be discussed further at a later stage.

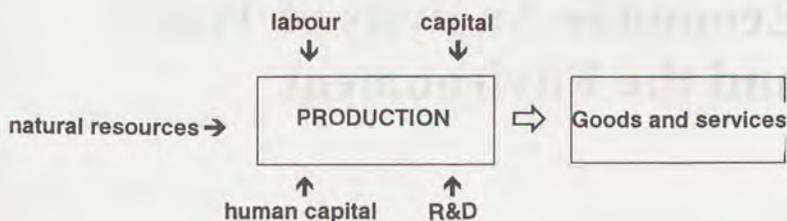


Figure 13. The five factors of production which are usually considered

By facilitating specialization of production in different countries, trade was shown to lead to the highest possible welfare overall. The traditional models are, however, based on a variety of special assumptions which are seldom or never fulfilled in reality. For example, it was assumed that all costs and revenues are taken care of by the market, that perfect competition exists among all players — neither single countries nor companies are able to influence prices — and that there are no economies of scale in production.

With time, it has become obvious that trade theory in its traditional form is not sufficient. It has since been complemented or replaced on a number of points by newer theories, although the specialization of production in accordance with comparative advantages remains an important component of trade theory. The bulk of international trade occurs today within the same industries, which results in countries buying and selling similar products. The countries which trade the most with each other are also very alike with regard to access to resources such as technology, which means that the exchange cannot simply be explained by differences between countries.⁶⁹

In addition, a significant proportion of international trade occurs within multinational companies. These control foreign subsidiary companies through direct investments, by which it is assumed that they have sufficiently large blocks of shares to establish substantial and long-term influence. Direct investments are not possible if complete competition prevails on all markets, but presuppose access or abilities specific to the individual company.⁷⁰ Multinational companies convey competence within, for example, production and distribution, and the completely dominant technology flow between countries occurs today within their organizations.

According to recent theories, trade patterns are mainly decided by imperfect competition, asymmetric information, economies of scale, and variation in the design of products.⁷¹ When attention is given to such

factors, it appears that trade can be harmful under certain conditions. On the other hand, the potential advantages of trade are larger than those that emerged according to traditional trade theory. This is because trade makes it possible for companies to gain more from economies of scale, increased competition makes it difficult to charge high prices, and customers can be offered a more varied selection of goods and services. The environmental consequences, however, are less clear, which will be discussed below.

Fact Sheet 3. The foundations of trade theory

Basic trade theory still constitutes the point of departure for most economic analysis of trade, and above all guides trade policies as well as other areas of decision-making. Trade theory explains why trade exists and leads to increased material welfare for all trading partners. This is the key argument for liberalized trade. Since increased trade leads to increased prosperity, it should be restricted as little as possible.

Assume that a Swedish worker can produce two spades or five pairs of shoes per hour and a Spanish worker can produce one spade or ten pairs of shoes. Both profit in this situation by specializing in the activity at which they are best and then trading products with each other. The Swede specializes in spades and the Spaniard in shoes, the type of production in which they each have an absolute advantage. This example illustrates a fundamental principal within economic theory — specialization results in higher total production.

What is unique about trade theory is that it shows that countries which do not have absolute advantages in some type of production will also profit from trade. If a Swedish worker can make both shoes and spades cheaper than the Spaniard can, why should he buy shoes from the Spaniard? The answer is tied to the concept of *comparative advantages*, coined by the English economist Ricardo in the early 1800's. Perhaps the Swede produces both shoes and spades more efficiently than the Spaniard, but presume that the difference in efficiency is greater for the spades. Sweden then has comparative advantages in spades and Spain has comparative advantages in shoe production. The utilization of the comparative advantages leads to increased specialization and greater total production.

This simple model with just two goods and two countries can be generalized and used for many goods and countries without a change in the final result: each country is assumed to have comparative advantages in some type of production, which will result in all countries profiting when they begin to trade.

Ricardo assumed that comparative advantages were caused by the different countries using different production techniques. According to the Heckscher-Ohlin model, which is still the fundamental trade theory, it is instead the interplay between different types of factors of production — labour, capital and

natural resources in the fullest sense of the word — which determine comparative advantages. Countries with an abundance of labour are presumed to specialize in labour-intensive production, for example, textiles, while countries which possess more land in relation to the work force have comparative advantages in land-intensive production, for example breeding cattle for food production. Naturally, the international division of labor is not complete since, for example, transportation costs and cultural differences are disregarded in this theory.

These theories of trade are built upon certain assumptions which are seldom or never fulfilled in reality, such as perfect competition, that goods and productions resources are correctly priced and that factors of production cannot move between countries.

Trade policy

Trade and its effects on welfare are not only determined by the market but are also influenced by institutional relationships and political interference. This can occur consciously, for example when the framework and regulations for functioning trade are constructed, or as a result of unforeseen side effects. Policy measures can compensate for different types of market failures but can also cause the market to function at a much lower level of success. Even though the promoters of political interference have received support from the new "strategic trade theory", the economic view of trade still continues to be stamped by the insight that clear and open ground rules are in the long run best for all parties.⁷²

Trade policy measures can usually be divided into customs duties and non-tariff trade barriers, of which the latter can cover a highly varied collection of measures. Besides quotas and other import regulations, non-tariff barriers consist of product norms, subsidies and other measures which do not work directly as border barriers, but do restrict sales for foreign companies. While customs duties have been steadily reduced since World War II due to repeated negotiations under GATT (see page 87), the non-tariff trade barriers have changed character. In particular, "voluntary export restrictions" and anti-dumping measures have appeared as new instruments which can be used effectively against exports from specific countries and companies.

In the next chapter, we will discuss trade policy systems and their connection to environmental questions in greater depth. It can, however, be noted that multilateral negotiations have ended up in a troublesome move backwards, at the same time that an ever greater portion of international trade is liberalized on a local level, most significantly within the EU and NAFTA. The USA has systematically worked for bilateral trade agreements and, among other things, has forced countries in East Asia to agree to

"voluntary export restrictions". The EU also follows this line, with the result that it has become all the more pressing for small countries to have cooperative partners in international negotiations. There is widespread anxiety today regarding the growth of "trade blocks" — liberalized from within but which set up barriers against each other. Other observers feel that regional reduction of trade barriers leads to more open trade all over the world.

Transformed trade patterns

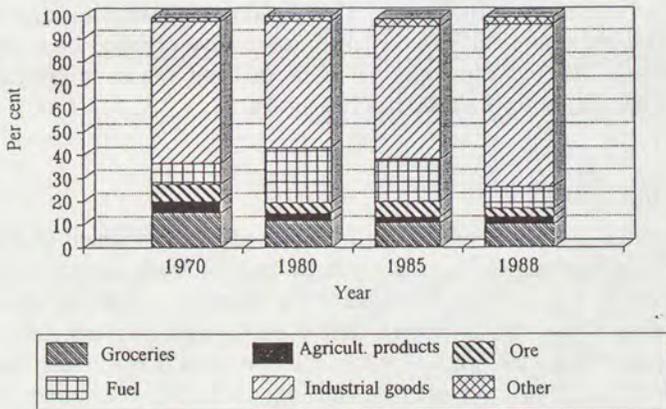


Figure 14. Composition of world trade, the world as an entirety.

Source: UNCTAD, 1987 and 1990, Handbook of International Trade and Development Statistics, New York.

According to Figure 14, which shows the composition of trade in goods for different products, industrial products have regained and even overtaken the dominant position which they enjoyed before the oil crisis. At the same time, industry has moved towards production of highly-processed goods with a substantial technological content, and services are on the way to being a central component of nearly all types of production.⁷³ That the value of trade in services has risen far above trade in goods is, however, misleading

since the financial flow moves back and forth within seconds without any visible transfer of resources taking place.

Thus ability to handle human knowledge and modern technology provides the base for an increasing proportion of the world's material production and trade, while natural resources and inexpensive labour power account for a smaller and smaller proportion when analyzed in economic terms.

Parallel to this course of events, the third world has obtained a marginal role in the global economy — in spite of the fact that the majority of the world's population and natural resources are located there. The most obvious exception is the newly industrialized countries in East Asia, the success of which has substantially increased competition within industry and service production. The traditionally dominating economic powers of North America and Western Europe have consequently lost their grip on the most expanding segments of world trade, and are seeking new ways to respond. The earlier planned economies of Eastern Europe have dropped back even more drastically, but there is hope that some of them can soon enter the group of successful, newly industrialized countries.

Other forms of trade

Trade does not only consist of a flow of goods and services which changes owners on the international market. A large part of trade occurs within countries and is regulated by "national trade barriers" such as certain activities being forbidden or having formal educational requirements — which function as non-tariff trade barriers with effects on international trade. While border barriers can give rise to smuggling, domestic trade barriers can result in tax evasion and growth of a black market.

In addition, there is trade over time, for example, with regard to saving and other types of consumption. Finally, there exist flows which are entirely or partially non-commercial, which means that there are no well-functioning markets. The result is that no actual trade comes into existence, although transfer of resources takes place. As is discussed in the previous chapter, this is true for many environmental effects, which take the form of externalities and fall outside the market.⁷⁴ Economic players are therefore not confronted with the actual costs and benefits connected to their actions.

The management of different values can be divided on scales which contain everything from perfect markets to totally blocked trade on the one hand, and transfer of resources without functioning trade on the other hand. Changed conditions for one type of value can also result in repercussions on the others. The effects of, for example, abolishing trade barriers for certain products are decided to a high degree by the extent to which other

dependent resources are also handled by functioning markets or can be used without regard to their actual value.

When not all costs and revenues are taken into account in the market, many former results of trade theory need no longer be accurate. In order to correct the occurrence of external effects, either functioning markets must be created or, for example, charges and regulations be introduced to compensate for the lack of functioning markets. The goal is that costs and revenues become the responsibility of those who cause them — that is to say that externalities are internalized.

Evaluation of the environment

Even though it may be difficult in many cases to evaluate the importance of life support systems to society, a cost-benefit analysis can be used to estimate society's priorities and thereby get away from the attitude that the environment should not involve an actual cost. Without getting overly involved in the principles of this type of evaluation⁷⁵, it can be stated that the best solution from an economic viewpoint is reached when consideration for the environment is demanded to the degree that expected marginal profits are as large as the costs. The "first best measure", whether it is a tax or a market for emission rights, forces those who are responsible for damage to carry the actual cost and thereby stimulates technological development for improved environmental management. In certain situations it is preferable to regulate, for example in order to simplify compliance control.⁷⁶

It should, however, be emphasized that investments in the environment and commercial activities do not need to conflict with each other — to represent *substitutes*. In many cases, they actually enhance each other, that is to say they constitute *complements*. The same efforts can act as a substitute in one situation and a complement in another.

The principle of substitution dominates to a high degree in the short-term perspective. An investment in purification equipment can, for example, lead to a company having to reduce its production capacity. Complementarity tends to appear stronger in the long-term perspective, since the environment functions as an infrastructure for continued activity and many environmental effects are long-term. The spatial or geographic dimension is also vital. Environmental damage often has long distance effects while the cost of pollution reduction is paid locally; complementarity is generally stronger the larger the area involved is. The revenue from preserving rain forests benefits the entire world, while the actual costs are concentrated in individual countries and are even more concentrated on the people, often the very poor, living in the vicinity of the rain forest.⁷⁸ This means that investment in the environment and a better material standard are more likely to be regarded as

complementary the greater the consideration for the future value and the more that different regions and countries work cooperatively towards a common goal.

Individual players are often tempted not to take complementarity into account, since they can profit by their actions without bearing the entire cost. Nevertheless, there is considerable evidence that consumers appreciate environmentally-friendly products and production processes and that companies can profit from "goodwill" by taking advantage of this. Governments also have a particular responsibility to vouch for economically optimal handling of the environment, since individual players cannot be expected to consider effects as long as the profits are partially reaped by others.

Trade and the environment

The world consists of sovereign states with their own territories, but sharing a common resource base. In practice, it can be difficult for a single country to introduce taxes or other measures, even if the "actual" environmental costs are known and there are opportunities to control the situation. The reasons for this are rooted in the international aspects of the environmental problem.

This 'spider's web' phenomenon (global integration) has meant increasingly that everyone tends now to be in everyone else's backyard, making import competition in one's own market, and export competition in the other's market and in third markets, ever more fierce /in an atmosphere/ reminiscent of the struggle for the sun in a dense tropical forest.

Bhagwati, Jagdish, *The World Trading System at Risk*, 1991, page 16.

The degradation of natural capital is caused by a group of driving forces, such as a lack of information and well-defined ownership rights and is a result of production or consumption. The lack of a functioning market for environmental effects and political measures, where governments profit from the environment rather than compensate for market failures, results in a devaluation of life support systems. The connection to trade has only been clarified recently. There is no actual conflict between liberalized trade and conservation of the environment since both have the same goal: to use and distribute the resources available to society in the most efficient manner. Trade in itself does not pose any problem if the effects are internalized, meaning that those who cause problems must bear the cost of those

problems. Trade in this case makes it possible for society to achieve the highest possible gain. *Free trade in commercial goods alone, however, where environmental effects are not taken into account, comprises a completely different situation, which applies to the majority of the world's societies at the present time.*

The arguments surrounding the effect of trade on the environment

The effect of trade on the environment is interpreted differently depending on the point of departure. On one hand, it can be said that trade, by preparing the way for specialization, facilitates higher income-levels and faster technological development, which create more resources for environmental investment and a greater appreciation of environmental values. On the other hand, it can be argued that expanding transport and production increase pressure on the environment. For example, within agriculture and forestry it is alleged that economic specialization creates monocultures and reduction of diversity, which lead to a decline in the value of the environment and increased vulnerability.

There is little doubt that biological diversity tends to be impaired by economic specialization, not least due to scale economies which increase productivity. Specialized agriculture, with its utilization of modern machinery, chemical insecticide and artificial fertilizer, eliminates, almost by definition, competing biological resources. This has already occurred in developed countries and is now taking place in developing countries. Losses occur partly because variation is in itself a resource which is appreciated — it is more desirable to have many rather than fewer alternatives — and partly because a portfolio of alternative resources, each one with a varying yield, increases society's ability to adapt to changes.⁷⁹

Without touching upon all the connections between trade and the environment, it can be concluded that it is not particularly profitable to try to decide which of these arguments weighs the heaviest. *It cannot be said a priori how trade will generally promote or damage the environment; it can rather be stated that trade strengthens economic development whether it is sustainable or not.*

International environmental problems

Simply put, there are two basic reasons for international environmental problems. First, an activity which takes place in one country may affect the environment in other countries. Second, an activity which causes

environmental damage can move to another region or country. In both cases, individual countries are less motivated and have fewer opportunities to implement far-reaching environmental demands within their regions. The total environmental damage can, for example, increase if a single country implements stricter measures, since other countries may thereby be less motivated to take any action.⁸⁰

Let us very simply consider the fundamental case, in which one country can cause environmental damage in another country due to the environment's international dimensions. Three different cases are illustrated in *Figure 15*:

1. The importation of goods results in local environmental effects when they are consumed.
2. Production has local environmental effects, and the country producing goods does not take environmental costs into account.
3. Pollution travels across borders as a result of consumption or production.

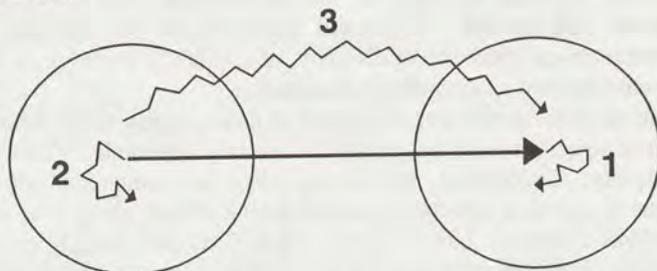


Figure 15. Three fundamental cases in which one country causes damage in another country due to the environment's international dimensions. The straight line shows trade flow from one country to another. The crooked lines show environmental effects.

In the first case, damage is connected to products and is a direct result of consumption. In the second case, which can be called environmental dumping, the problem stems instead from production processes. Damage is an indirect result of domestic environmental policy being difficult to maintain because production may then move out of the country. In the third case, a country can be damaged both directly from a polluting activity in a foreign country and indirectly because environmental demands are counteracted, since firms can relocate their activities and continue polluting in another country.

The majority of international environmental problems can be simply classified in accordance with these three different cases. The transportation of goods also causes environmental effects, which can threaten countries other than those that export or import (see Chapter 1). In the case of global commons such as the sea and the atmosphere, all countries can suffer to varying degrees in the long run. In order to make our reasoning as clear as possible, most of our discussion uses a model involving two countries. Certain questions, such as waste management, present examples of all categories of international environmental problems, depending upon whether waste is exported or dumped in the original country without satisfactory processing. Through its pronounced character of contamination, the issue of waste disposal pushes international environmental problems to extremes (see *Fact Sheet 5*, page 71).

In the following section we discuss the role harmonization, trade barriers and other policy tools may play in the three different cases.

Should environmental norms be harmonized?

Because of the environment's international dimensions, individual countries cannot usually, on their own, push through measures so that those who cause environmental damage also pay the actual cost. Uncoordinated actions in different countries lead, however, to a result which is undesirable for either party.⁸¹ Perhaps the most commonly heard suggestion for the management of international environmental problems is that the emission levels and norms which are allowed in different countries should be harmonized, i.e. standardized in some sense. But harmonization requires a similar degree of concern for the environment from each individual country. If the same demand were required in all countries, the problem of coordinating policies would cease to exist.

The fact is, however, that the environment, together with capital, labour power, technology, etc., forms the natural conditions for production. Adjustments are constantly made — whether consciously or not — between the environment and commercial values, which decide the level of ambition for policy. Adjustments are affected by several factors, which are different in different countries. Let us name a few:

1. Natural conditions differ, for example, in their ability to absorb emissions — it is more damaging to emit a kilo of sulphur over an acidic forest in Sweden's Bohus province than over calcium-rich land in Ireland.

2. The costs for alleviating environmentally damaging activities differ from country to country — it is, for example, less expensive to purify a kilo of sulphur in Poland than in Sweden.
3. People's incomes and willingness to pay for a "clean environment" vary both from country to country and within a country. The occurrence of other acute problems in poorer countries can lead to society preferring higher emissions in exchange for higher export incomes.

In combination with other factors such as prices of capital, labour and technology, the level of environmental consideration influences the size of production costs. Due to differences in values, incomes, costs for anti-pollution measures and natural conditions, the desired environmental protection varies. Regarding effects with global consequences, localization generally has little influence on the size of the environmental effects — a kilo of carbon dioxide or CFC inflicts the same damage whether it is released in Sweden or France — but the cost of reducing emissions, income levels and evaluations still varies.

The realization of a common concern for the environment would consequently lead to an ineffective production pattern, which by definition would be unfair to certain parties — most likely those who have little influence on the decision-making process. For the same reason, it is not efficient to systematically counteract cost differences in order to improve the environment with trade barriers.⁸² International agreements which strive to reduce emissions equally, regardless of geographic location, will inevitably provoke strong opposition from certain areas.

Despite the inefficiency of a standardization of demands for environmental consideration, harmonized minimum demands can be justified when the risk of severe and irreparable damage would otherwise arise. This is applicable to the management of sensitive ecosystems where it is difficult to judge beforehand when resilience is disturbed, or for poisonous emissions which are spread far and wide and which only become visible after a long period of time.⁸³ On the whole, however, harmonization of consideration for the environment, in the sense that it becomes standardized across countries, represents neither a desirable nor an accessible method of solving the environmental problem. It is necessary to seek other alternatives.

Cooperative solutions

Instead of harmonizing concern for the environment, there are strong arguments for producing international rules and agreements of other types. In principal, the environmental problem could be solved if countries accepted and respected the so-called "polluter-pays-principle" (PPP), with the interpretation that those who cause damage must also pay for it. This has never been the intention, however, and it would be unrealistic in many cases, especially regarding global environmental effects (see *Fact Sheet 7*, page 83). On the other hand, countries would greatly profit from a coordination of policies, either through binding agreements and conventions or through so-called transfer payments. Such resource transfers can run into problems due to, for example, moral hazards — meaning that access to payments influences behaviour so as to come into possession of them. Nevertheless, binding contracts and/or transfer payments should lead to effective agreements, given that governments aim to maximize welfare in their respective countries. ⁸⁴

Regarding global environmental effects which concern all countries, solutions can be accomplished by introducing a common system of charges, and markets for emission rights, complemented by suitable incentives to attract other countries which would otherwise suffer. Regarding sulphur emissions, for example, there are cooperative solutions with compensating payments which in theory would lead to sizeable potential profits for Europe as a whole, compared with national rules or a fixed emission limit. Introduction of charges for the emission of carbon dioxide would in the same way facilitate substantial efficiency profits compared with, for example, a general freezing of emission levels. ⁸⁵

Despite international agreements, a great deal of pollution and resource destruction continues to be unregulated between countries in practice. The reasons will be discussed in the section on the prerequisites for policy-making. Many producers do not need to pay for the actual costs of their activities, and actual resource utilization does not reflect natural conditions. When trade strengthens economic development, whether it is sustainable or not, the question is raised whether the introduction of trade barriers is a possible path for handling the environmental problem.

Product norms and standards

Under which circumstances does the need to address environmental matters justify trade barriers? The linkage between trade and the environment is evident in the first of the three cases above, that is, when environmental damage occurs as a result of consumption in the importing country. In this

case, environmental problems can, in principle, be managed with product norms, standards and rules. These take the form of non-tariff trade barriers, but can be competition-neutral if they treat domestic and foreign products in the same way.

In order for economic activity and its resulting environmental effects to conform to a country's particular conditions, freedom to introduce product standards is actually necessary, given that environmental effects are not otherwise taken into account. On the other hand, exporters are forced to adapt their products to the varying regulations of different countries, which can lead to decreased competition and less economies of scale in production, especially in small markets. In order to solve such problems, efforts are being made, for example within the European Union, to achieve common rules.

It is far from obvious on which level product norms should be decided — local, regional, national or international. Global standardization of environmental requirements is generally not a good idea; decisions made on "too" local levels can lead to loss in efficiency, and abuse. The fact remains, however, that product standards must be decided on some level and that this in principle constitutes an accessible means of managing environmental effects resulting from consumption, both when the goods are produced domestically and when they are imported.

Effects of production processes

The two other cases, where a country suffers because of production activities in other countries, are more difficult to rectify with trade barriers. It should be noted that the acceptance of unregulated environmental effects is synonymous with the implicit subsidy of polluting activities, at the cost of other countries when damage escapes across geographical borders.

Trade barriers may, in principle, also be justified when environmental damage occurs due to manufacturing processes in other countries. The motive is then the lack of other possible measures which could directly attack the source of the problem and that trade barriers can induce the offending country to change its actions. The level of desirable "customs duties", or other trade measures, depends on the damage suffered by the importing country and how trade measures — which are directed towards products — influence the conditions for the manufacturing processes which represent the underlying cause. As shown by *Baumol*, duties which are desirable from the perspective of an individual country may be at odds with what is desirable for all countries.⁸⁶

Trade barriers can, however, create unexpected effects and an undesired distortion of prices or trigger punitive measures from the countries affected

by these measures.⁸⁷ Further, it is difficult for small and economically weak countries to apply them, since they lack negotiating power. Finally, it should be noted that other factors speak against trade barriers. These are of a political nature, but equally important and therefore must be included in an economic analysis (see page 75).

Fact Sheet 4. Environmental subsidization and electricity prices in the South

If environmental costs for export production are not reflected in prices, it signifies that production is subsidized. It is difficult, however, to determine how highly subsidized specific production is, since it is impossible — especially for other countries — to say exactly how strict the environmental standards in the exporting country should be.

On the other hand, it can be stated that electricity prices — which are central to environmental policies — are subsidized in most countries and particularly in the South. The price of electricity is, on average, half the cost in developing countries compared with industrialized countries. In India, and especially China, it is even lower. In OECD countries, prices rose in real terms by 1.4 per cent from 1979 to 1988, while prices in the South fell by 3.5 per cent a year during the same period.

A basic principle in economic price theory is that price should be based on marginal costs, i.e. it should be equal to the cost of producing the last unit of an item. This results in as efficient resource utilization as possible. If prices are lower, over-consumption is stimulated, while other sectors are negatively affected. In the South, electricity prices represent only 60 per cent of marginal costs on average, which means that too much capital is tied up in energy-demanding projects. In addition to financial subsidies, we have the implicit subsidy of environmental effects.

When electricity prices are low, saving energy becomes less attractive. On average, 20-40 per cent more fuel is used to produce a kilowatt hour in the South than in the North. 15-20 per cent of the power that is produced disappears because of losses during transmission and theft. All of this contributes to a situation where 40 per cent more energy is required to produce goods in the South than in the North. Governments and development organizations have emphasized increasing production rather than efficiency. Of those loans which are directed to the energy sector from the World Bank, less than 1 per cent is reportedly used to raise efficiency. Loans for production of electric power account for 20-40 per cent of third world foreign debt.

In general, many investments in electricity generation have been made with obsolete technology, especially large-scale hydropower projects and coal-fired plants, which account for 50 per cent of developing countries' electricity production. China installs a new coal-powered plant with a capacity of 1,000

megawatts every month. Higher electricity prices would encourage implementation of superior alternatives, such as more effective technology, natural gas and small-scale hydropower projects. It is, however, politically difficult to raise prices dramatically. It might be easier to invest in efficiency directly so that production costs are matched by prices. The fact that energy production is so inefficient today means that there are great opportunities for future savings.

Source: Power for the poor, *The Economist* 31.8 1991; World Development Report 1991; State of the World 1993.

Trade with or without internalization

We have stated that trade does not, in itself, cause environmental problems, as long as environmental costs are reflected in market prices. In that case, a liberalization of world trade would be compatible with, and would support, long-term sustainable development. We have, however, seen that environmental costs are not internalized in general. This raises the following two central questions:

1. Does the present development lead to more or less internalization of environmental costs?
2. Is liberalization of world trade compatible with ecologically sustainable development when environmental costs are not internalized?

There is little doubt that the public is much more conscious of environmental issues today than in previous decades and that substantial investments are being made in many areas to alleviate the problems. Most countries have, with the signing of the Rio Declaration and Agenda 21, at least in principle, united to strive for internalization of environmental costs. The significance of this position is, however, highly unclear. Paragraph 16 of the Rio Declaration states for example that "National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments ... without distorting international trade and investment." (See Appendix 3 for a complete quotation.)

In fact, there is no doubt that an internalization of environmental costs in many cases would lead to significant changes in production and consumption patterns, which would in turn affect trade as it is today. Goods which burden the environment would become less common and be replaced by goods which are more resource-effective and ecocycle-adjustable. Unfortunately, reality shows that the process towards an internalization of environmental costs is only in its infancy. Certain countries have come

further than others, but overall, a great deal remains to be done. Very few countries use a range of economic policies (taxes and fines) to counter environmental degradation, and legislation is in many cases insufficient. This has been discussed in the previous chapter.

The answer to the question of whether increased liberalization of world trade is compatible with the goal of long-term sustainable development depends on to the extent and the speed with which environmental effects are internalized. If environmental effects are not heeded, an expanding world economy will in the long run be incompatible with conservation of the ecosystem and therefore threaten the very basis for life on earth. It is, therefore, far from certain that liberalization of trade is for the common good.

By increasing material welfare, an expansion of trade can lead to higher demands for environmental measures and also create larger resources and better technology for an internalization of environmental costs. For this to be realized, the market players must receive signals that cause them to believe in the profitability of these measures. If companies and households are not to be threatened by costly adjustment problems when environmental problems which have been neglected for as long as possible suddenly become acute and then "force" measures, mechanisms are needed to secure long-term goal formulation for structural conversion. This boils down to creating institutional relationships which effectively stimulate sustainable production and consumption patterns.

Localization of environmentally damaging activities

Through the occurrence of trade, it is theoretically possible to localize environmentally damaging activities where they do the least damage and/or where there is no requirement to take environmental destruction into account. The likelihood that production can be knocked out or relocated to another country can, at the same time, prevent demands for long-term environmental consideration in a country when corresponding measures are not introduced by others. In this section we discuss the questions surrounding the relocation of polluting production activities.

Expected relocation

It was predicted as early as the 1970s that long-term anti-pollution requirements in certain countries would lead to relocation of polluting activities — in practice from developed to developing countries and to a higher degree the less "bound" companies are to country-specific input goods.⁸⁸ No comprehensive relocation has been observed, however, with the exception of production of highly poisonous substances such as asbestos, benzidine colouring agents, chemical pesticides and heavy metals like copper, zinc and lead. In these cases, new industries have been re-located to developing countries after the closure of production in developed countries. According to Leonard⁸⁹, relocation has only taken place in industries with slow growth and weak domestic demand and which have not significantly contributed to economic development.

Although developing countries have a relatively large share of environmentally damaging industry, there has been considerable speculation as to why a greater degree of relocation has not been observed.⁹⁰ One position is that the costs for installing pollution abatement are too small to influence localization. The technological growth needed to fulfill these demands can also be preferable to a relocation move for a company. Further, there is a risk that other countries will also propose similar requirements in the future and that consumers will not be pleased if a company moves its pollution-producing activities abroad rather than tries to counteract the pollution.⁹¹ In an unofficial memo from the World Bank in 1992, it was asserted that more relocations were desirable and should be encouraged (see *Fact Sheet 5*, page 71).

Is relocation desirable?

As discussed above, sound conditions for the localization of environmentally damaging activities should be utilized. That relocation caused by economically motivated environmental policy poses no problem does not necessarily mean that production should move to the location where environmental protection is the weakest, however. It is relevant here to briefly discuss the arguments for and against localization of environmentally destructive activities in developing countries, which often have few protective measures.

It is often asserted that ecological consideration is a luxury which developing countries cannot afford today, and that acute problems such as hunger, illiteracy and unemployment should take precedence over care of the environment. The socially desirable level of protection for the environment would, in other words, be lower than in industrialized

countries. This argument can be countered by the statement that developing countries have an especially limited ability to manage environmental problems. Emissions are often associated with risk-taking, and developing countries have few resources to manage a negative outcome. Many biological and chemical substances spread much more easily in a tropical climate, even though some of those elements might also break down more rapidly. A population suffering from chronic malnutrition has a reduced chance of fighting off illnesses. Furthermore, industries in developing countries are generally geographically concentrated and efforts to spread them out have mostly failed. While it was possible, some decades ago, to assert that developing countries had an undisturbed environment as compared with developed countries, the case today is often the opposite.

Any sort of general relocation of environmentally damaging activity to developing countries is therefore undesirable, even though it is justified in some cases. The limited amount of evidence that relocations have taken place may suggest that the potential profits are not sufficient to cover the costs involved in the move. It is not, however, certain that the possibility of relocation carries no weight with regard to the policy which is adopted.

The absence of internalization

A relocation of polluting activities can have negative consequences if all countries do not apply measures which force an internalization of environmental effects. Given that environmental protection is "too low" in some countries, activities can be relocated, although this will lead to a less productive allocation of resources. The risk of such "incorrect" relocations can motivate trade policy measures as a complement to environmental measures — given that industries can thereby be prevented from moving abroad, continuing to pollute and export from the new country.

Other measures generally prevent production from moving more effectively than trade barriers, however — not least for small countries, whose companies tend to export to a high degree. One possible option is to subsidize anti-pollution measures, which are often touted as the "next best" instrument for managing environmental effects (after a tax which equates marginal costs of emission and purification).⁹² Subsidies are also associated with problems, however. The individual company's emissions are reduced, but entry of new companies can be stimulated, so that there is a risk of total emissions increasing.⁹³ In order to avoid this, it is essential that subsidies are designed so that technical development of environmentally improving measures is stimulated.⁹⁴ Depending on their form, subsidies may also violate existing trade agreements.

Technological transfers

Relocation of production also involves technological transfers. Indeed, multinational corporations are the most important players in the world economy as regards the development and diffusion of new technologies. It is important to differentiate between the availability of existing advanced environmental technology and how it is actually used. The most advanced technology is not generally demanded by subsidiary companies in developing countries and it is seldom forced upon them by the parent company. Multinational companies tend to have cleaner production in developing countries than domestic companies, even if it is more environmentally damaging than the equivalent production in industrialized countries.⁹⁵

If foreign companies' investments replace or influence domestically-owned production, there is a large potential for improved environmental management in poorer countries. Technology is transferred by licensing control processes, exchanging labour, instructing suppliers, contacting local authorities, etc. This is not to say that foreign technology should always be preferred over the technology of the host country. Modern technology from industrialized countries is far from always being the most likely to best stimulate sustainable development in poorer countries. A number of studies have shown a generally low level of technological assimilation to the special conditions present in developing countries.

To what extent multinational companies transfer environmentally-adapted technology or utilize a lack of cleaning requirements in order to avoid taking action with regard to emissions is greatly influenced by the actions of consumers. Today, environmentally-friendly businesses and products are more and more appreciated, which makes it possible for a company to strengthen its good reputation by taking global responsibility. (See *Fact Sheet 1* on the importance of the fast expanding market for environmental technology in general.)

What I would ultimately like to be able to do is set up a perfect example of honest trading in a fragile community and make it a benchmark of how we should conduct such trade in future. The rules are pretty simple. First, we have to be invited in. Second, we must not mess with the environment or the culture. Third, we must reward the primary producers.

Anita Roddick (founder of Body Shop). *Body and Soul*, 1991, page 213.

The more reliable and available information on different companies' actions is, and the better the consumer can evaluate them, the more motivated companies will be to consider the environment.⁹⁶ Those who have not been

successful in this area are motivated to obstruct factual information, while others have reasons to encourage it. Opposing interests similarly prevail between governments, partly due to differences in ability between companies in their respective countries. Countries around the world have negotiated in vain for years to establish a Code of Conduct for the actions of multinational companies with regard to environmental as well as other issues.

Fact Sheet 5. Trading in waste material

During the latter part of the 1980's, trade in environmentally hazardous waste started to attract attention. Waste is exported from one country to another for final disposal (dumping) or recycling. For the most part, this trade occurs between industrialized countries, but the trade that has received the greatest attention is exports to Eastern Europe and Africa. There are no reliable statistics of just how comprehensive this activity is, since it is often quite "shady" and occasionally even illegal. According to Greenpeace, at least 10 million tons of waste of all kinds has been exported during the last few years; more than half of that waste was exported to Eastern Europe or developing countries. According to an American researcher, the same amount was imported by Africa, south of the Sahara, during 1987.⁹⁷

One reason for the increase in this type of trade is that the cost of waste disposal has risen in many countries as the amount of waste increases, and environmental protection laws tighten up. It becomes profitable to export the material to someone else who can dispose of it cheaply. There is no difference in principle between waste trade and trade of goods which result in environmental effects when they are consumed. What distinguishes trade in the waste is that the environmental effects are so conspicuous and therefore highlight the sensitive question of localization and the harmonization of environmental regulation.

In early 1992, an internal memorandum written by Lawrence Summers at the World Bank was leaked to the press. In the paper, which spread rapidly and received enormous attention, Summers suggested that the World Bank encourage the export of waste to developing countries and that environmentally damaging businesses and activities be moved to the same countries. He believed that the costs for environmental damage would be lower in the Third World than in the North for three reasons:

1. Costs in the form of production and income losses in cases of illness or premature death are lower in the South, since average life-span and incomes are lower.

2. Those countries which are still not polluted have a larger capacity to assimilate toxic waste than countries in the North, where pressures on the environment are already sizeable and even marginal additions of pollution can be extremely costly.
3. The demand for a clean environment for aesthetic and health reasons has a "lower priority" in poor countries, and therefore costs are not evaluated as highly when the environment is damaged.

With the first point, Summers states that peoples' lives should be evaluated in terms of their incomes. This is in opposition to, for example, the UN declaration of human rights, which states that all individuals have a right to life, regardless of income. When analyzing the value of building highways, individuals' *time* is sometimes evaluated differently, according to differences in income. Saving time on roads which approach airports is, for example, rated particularly high. To rate *lives* in the same way is another matter.

The two other points are a common application of economic theory. According to this perspective, prices and costs are decided by people's values. People's preferences (priorities) are influenced by, for example, income; it is often assumed that when incomes rise so do priorities for the environment. In this case, it means that a poor population is assumed to evaluate the costs and risks of waste disposal lower than a wealthy population would. The "price" of the environment is therefore lower.

Instead of, as Summers has done, using the value of the environment or people's lives as a departure point, we can examine how *risk calculation* is determined in different countries. It can then also be established that the risk of death is rated lower in poor countries, so waste disposal is naturally cheaper there. If the cost of waste disposal varies between different countries then all countries profit from the localization of waste disposal in the area where the costs are lowest. The theoretical result will then be that trade in waste should be encouraged and accepted. This does not mean, however, that trade in waste as it is now should be encouraged. Several factors which are not heeded in theory, for example institutional relationships and geographic conditions, support the argument that a great deal of today's waste trade is not desirable.

Geographic conditions. Biological damage resulting from toxic waste can be greater in Africa than in Europe or in the USA. The natural-geographical conditions are such that the risk of poisonous materials spreading over large areas via ground and surface water supplies is much higher. The higher precipitation in countries south of the Sahara easily leaks poisonous elements from deposits, and in the Sahara area poisons infiltrate quickly through the sandy soil down to the ground water.

Lack of information. In theory we assume that both partners in a transaction have complete information in order to arrive at rational decisions, but such is not the case with the waste trade where there is a chronic lack of information:

- * The effects on the environment are often not known, especially in tropical climates. The general uncertainty regarding future damage makes it difficult to weigh the costs of trade against incomes, while as a rule only the latter appear directly and are calculated financially.
- * The different parties do not have equal access to information. Importers often have less experience of waste disposal than exporters and do not either receive information regarding the specific contents of the waste they will be dealing with.

Trade causes hazardous transportation

The balance of power and other institutional conditions. Perhaps the strongest argument against waste trade is based on how the importing countries function in reality.

- * Incomes from imports seldom go to the people who are exposed to the risks, and since import countries are generally not democracies the population in question virtually never have a say in import decisions.
- * Import countries in the South often do not have the political stability required to manage waste disposal in a secure and long-term manner, and the authorities often do not have the capacity to control import or discover and penalize illegal imports.

Low prices hamper development of technology. Lack of information leads to dramatic variations in price. The costs of waste disposal in the North are \$160-3,000 per ton, depending on the level of toxicity. The average payment for dumping waste in Africa is \$2.50 per ton.⁹⁸ With such low costs, the countries which produce waste are less motivated to develop technology to manage their own waste disposal.

The Basel Convention on exports of waste

A convention on transboundary movements of hazardous waste was approved in 1989 and came into force in May 1992 after it had been ratified by twenty countries. Today, thirty countries are party to the convention, which requires exporters to obtain prior consent from the receiving nation before approving

cargoes. Developing countries want to stop all waste export, but the only movement of waste forbidden by the treaty is to the Antarctic.

A cooperative conference for the convention's various partners was held in December 1992. UNEP suggested a total ban on exports from the North to the South, which the USA, Canada and England opposed. The South considers their own import ban difficult to control, and would therefore prefer the North to ban exports. The compromise which was adopted means that export for recycling or re-use is allowed, although the limits to what recycling really is are not absolutely clear. The substantial profits from trade mean that certain groups have a strong interest in preserving the current status quo. (The Walloon ruling from the EC Court of Justice, see page 107 demonstrates that definitions of waste and raw materials are not self-evident.) In March 1994, however, a total ban on exports — for disposal as well as recycling — from the North to the South was agreed upon.

Sources: Daly, H.E. and Goodland, R., 1994. An Ecological-Economic Assessment of the Regulation of International Commerce under GATT, *Ecological Economics* 9:73-92; French, H. (1993), Costly Tradeoffs: Reconciling Trade and the Environment, World Watch Paper 113, p. 25; Logan, B.I. (1991), an Assessment of the Environmental and Economic Implications of Toxic Waste Disposal in Sub-Saharan Africa, *Journal of World Trade* 25:61-76; Let them eat pollution, *The Economist* 8 February 1992; Pollution and the poor, *The Economist* 15 February 1992.

Political Factors

As stated in the above section, it is difficult to manage international environmental problems resulting from environmental dumping or unregulated transboundary effects. There are reasons to probe more deeply into the real cause of the problem. The fact is that environmental dumping is generally inferior to other methods as an instrument for increasing competitiveness.⁹⁹ Further, it should be possible to assume that countries are capable of managing international effects such as agreements and transfer payments. That this does not always occur highlights the motives of those in power and the interaction between players. It has traditionally been assumed that governments act in the interests of their citizens. The public choice school has however pointed out that it cannot be assumed that politicians act to maximize society's good. The opposite seems to be true: people in power to some extent look to their own profit, which causes the interests of influential groups to weigh relatively heavily. The possibility of

politicians seeking to maximize something other than society's welfare creates a situation where the functioning of public institutions must be included in the overall economic analysis. This is also underlined by the fact that the majority of the world's countries are dictatorships.

Skewed political influence

A sensible utilization of trade policies is obstructed by society's power structure. The good of a "better", healthier environment tends to spread out over many people and results in long-term profits, while the costs of combating problems are relatively short-term and concentrated on smaller groups. Those who suffer were perhaps not even born when the damage was caused and cannot speak for themselves.

Again, it should be stressed that complete information is not available and that different players do not have access to common information. Environmental effects can be made less politically sensitive if they are channelled against groups who are uninformed about, or have limited opportunities to protest against, their losses. Problems are especially pronounced in dictatorships where the use of force to oppress weaker groups is rampant. The result can, for example, be that pharmaceuticals, poisons and other goods which are found to cause dangerous health effects are dumped in countries where either the authorities or the public who will consume these products have no opportunity to evaluate them. One example is the ongoing redistribution of tobacco use from wealthy to poor countries, supported by comprehensive advertising campaigns, (see *Fact Sheet 6*, page 79). Part of the problem is that certain spectacular environmental questions are exploited when environmental arguments can be used as an excuse for measures which fulfill completely different objectives.

Against this background can be seen distortions in political influence which tend to discriminate against the environment. At the same time, the introduction of trade barriers tend to benefit well-organized producers while harming consumers.¹⁰⁰ Anti-dumping policies in the USA and the EU present disturbing examples.¹⁰¹ For such reasons, trade barriers and consideration for the environment can be said to represent an unholy alliance. Differently stated, it can be difficult for "friends of the environment" to assert themselves politically against those who demand trade barriers for other reasons.¹⁰² There is a definite need for general regulations which cannot be manipulated and evaded, if weak countries are not to get a raw deal. This is demonstrated clearly by the fact that the two types of production within which developing countries have clear-cut competitive advantages, agriculture and textile manufacturing, have landed outside the GATT rules and are characterized by a tangle of trade barriers and subsidies.

Despite broadly-based support for the principles of trade on fair conditions, the global community had great problems in completing the latest round of Uruguay discussions in GATT. The future for open world trade is still uncertain. Inasmuch as it is not possible to clarify with great precision when trade barriers are used to protect the environment and for no other reason, there is an obvious risk that the environmental argument can be used as an excuse for traditional protectionism. With the door wide open for discriminating trade policies, the prerequisites for cooperation on common resource questions deteriorate even further.

The interaction between interested parties

The consequences of trade barriers thus depend not only on direct costs and revenues, but are also influenced by society's power structures and are related to the development of the multilateral trade system in its entirety. In order to bring about meaningful measures, it is necessary to observe how people adapt their actions according to how they expect others to act. The relationship between different interest groups is expressed in strategic behaviour. A well-known example is the "prisoner's dilemma" — two players who cannot coordinate their actions manage to both end up in trouble, since each one risks being fooled by the other. Another example is when one person tries to hitch a free ride from someone else.

Combined with imbalances in political influence, strategic behaviour leads to an extremely complex decision-making situation. Even if the ruling power in one country strives for the greatest good for society, they may have to cooperate with other countries whose governments are indifferent to the state of the environment. The failure to heed environmental consequences in one country can mean that the level of desirable environmental requirements declines in other countries too, even when the possibility of transfer payments and binding contracts is available.¹⁰³

Strategic interaction between countries in the form of competition regarding localization of production leads to further problems.¹⁰⁴ Countries can outbid each other with incentives to attract investors, and companies can use the situation to devastate natural resources in one country after another. This is sometimes called "sequential exploitation".¹⁰⁵ The inability or disinterest of host countries in coordinating policies lays a foundation for the destruction of resources. Poorly functioning capital markets, not least in the wake of the debt crisis, contribute to the problem by limiting access to capital, raising interest rates and creating extremely limited planning horizons for economic decisions.

Several possible explanations as to why environmentally damaging activities are not re-located more often appear here. If the majority of

countries set low priorities on environmental protection, then each country would be forced to be satisfied with the environmental demands which are compatible with industries refusing to move. If other countries do not care about the environment, those who do care are therefore forced to find other solutions. These may include industrial policies, subsidies, too low environmental demands or requirements for trade barriers. The flow of production over geographical borders therefore results in consequences for the desire and ability to protect the environment, even though a more comprehensive re-locating of environmentally damaging activities is not observed.

Due to uneven access to information, the less than full representation of many people in the political process, and the fact that coordination of all interests cannot occur, it is impossible to find ideal answers to international environmental problems. Practically possible solutions demand that interaction between various interests is used positively, so that productive cooperation develops between the players involved on various levels — government authorities, companies and consumers in different countries.¹⁰⁶

An example of cooperation

Environmental changes in a country result in companies incurring costs in the short-term perspective. On the other hand, technological development and skills which reduce costs are stimulated. Given that companies win "goodwill" in the eyes of the consumer and that environmentally damaging activities are met by increasing international opposition, other countries are pressured to eventually adopt the same policy. Those who introduced purification requirements at an early stage enjoy strategic advantage, which has so far been exploited principally by Japan and Germany. The American professor, Porter, argues that the US should follow suit.¹⁰⁷

The World is moving towards deregulation, private initiatives, and global markets. This requires corporations to assume more social, economic, and environmental responsibility in defining their roles. We must expand our concept of those who have a stake in our operations to include not only employees and shareholders but also suppliers, customers, neighbours, citizens' groups, and others. Appropriate communication with these stakeholders will help us to refine continually our visions, strategies, and actions.

Declaration of the Business Council for Sustainable Development.

If consumers do not appreciate anti-pollution efforts, and other countries do not adopt them, then companies can still decide to move to another country in order to avoid the charges. How consumers and companies react in turn

decides whether other governments find it worthwhile to require environmental protection as well — since this decides to what extent they attract investors or lag behind if they do not.

In combination, this cooperation, illustrated in *Figure 16* for the case of purification requirements, decides how fruitful it is for an individual country to take action in the first place.

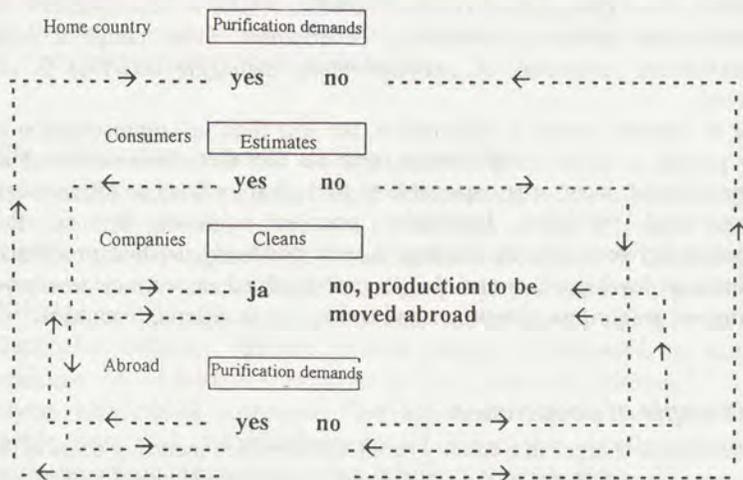


Figure 16. Example of the relationship among consumers, companies and governments. Each player's judgments and actions affect the longer final results.

In order for environmental policies to be successful, it is important to coordinate international measures. This is the case for, not least, global environmental problems such as the risk of an accelerated greenhouse effect as a result of increasing carbon dioxide in the atmosphere. Calculations which heed technological advancements show how sensitive a national economy is to the pace at which a tax on carbon dioxide is introduced. Measures will be — if they are shown to be necessary — more costly the longer we wait to begin taking action.¹⁰⁸

Effective systems of charges must be created internationally and, if at all possible, lead to the largest reduction of pollution where it costs the least. On the other hand, the desire to adopt measures increases with the ability to pay. The OECD has calculated costs for possible strategies. All developed countries, or OECD Europe, could introduce reasonable charges for the emission of carbon dioxide without suffering unmanageable costs.¹⁰⁹

Although the costs of reducing emissions are lower in poor countries, the measures will hardly come to pass unless industrialized countries introduce them first. If the OECD introduces small but steadily rising charges for emissions, technological advancement will be promoted, and at the same time the means will be generated to stimulate the introduction of measures in poorer countries.

A more effective solution would be achieved by coordinating measures which influence both emissions and absorption of carbon dioxide. A large part of the human contribution to the greenhouse effect would, for example, be reduced more cost-effectively by checking forest destruction than by reducing consumption of fossil fuel. Apart from the fact that carbon dioxide is released when a forest such as those in the Amazon area is burnt, the destruction of tropical rain forests draws attention to the potential value which is forfeited with the loss of genetic diversity, such as unexploited opportunities for medicines in the future. These losses increase further since ongoing advances in biological technology are opening up new areas of application for genetic information.

Developing countries, however, lack the capital and technology which would make it possible for them to profit from the wealth of the rain forests. While access to credit is rationed, previously accumulated debt burdens and high interest rates create a great need for capital income in the short term. The establishment of industry is also hindered by trade barriers on processed products in developed countries. Developing countries therefore have little understanding for demands by world opinion that the rain forest should be preserved, (see *Fact Sheet 8*, page 114). There are, naturally, many other ecosystems which it is also important to manage with care, for example sensitive mountain and coast areas. Many ecosystems are seriously threatened today and, like the tropical rain forests, will have disappeared within a few generations, unless a satisfactory share of the actual value of the resources goes to the people living with, and from, them.

Fact Sheet 6: More than tobacco goes up in smoke

Tobacco is one example of a traded good that has negative environmental effects both during production and consumption. The effects of *production* are not discussed very much, but in some areas they are serious. When tobacco is harvested, it is often dried before being further refined. Some varieties can be cured in the sun, but those that are most often grown for export require the use of fuel, either fossil fuel or firewood. Wood is used for half of the world's tobacco, mainly grown in developing countries. The process is inefficient — only 20 per cent of the heat is used — so large amounts of firewood are

needed. It has been estimated that one tree is needed for 300 cigarettes¹¹⁰, or that an acre of tobacco requires an acre of forest. Large areas are involved in the total picture; the import of tobacco to England, for example, consumes almost 200,000 hectares (490,000 acres) of forest per year.¹¹¹

In total, 35 million small farmers all over the world are dependent on tobacco cultivation. Tobacco exports are a significant source of income in, for instance, Tanzania, Brazil, Sierra Leone and Mali. Tobacco export accounts for 25 per cent of Zimbabwe's total export income, and in Malawi an even greater proportion, 68 per cent, comes from export of tobacco.¹¹² Tobacco production is completely dominated by large companies, both national monopolies and multinational enterprises. Seven companies account for half of the global production.

The negative effects of tobacco *consumption* also increasingly affect the Third World. Tobacco is one of the most profitable consumer products, but the market has shrunk significantly in the industrialized world. Cigarette marketing is increasingly restricted, and fewer people smoke. Multinational tobacco companies therefore market themselves in developing countries, although they cannot charge such high prices there. The largest producer in the USA, Philip Morris, sold more outside the USA than at home for the first time in 1990. In fifteen years' time, the greatest profits are also expected to be earned outside the USA.¹¹³

Sources: French, H.F. (1993), *Costly Tradeoffs: Reconciling Trade and the Environment*. World Watch Paper 113, page 12; Wells, P. and M. Jetter, (1991), *The Global Consumer, Best Buys to Help The Third World*. New Consumer, page 180; *The Search for El Dorado, The Tobacco Trade*, *The Economist* May 16 1992 page 21 f. Hard to give up the weed, *The Economist*, January 1986 page 56.

Instruments and possibilities for solving international environmental problems

In this chapter, the economic view of the connection between trade and the environment has been discussed. Environmental problems stem from market and political failures and the international aspects of environmental problems decrease individual countries' possibilities of correcting them. Harmonization which standardizes environmental requirements in different countries is not desirable, since it leads to insufficient solutions. The import of goods where consumption leads to environmental damage legitimizes the introduction of product norms and standards, but the question is at which level this is desirable: local, national or international.

International environmental effects are also results of production processes. Other countries may suffer damage either because the environment is abused in a manufacturing country, which is equivalent to a subsidy of the activity in question, or because of emissions which travel across geographical boundaries. The management of such problems requires international cooperation. This can be accomplished by common taxes and charge systems or by coordination of international transfers and national measures in order to encourage environmental measures in countries which lack the ability to pay. Trade barriers are usually an ineffective instrument when trying to tackle this type of environmental problem and risk being abused for other purposes as well as obstructing desirable cooperative efforts.

In order to facilitate spontaneous market solutions in the environmental area and to lessen the danger of opening the door for capricious trade policy-making, it is essential that international environmental agreements and the multilateral trade system within GATT do not conflict with each other. Since the costs of implementing environmental measures rise if they are introduced in a hurry, it is important to be prepared in good time — given that environmental concerns will sooner or later demand action. Unambiguous international agreements in the environmental area would lead to a general spurt in efforts not to be left behind. A move in this direction would be facilitated by easily accessible and reliable information on how individual players affect the environment.

There is reason to question what a small country can do, in terms of international cooperation and on its own, to address international environmental issues. Let us again consider the Swedish case. With the EEA Agreement, as well as possible membership in the EU, Sweden will have less scope for setting its own product standards. This does not mean that the country will stand helpless in the face of international environmental problems. Active contributions are required from different players if effective solutions are to be achieved, and as an EU member it is possible that Sweden would play an important role in influencing European environmental policy. On the other hand, there is a risk that Sweden might be bound by EU decisions and would be forced into agreeing to a less active environmental policy nationally as well as internationally. To determine which direction will result in the best possibilities lies outside the issues addressed in this report.

Advanced industrial countries have a special opportunity to influence the environmental question. Swedish industry has a high share of research and development, but renewal of manufacturing is rather weak. Above all, few new products and companies are being developed. A one-sided focus on cutting costs results in a gloomy perspective for the economy. International

demand is weak and there is for undifferentiated products with a low refinement value tough competition from the newly industrialized countries and potentially Eastern Europe. Continued welfare today requires competence development, flexibility, structural changes and a reorganization of production.

Increased environmental consciousness is gradually creating significant adaptation problems for many industries. This is especially true for energy and raw material-based industries. Increased recycling of paper seems, for example, to be negatively affecting demand for wood products within the near future. On the other hand, the demand for reduced carbon dioxide emissions and the need for alternative fuel for transportation may lead to higher demand from a slightly longer term viewpoint. Above all, development of environmental technology means new possibilities in a field where Swedish companies are able to match most competition. The state cannot and should not try to foresee which specific ventures are motivated, but can still act as a promoter and qualified purchaser in an area where environmental technology apparently has a future.

Effective international programs which compensate countries for the maintenance of life-supporting natural resources of global importance will most likely take some time to develop. There is, however, a way to indirectly stimulate and facilitate a sensible resource utilization in poor countries, in connection with offering aid. In order for this to be possible, aid agencies will have to increase their knowledge and administrative competence in that area. This is necessary both so that life support systems can be managed as an aid goal in itself and so that consideration will be paid to the environment overall in aid work. It should also be possible to coordinate foreign investments and aid for the purpose of promoting the development and spreading of "environmentally friendly" technology.

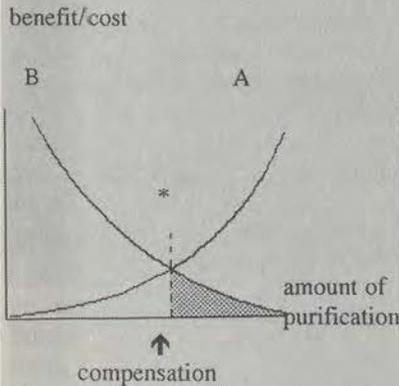
In the former state-planned economies of Eastern Europe, particularly in the former Soviet Union, there are a number of ticking environmental bombs which can result in far-reaching consequences not only for the immediate area but also for the population of neighbouring countries. Until now, the West has been satisfied with, for the most part, determining what the problems are. This is an area where individual countries should more actively seek ways to take a stand with selective measures which can inspire more comprehensive ventures in cooperation with others.

Fact Sheet 7. The polluter pays

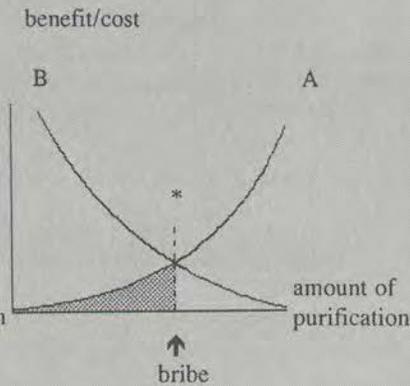
In environmental economic theory, it is sometimes stated that either the polluter pays or that the person or persons who suffer pollution pay ("polluter pays" or "the victim pays"). The determining factor is who has the ownership rights to the environment, or who has the right to demand compensation from whom.

In this example, A is the polluter and B is the victim. A victim who has complete rights to a clean environment can demand that all polluting activities end. The last marginal purification is, however, expensive for the polluter, and the perceived improvements are slight. Both profit when A purifies to the point where the cost of purification is the same as the perceived advantages and thereafter *compensates B* financially so B is as satisfied with the situation as if there was no pollution (Figure A).

a) polluter pays



b) "victim" pays



The supply curve (person A) shows the cost of abatement while the demand curve (person B) shows the perceived benefit of abatement. The optimal level of abatement is indicated by a star (*).

If the polluter instead has the right to pollute the environment, then we have a situation where the victim pays. If B desires the emissions to be purified than he must pay (bribe) A in order for those measures to be carried out. A will pay as long as he perceives a certain satisfaction from the anti-pollution measures and is not troubled by the cost of those measures (Figure B).

The advantage of this reasoning is that, regardless of how ownership rights are decided, the optimal anti-pollution measures will be taken in both cases, even though the income distribution is different.

This central part of economic theory should not be confused with PPP — the Polluter Pays Principle — as adopted by the OECD in 1972 and later in Rio in 1992. PPP is a principle for how anti-pollution costs and the costs for avoiding environmental damage should be distributed. The principle requires companies to bear the costs of the introduction of cleaning technology and not receive subsidies from the government. It does not give any direction as to how costs should be distributed for damage which occurs despite anti-pollution measures, and does not suggest any particular system for compensation. Neither does it state the level to which emissions should be abated. Since 1975, it has been permitted to also demand compensation, but due to strong opposition from industry no country has actually utilized this tougher form of PPP.¹¹⁴

An important reason for the OECD to, at an early stage, establish this principle was the wish to avoid a distortion of world market prices. If cleaning costs are distributed differently in different countries, so that one country subsidizes a company while another lets the producers pay, the price of goods would be affected.

From the viewpoint of environmental economic reasoning, we see that the PPP does not give the polluter complete responsibility for paying, since it indicates how the cost of *purification* can be distributed but does not present a clear picture of how the cost of *environmental damage* should be handled.

It is not obvious who should have the rights to the environment, and it is apparently not the case that one group or another should have unlimited rights. There can be instances where the victim should have a stronger right — and would thereby be eligible for compensation from the polluter. There can also be instances where effective purification can only be achieved if the victim pays, such as when a rich country suffers from pollution in a poor one.

Chapter 3

Trade Regulations — the Institutional Framework and Actual Conditions

There is a widespread misconception that free trade would be desirable. It is not unusual that the GATT agreement is referred to as a "free trade agreement" and the EU is referred to as a "free trade area". These expressions imply that there would be no restrictions whatsoever on trade; on the contrary, trade would not be regulated at all.

Let us establish that there are no free markets or free trade in the true sense of the word. Markets, i.e. places where things are bought and sold, and trade, that is buying and selling, always function within different institutional frameworks. Legislation (competition legislation, taxation, etc.), trade regulations (GATT, bilateral trade agreements) and cultural aspects are examples of such frameworks. Free trade would presuppose totally free (unregulated) markets and would mean a total lack of institutional frameworks. There would consequently be no taxes, no laws and no international agreements.

If free trade existed, it would be permissible to trade anything that someone else was willing to buy or sell, including people, narcotics, atom bombs and toxic waste, to mention a few of the more striking examples. From this perspective, it seems quite obvious that free trade is not something to be aimed at. This observation is also confirmed by the fact that countries all over the world have chosen to limit different forms of trade, for example within the areas referred to above.

What is generally meant by the phrase "free trade" is *increased liberalization* of international trade, the removal of trade barriers which impede the flow of goods between countries, hindering an efficient utilization of resources and thereby impairing the general welfare. But just as there are reasons to stimulate a freer flow of goods across borders in some instances, so there are obvious reasons why it is necessary to restrict trade in order to increase welfare. This is expressly recognized in, e.g. GATT rules and within EU regulations, since certain paragraphs grant member countries the right to introduce rules (for environmental protection, for instance) which restrict trade in a number of ways.

This means that there is no *actual* free trade and that thereby no areas exist that are not covered by trade restrictions. However, there are geographical areas within which countries have agreed that in principle it is permissible to sell a particular item everywhere, given that the item has been approved for sale in a country included in that area. The EU has, since January 1, 1993, represented such an area, as a further development of the original customs union. As a result of the principle of free movement of goods produced and marketed in an EU country (the Cassis de Dijon Principle, see page 104), it is usually called a "free trade area". Individual membership countries, however, have the opportunity to adopt measures which restrict trade, if they are directed towards, for example, protection of the environment.

The question is, thus, not *whether* trade should be regulated, but *how* it should be regulated. This leads to the difficult question of *what kind of* trade should be restricted. How should an institutional framework be designed with regard to trade, in order to achieve as high a level of a welfare as possible, both materially and otherwise? Which types of trade are desirable and which are less desirable?

It is impossible to give simple and complete answers to such questions. The answers lie in what the political systems in different countries are prepared to accept, which means that there are considerable differences between countries. This is neither right nor wrong; it is quite natural considering the diversity of cultures and religions which exist in different countries. There is nothing odd about the fact that there are different opinions as to what is good or bad, desirable or undesirable; on the contrary, it is very human.

There are, however, certain utilities which it is in the interest of everyone to preserve, namely the basic prerequisites for human life. Some examples are: protection against ultra-violet light in the form of a functioning ozone layer, a normal climate and biological diversity which ensures genetic selection and prevents resilience (the ability to recover after a disturbance) from diminishing. In general terms, development which preserves such values is usually called sustainable development or *ecologically sustainable development*.

This chapter examines the opportunities offered today for adoption of measures for environmental protection which affect international trade within the framework of GATT. The EU trade regulations are also discussed from the same perspective, albeit somewhat briefly. An overview of certain key functions in the NAFTA (North American Free Trade Agreement) is then presented. At the end of the chapter, we discuss in which respects international trade regulations would possibly need to be changed in order to

better correspond to the demands set by the international community's goal for ecologically sustainable development.

GATT — today's playing field for world trade

The GATT (General Agreement on Tariffs and Trade) was established in 1947. The purpose was to try to achieve better organization of international trade, which after World War II was full of regulations which had often been introduced for specific situations which occurred during the war years.

The GATT is not an independent organization, merely an agreement the intentions of which can only be interpreted by the member countries. The agreement has never formally come into effect, but the fact that GATT has existed and been applied since 1947 has resulted in the GATT rules being regarded as binding.

Since its beginning, GATT has provided a forum for negotiation for simplification of the regulations for international trade among the member countries. In 1992, GATT had 108 members, who account for approximately 90 per cent of world trade.

In principle, the GATT agreement only regulates trade of goods and products and, in the present model and with the present interpretation, not production processes. GATT's objective is to promote economic development by doing away with various barriers to international trade.¹¹⁵ The agreement gives detailed instructions for GATT countries' conduct in the trade policy arena, and thereby regulates the conditions for how countries respectively should or should not act when designing trade policies — although considerable scope is left for interpretation.

Within the GATT framework, six general tariff negotiations were completed from 1947 to 1967. In principle, these aimed at first mapping out restrictions on international trade in the form of quantitative restrictions and customs duties, and then minimizing the levels of duties. This process continued from 1973 to 1979 during a further round of negotiations, the Tokyo Round. New agreements for levels and areas for customs duties, as well as new multilateral agreements regarding non-tariff measures, were finalized during these negotiations. The TBT Agreement (Technical Barriers to Trade) on technical trade barriers can be found among these agreements. Express use of the word "environment" in a GATT context was first made in the TBT Agreement.

The Uruguay Round

The Uruguay Round began within GATT in 1986. It has concerned with custom duty levels and technical trade barriers as well as trade of services and intellectual property rights (e.g. patent rights), which are completely new areas of interest for GATT. The Uruguay Round includes a suggestion for a separate agreement on sanitary and phytosanitary measures, the SPS Agreement (Sanitary and Phytosanitary measures, see page 95). This agreement specifically mentions the environmental issue, and in approximately the same way as the TBT agreement.

Environmental issues are included in the Uruguay negotiations, at least indirectly, but many important questions concerning trade and the environment have not been under discussion. According to informed observers, several governments are employing a deliberate strategy of not dealing expressly or comprehensively with environmental questions in the current negotiations. This can be explained to some extent by a general unwillingness to "come to grips with" environmental questions, and by the fact that an exhaustive body of data on which to base negotiations is not yet available.

It can, however, be stated that there is a general opinion, in both environmental and trade policy circles that forthcoming negotiations will have to deal with the difficult and complex matters related to trade and the environment. As mentioned at the beginning of this report, analysis of trade and environmental issues has already commenced in several international forums. The aim is to map out questions and define concepts in order to facilitate the coming negotiations regarding the GATT rules (see page 10).

A much-debated and controversial suggestion in the Uruguay Round has been the creation of an international trade organization (Multilateral Trade Organization: MTO) from the GATT which would give the GATT formal status and formal authority. This suggestion has given rise to considerable opposition, for example from environmental organizations in the USA, possibly because the MTO could be given authority which would supersede national (United States) legislation. Some central aspects of the MTO are examined in the following sections, but not especially exhaustively. This is due to the fact that discussions regarding an MTO are far from complete; even establishing an overview of the current proposals within the framework for the Uruguay negotiations is a complex matter. It is therefore difficult to present a fair view of the situation. It can, however, at the time of writing (1993), be stated that no proposal can be identified which would undoubtedly reduce or improve opportunities for environmental protection. In other words, as already stated above, environmental issues have not been given priority in the Uruguay Round.

National regulations create comparative advantages

One of the central intentions within the GATT is that any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country applies equally to the like product originating in or destined for the territories of all contracting parties. No country should discriminate against any other (Article 1, GATT, regarding the MFN principle — "Most-Favoured-Nation"). In line with this principle, countries should not introduce trade restrictions which discriminate against foreign producers in relation to domestic producers (Article 3, GATT, the principle of "National Treatment"). The foundation for these two central GATT principles can be found in economic theory (see Chapter 2). The theory shows that the overall material welfare improves if countries trade with each other and thereby specialize their production to the items they can produce at the highest quality and best price compared to other countries, given certain assumptions. The fact that these conclusions are based on assumptions which are seldom or never fulfilled in reality has already been discussed in Chapter 2.

Yet another dimension of GATT appears when discussing the content and interpretation of the phrase "comparative advantages", namely national legislation and regulations. These are regarded by GATT as part of a country's relative competitive strength. GATT members have agreed not to introduce discriminatory customs duties for different goods. This makes it difficult to "even out" differences in production costs by collecting duty on imports from countries which have, for example, lower taxes, fewer long-term requirements for labour protection or less-developed social welfare systems. (These items are often referred to as "self-induced costs".)

It can, however, be strongly disputed whether for example the rapid destruction of a country's rain forests can be regarded as a comparative advantage for that country. The country can, in the short run, gain some export income as a result of low production costs, but in the long run the conditions for a sustainable income source from the forest are undermined. It also impoverishes international resources such as the biological diversity which only exists in rain forests. The rain forest also most likely represents an essential link in the sensitive interplay between the different factors which determine the world's climate. For reasons identified in the previous chapter, these aspects are not considered by the market.

For quite some time, there have been detailed discussions within GATT regarding the introduction of some form of social clause.¹¹⁶ A clause of this nature would make it possible to discriminate against imports from countries which have insufficient labour protection and/or lower levels for certain central social welfare functions and therefore incur lower production costs.

A social clause has still not been introduced, but there is constant discussion of the subject.

Similar reasoning can be applied when certain countries allow inferior environmental protection with the aim of holding production costs down and therefore increasing their own competitive strength.

Obviously, policy-making which results in the disregarding of long-term economic interests, as well as national and global environmental interests, has nothing to do with production advantages. On the contrary, such policies should, in GATT terms, be referred to as hidden subsidies to industry, which are forbidden according to the GATT rules.

As Franklin Roosevelt put it in a speech to the US Congress in 1937: "Goods which are produced under conditions which do not meet a rudimentary level of decency should be regarded as contraband and not be allowed to pollute the roads of international trade."¹¹⁷

Violation of GATT rules

In principle, the GATT rules are binding, but there are a number of exceptions to which we will return later. It can be stated that no country is automatically "guilty" if it breaks one of the GATT rules.

Every country is obliged to notify GATT of all measures which may influence international trade.

The notification procedure makes it possible for contracting parties to be sure that their rights according to the GATT are not violated. In such cases, it is possible for countries to register complaints about the measures (whether they have merely been suggested or already put into practice) which they deem to infringe their rights. First, bilateral negotiations are to be initiated between the parties concerned. If no solution to the conflict can be arrived at by discussion then the contracting party bringing the complaint can request (from GATT) that a panel be appointed to decide whether or not the GATT rules have been violated.

A panel consists of three experts with special competence in trade policy. The experts are appointed by GATT and need to be approved by the parties involved. The panel has the right to consult with each international organization deemed appropriate and to procure the specialized knowledge it requires. It is principally the accused country which must prove that it has not acted in a way which would constitute a violation of the GATT rules. The outcome will depend upon which paragraph of the GATT rules the contracting party bringing the complaint is referring to.

Using the petition from the party bringing the complaint as a foundation, the panel must determine whether the GATT rules have been violated. The panel report is not, however, equal to the ruling of a court of law, but it is

sent to the GATT Council (one ambassador from each contracting party), which can unanimously adopt the panel's recommendation. There need be only one dissenting voice in the Council for the panel's decision not to be adopted. According to the current proposal in the Uruguay Round, it is suggested that certain changes be made at this stage in the dispute settlement process. One of the proposals, which at the time of writing is still being discussed, is that a panel should be able to apply some form of qualified majority if consensus cannot be reached. The possibilities for sanctions are also being examined. There is also a proposal that the recommendation of the panel could be appealed against, which is not possible today.

It should be noted that only countries which are GATT members can interpret the rules. The GATT is not an independent organization, but rather the sum of the agreements of its member countries. This means that countries can agree that rules should be given a certain interpretation, that an older interpretation can be changed or that the GATT texts be changed. It is therefore not clear how a certain measure will be judged by GATT, there is a great deal of room for alteration to accepted practice regarding interpretation changes over time and different types of questions. One of many examples of such interpretations is the meaning of the words: "arbitrary" and "unnecessary" in Article 20 (see below).

Sweden has, for example, since 1979 successively developed an increasingly restrictive attitude to the use of cadmium. The present decision was introduced in 1985 and is formulated as a general ban on the use of cadmium, with a list of the permitted exceptions.¹¹⁸ Is this ban necessary? Is it arbitrary? The ban has never been tried in GATT, since no other member countries have challenged the Swedish measures. However, that is not to say that Sweden could today decide to similarly ban the use of mercury without a dispute. It would depend entirely on whether or not a contracting party complained about the ban.

Generally, environmental measures have led to few formal deliberations within the GATT framework and even fewer panels.

GATT exceptions for environmental protection

As mentioned above, the GATT rules are, in principal, binding. There are, however, a number of exceptions which can cause the main regulations in the GATT rules to be set aside. This text will describe only the exceptions which at present can be invoked to apply trade restricting measures for environmental protection, specifically Article 20.

Article 20 in GATT is often called the rule of exceptions; it stipulates that measures applied in a manner which would not "constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade" are permitted as follows (Article 20 appears in full in Appendix 4):

b) necessary to protect human, animal or plant life or health;

*g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.*¹¹⁹

It should be noted that the word "environment" is not expressly found in the General Exceptions. However, the text has (especially 20 b) come to be interpreted as general environmental protection, since protection of human, animal or plant life or health is in principle what we directly or indirectly wish to protect by protecting the "environment".

It is not obvious what the words "arbitrary", "unwarranted" or "disguised restrictions" mean, and what the phrase "countries where the same conditions prevail" means in practice is not completely apparent either. We will return to these phrases later in this chapter.

Conditions for the approval of environmental protection measures

If a country adopts measures to protect the environment (necessary to protect human, animal or plant life or health) and the measures influence international trade, the measures should fulfil certain conditions in order to be compatible with GATT rules.

1. Is the environmental protection *legitimate*? The word "legitimate" implies an implicit requirement to prove that an environmental problem actually exists, i.e. "scientific justification"

2. Is the measure *necessary*? Are there other alternative measures which fulfill the goal of environmental protection, where trade is influenced to a lesser extent?
3. Is the measure applicable in such a way that *foreign producers are not discriminated against* in an unjustified manner? Simply put: are domestic goods treated in the same way as foreign goods?
4. Is the measure applicable in such a way that *no particular GATT member will be discriminated against* in relation to other GATT countries? Are imported goods, regardless of the country of origin, treated the same as native goods?
5. According to current interpretation of GATT rules, the measure can only be introduced in order *to protect national territory*.

The GATT regulates only the trade of goods and products, not production processes, i.e. how the goods are manufactured. This means that it is not permitted, in general, to adopt measures against imports, based on how the goods are manufactured in the importing country. If an importing country believes that a manufacturing country has not protected the environment sufficiently during the manufacturing process of actual goods, the importing country does not have the right to introduce import restrictions against the goods by invoking environmental protection, *according to the GATT rules as they are formulated today*. In principle, only product-related effects (i.e., hazardous substances, insanitary conditions, etc.) can be invoked according to the GATT. If the proposals for examination by the TBT Code in the Uruguay Round are passed, then production methods with product-related effects will be covered by the GATT to a certain extent.

Extraterritoriality — interfering in other country's policies

Trade restricting measures which are directed towards conditions outside individual countries, for example, against production methods in other countries, are usually called extraterritorial measures. One probable reason why the GATT rules in principle only concede measures which are directed towards product-related effects and not towards production methods, is that the GATT, in principle, could otherwise be in violation with current international law. According to international law, each nation state has sovereign right over its own territory. If the GATT rules conceded measures against products which are based on judgments of how the product is manufactured in another country, it would result in a distinct interference in

the decision-making sovereign rights of nation states. This would favour large, economically strong countries, which could then force smaller countries to change their policies. In discussions on trade and the environment, the phrase "environmental imperialism" is sometimes used.

The fact that the GATT rules only allow measures which aim at environmental protection within a country's own territory today seems obsolete and limited, since environmental degradation to an increasing extent spills over national borders. Perhaps the greatest threats to the environment that we know of today are those of climate change and depletion of the ozone layer. Both are examples where global commons are affected — i.e. areas which lie outside the legal jurisdiction of any particular country are threatened. To this already bleak picture can be added the rapid depletion of genetic diversity through the extinction of plant and animal species. Fish, birds and other wild animals do not recognize man-made borders. The environmental gain from protecting a species on one country would, therefore, be reduced if neighbouring countries did not introduce similar protective measures.

It can be thought quite remarkable that, according to GATT, it is permissible to take measures against the importation of products which are manufactured by prisoners (see Article 20, Appendix 4), while at the same time it is not permissible to take measures against imports of products manufactured in a way which damages the earth's shield against ultraviolet rays — an essential prerequisite to biological life as we know it. The explanation lies most likely in the fact that the GATT rules were formulated some time ago. At that time, trade of goods manufactured by prisoners was a great problem from the point of view of competition, while the substances which destroy the ozone layer had not even been invented. According to information from the Ministry of Trade in Great Britain, the first draft of Article 20 was written in the early 1920s. This may also explain the weight attached to trade in gold and silver, since gold, especially, was the monetary standard of coinage of the time (see Article 20, Appendix 4).

It should be noted, however, that when interpreting Article 20 it is not evident that Article 20 can be applied only when taking measures to protect a nation's own territory. One trade analyst from the USA points out that an addition, which *would have* restricted the use of Article 20, was not adopted when the paragraph was formulated. At the beginning of the 1900s, there was also a tradition of making agreements with extraterritorial influence. During the decades before GATT was written, a great many agreements were aimed toward protecting people and the environment, not just in certain countries but in all countries, and which regulated trapping animals, for example.

In general, import bans were introduced within the framework of international cooperation, in order to help export countries implement protective legislation. On a few occasions, countries acted either unilaterally or collectively, hoping to influence countries which were not part of the agreements. One example of the latter is the ban against the production and import of matches manufactured using white phosphorus. White phosphorus caused serious health problems during the manufacturing process, but not when the matches were used.¹²⁰

The GATT has changed over time, and new articles have been added. According to Article 21 (on exceptions regarding national security) it is, for example, permissible to introduce any trade measures if they are taken to protect interests regarding national security, such as the following:

- i) *relating to fissionable materials or the materials from which they are derived;*
- ii) *relating to the traffic in arms, ammunition and implements of war and to such traffic in other goods and materials as is carried on directly or indirectly for the purpose of supplying a military establishment; (see Appendix 4.)*

Special agreement within GATT on product regulations and related areas

In connection with the conclusion of the Tokyo Round in 1979, the GATT rules were supplemented by an independent agreement from GATT, namely the TBT Agreement.

The TBT Agreement (Technical Barriers to Trade), regulates the utilization of national technical regulations and standards which can influence international trade. TBT covers all types of products, including agricultural products, but not trade of services. Today's decisions in TBT are concerned with product features, while the Uruguay Round's proposal for revision of the TBT Code includes characteristics which relate to production methods and include, for example, requirements for packaging and labelling.

The proposal for an agreement on sanitary and phytosanitary measures, the **SPS Agreement** (Sanitary and Phytosanitary concerns human, animal or plant life or health) in the ongoing Uruguay Round covers all measures which are taken in order to protect human, animal or plant life or health.

The departure point for both agreements is that contracting parties should not be prevented from taking measures which are necessary to protect human, animal or plant life or health. Since such values directly relate to what we usually call environmental protection, TBT can be interpreted as

including environmental protection as a legitimate use for technical regulations covered by the agreement.

However, this does not give *carte blanche* to the introduction of all measures developed for protecting the environment. In a manner corresponding to GATT, it is required that measures fulfill certain conditions before they are permitted according to TBT and/or SPS:

1. *Transparency*. The proposal for the SPS and TBT Agreements in the Uruguay Round both contain comprehensive decisions concerning transparency, that is, information for interested parties (other contracting parties). Information should be available both if a measure is going to be taken (beforehand), and also on how the decision is formulated (afterwards).¹²¹

2. *Legitimacy*. The Uruguay Round's proposal for both agreements requires that measures taken to protect the environment or health should be legitimate, meaning that there must be scientific justification to indicate that the measures will actually protect the environment or health.¹²² This is a further example of the scope for interpretation which exists in GATT, since it is quite clear that all scientists are not unanimous on all issues.

3. *Non-discrimination*. The proposals to both agreements are based on Article 20. However, there are stricter requirements regarding non-discrimination in TBT than in SPS.

4. *Least trade restrictiveness*. Both agreements contain requirements that the measure which is taken should disturb trade to a minimal extent, given that the environmental goal can be reached. In SPS, there is a supplement stating that the above applies, but what is technically or economically feasible must also be considered.¹²³

In the Uruguay Round's proposal for the TBT and SPS there are decisions which cover production methods.¹²⁴ TBT and SPS consequently contain decisions on measures which should be taken in other countries. The decisions are, however, restricted to measures which directly relate to product characteristics essential to the importing country (TBT) or measures which are necessary to protect health within the importing country's territory (SPS). An example of the SPS Agreement is the management of timber in export countries regarding measures for killing bark beetles, since the spread of these insects to importing countries could cause damage to the forests in those countries.

A final item worth special notice in the TBT Agreement is the decisions on international standards. TBT states that where relevant standards exist or where their preparation is close to completion, the contracting parties should use these or relevant sections of them, except in the case (...) such international standards or relevant sections of them may not be appropriate for the contracting parties, for example for reasons such as the protection of human health or safety, animal or plant life or health, or the environment; fundamental climatic or geographical factors; fundamental technological problems.

In practice, this will mean that, even if international standards exist for, e.g., permissible traces of insecticides in food products, each country is still free to introduce more stringent regulations. The TBT requirements regarding standards should thus be regarded as a floor rather than as a ceiling.

GATT panels on environmental questions

There have been few panels regarding methods for environmental protection during GATT's nearly fifty year old history. Of the hundreds of panels which have been appointed, only a small number have been concerned with Article 20 in GATT, the article which can be cited when dealing with health and environmental protection measures. The most interesting and comprehensive of the panels concerned with Article 20 has been the USA ban on the importation of tuna from Mexico.

Schools of yellowfish tuna in the Pacific Ocean often swim beneath schools of dolphins, which results in the dolphins being caught in nets meant for the tuna and consequently dying. This is especially the case when fishing for tuna with a purse seine net. There was already a law in the USA in 1972, the Marine Mammal Protection Act, which aims to protect marine mammals such as certain species of dolphin. The law sets a ceiling limit on dolphin catches as well as the number of dolphins in relation to the number of tuna caught. This legislation applies in US territorial water and the economic zone; ships travelling in international waters and registered in the USA are also bound by this legislation. The law decrees an import ban on tuna fish which is caught using methods which do not comply with US standards. The legislation offers an opportunity to ban the importation of all fish from a country which does not comply with agreements made in this area of debate.

In August 1990, an embargo was placed on the import of tuna from countries not fulfilling US standards. The embargo first covered five countries, but finally was only concerned with Mexico since the other countries had promised to fulfill the American demands. Imports of

yellowfish tuna, a tuna product from Costa Rica, France, Japan and Italy, among other countries, were later prohibited.

Mexico protested against the measures and requested consultations with the USA in November 1991. When nothing came of these discussions, they requested a GATT dispute settlement panel in February 1991.

Mexico argued as follows:

- * The American measures are in opposition to GATT's Article 11 (ban against quantitative restrictions) and Article 13 (ban against discriminatory measures connected to specific geographical areas.)
- * The possibilities to expand the embargo on all fish from countries which do not fulfill specific regulations regarding tuna are in opposition to Article 11.
- * The marking of approved products (dolphin-safe) is discriminatory and in opposition to Articles 9 and 1.

The USA cited Article 3 in its answer and considered the treatment of imported goods to be no less favourable than the treatment of similar domestic products (see page 89 and Appendix 4). The USA also stated that even if the measures could be considered to be in opposition to Article 3, then they could be defended by citing Article 20 b) or g).

Mexico replied in its comment to the American statement that Article 20 refers to one individual country and cannot be used extraterritorially, that the affected dolphin species were not threatened with extinction according to the Washington Convention's Appendix 1, that the same species were influenced by other fish in the Northern Pacific Ocean which were not under the same restrictions and that it is generally doubtful whether the phrase "exhaustible" can be applied to a population of living creatures.

The panel decision

In the panel report, published in August 1991, the American measures were found to be in opposition to Article 3 and 11. The panel stated that only measures connected to the product are in agreement with the GATT charter and that the American measures related directly to *production methods*.

The panel also noted that the GATT did not specifically say anything about the possibility, with the support of Article 20, of taking measures for the protection of the environment in areas outside a country's own territory (extraterritorial). The preliminary work and the aim of the "exception clause" were therefore analyzed in addition to the consequences for GATT that interpretation in general could result in. According to an early version of

Article 20, measures could be taken with the aim to protect plants and animals if corresponding domestic protective measures existed in the importing country. This was considered by the panel to mean that the aim is to allow protection of the environment only within a country's own territory.

The panel further felt that the United States measures were not necessary, for example as a result of certain technological details on how import regulations are formulated.

The possibility of instituting environmental marking ("dolphin-safe") was not regarded to be in opposition to GATT.

The panel also emphasized that the GATT rules offered substantial opportunities for member countries to institute measures which would restrict trade in order to protect the environment within their own territory. The panel also stated that if import restrictions based on differences in countries' environmental requirements were to be allowed then it would be necessary to define the limits for how and where this could occur so that abuse in the form of, for example, disguised restrictions can be prevented. If such possibilities are to be created, it would be better to change the agreement and simultaneously safeguard possible changes with limitations and criteria rather than to extend the present interpretation of Article 20.¹²⁵

What happened afterwards?

In reality, the USA did not follow the GATT panel's recommendation, and consideration of the panel's report for formal adoption was deferred by the GATT Council, since the USA vetoed its approval. Mexico decided not to pursue the question further. In the spring of 1992, the USA and Mexico began negotiations for an agreement on a five year moratorium on the use of the much-discussed purse seine nets.¹²⁶

GATT and international environmental agreements

Since GATT was created in 1947, environmental problems have changed in character. The changes described in the previous section, that is from local to transboundary, regional and global problems, have introduced a whole new dimension to environmental work. New solutions are required which demand distinctly intensified international cooperation, since no single country can alone solve problems by taking measures in its own territory.

With these factors forming the background, negotiations on international environmental agreements have become an increasingly important part of environmental policy in most countries. Until now, the work has resulted in approximately 170 international environmental agreements being signed¹²⁷,

where countries undertake different long-term environmental measures depending on the level of development and other factors. An important element of these agreements is that industrialized countries often allocate money in international funds, which are intended to be transferred to developing countries under certain conditions, enabling them to afford to comply with the international environmental agreements.

Barely 20 of the international environmental agreements contain measures which are directed towards trade (see Appendix 2). Decisions on the regulation of international trade have, in general, been introduced so that the effects of other measures will not be negated. An example of this kind of convention is the Montreal Protocol which is an agreement among 111 countries to reduce emissions and the use of ozone-depleting products according to certain criteria.

In pace with the increase in the number of international environmental conventions with regulations regarding trade, the risk of conflicts between GATT rules and the international environmental conventions has also increased. As we shall see below, the legal relationship between international environmental conventions and the GATT is not completely clear.

GATT and the Montreal Protocol

In the Montreal Protocol, trade in ozone layer-threatening substances is regulated between countries which have signed the protocol as well as other countries. According to Article 4, member countries may not trade in those substances regulated in the protocol (including products containing those substances) with countries which have not signed the protocol. However, trade in regulated substances as well as products among those countries which have signed is permitted.

The motive for introducing this trade regulation was the risk that industries which manufacture substances that threaten the ozone layer could move their production to countries which had not signed the Montreal Protocol. Such a move might cause the member countries' decreased emissions to be nullified, since the environmental problem would simply be moved from one location to another. It does not matter where CFC is released; its influence on the ozone layer is equally negative.

Using GATT terminology, the Montreal Protocol's trade regulations can be described as a choice by the members to *discriminate* against non-member countries concerning trade in substances and products containing those substances, as regulated in the protocol.

It is in this instance that problems can arise regarding the relationship between regulations in the Montreal Protocol and regulations in GATT. As

described on page 55, GATT member countries have agreed not to treat another GATT country less favourably than the most-favoured-nation (Article 1). One potential problem between GATT and the Montreal Protocol lies in the fact that some countries have signed GATT but opted to remain outside the Montreal Protocol (see Appendix 2). The following example illustrates the problem: according to GATT, Sweden has committed itself to treat South Korea as favourably as, for example, the UK, at the same time that Sweden has agreed, according to the Montreal Protocol, to discriminate against South Korea in relation to the UK when it comes to trade in substances (and products containing these substances) that are regulated by the Montreal Protocol.

A further aspect of the relationship between trade measures in, for example, the Montreal Protocol and GATT, is that the present interpretation of the GATT, (see page 58), only provides for measures which are "necessary to protect human beings, animal or plant life of health" (Article 20b) *within a country's own territory*. In the respective discussions within the OECD and the GATT's Group on Environmental Measures and International Trade, it has been questioned whether measures to protect the ozone layer are really in agreement with the current interpretation of Article 20, that is, whether the ozone layer is actually a part of national territory.

At the same time, a conflict will not arise unless one GATT member brings an official complaint about another GATT member. Furthermore, no country has as yet questioned the Montreal Protocol.

It is not clear either how a potential GATT panel would rule on these questions. According to international law, a new agreement takes precedence over a previous agreement and a specific agreement takes precedence over a general one.

It is difficult to date GATT since it is constantly being re-negotiated. The fact that GATT has never formally come into effect, even though it has been applied for almost 50 years, further complicates the issue. The Montreal Protocol is, however, without doubt more specific than GATT (*General Agreement on Tariffs and Trade*). The Montreal Protocol also has more members than GATT. This will not however resolve a potential dispute, since a GATT panel can only consider whether or not the GATT rights of the contracting party bringing the complaint have been inadmissibly violated.

However, a large number of GATT member countries have signed the Montreal Protocol, and it is hardly in their interest to set a trap for themselves. GATT is not an independent organization but a system of rules which can only be interpreted by member countries. It is therefore unlikely that a measure taken in accordance with trade decisions in the Montreal Protocol would not be approved of by the GATT Council, even if a country which had not signed the protocol brought a formal complaint.

The other international environmental agreements, where compatibility with GATT has been discussed, are the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, and the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). CITES came into effect in the early 1970s. There have been no instances of a GATT member country complaining that their GATT rights have been violated by application of the trade decisions in this environmental agreement.

GATT and Agenda 21

In November 1992 it was decided within GATT that Agenda 21 should be submitted to the GATT Group on Environmental Measures and International Trade for the discussion of relevant questions. Certain items (Chapter 2A in Agenda 21) will be examined by GATT's committee for trade and development. It is presently unclear how the work with Agenda 21 will take shape. Some of the relevant points are already being examined within the standing agenda of the group on environmental measures and international trade in the GATT. At the same time, it is obvious that all trade and environmental issues in Agenda 21 are not covered under these points.

In the ongoing negotiations within the Uruguay Round there is a proposal to create a special environmental committee within GATT. Such a committee could work in a more united and comprehensive manner with trade and environmental questions. At the same time, it can be stated that this is an extremely controversial issue, and the final decision cannot be predicted.

There is good justification for giving special attention to one of the principles of the Rio Declaration, namely Principle 2: "States have, in accordance with the Charter of the United Nations and the principle of international law, the sovereign right to exploit their resources pursuant to their own environmental and development policies and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond national jurisdiction."

The principle embraces one of the central issues in the trade and environment debate, namely production processes in other countries and the opportunities for a certain country to take measures against conditions outside their own territory. Let us assume that a certain country contains a large proportion of the world's rain forests, which are of global interest and value in terms of preservation of biological diversity and protection of world climate. Assume further that the same country has a long-term unsustainable forestry policy, which means that the rain forests are being rapidly decimated, resulting in dramatic losses of species and negative impact on

the CO₂ balance in the atmosphere. According to Principle 2 in the Rio Declaration, that country has the right to exploit its own resources in accordance with its own developmental policies, but at the same time the country is in opposition to the second part of Principle 2, which states that activities within one country may not damage other countries' environments, or areas which lie outside their national borders.

Provided there was broad support for the idea, GATT's member countries could decide to allow the imposition of import restrictions on exports from countries whose environmental regulations were considered to be "inadequate". . . . / It would be necessary to define inadequate environmental regulation and to develop procedures and criteria that would minimize the chances of abuse.

Trade and Environment, page 12, chapter 3 in International Trade, 1990-1991, GATT 1992

How will countries react when their interests are damaged and both the interests and the cause of the damage physically lie outside their territories? What measures can countries take to protect such interests and how important is it that they can do this in relation to the importance of upholding the principle that every country decides over its own natural resources and development? It is obviously of the utmost importance as soon as possible to find a way to combine important principles of international law on decision-making rights over a country's own territory with the need to protect environmental values which are of global interest.

EU trade regulations and the environment

The Common Market aims to create economic growth and stability and thereby increase welfare. Member states' production resources are to be used as rationally as possible. Equivalent and undistorted competitive conditions should enable trade and exchange of goods and services on a common market, and member states should be able to work, invest and produce, and thereby further the goals of the community.¹²⁸

The Treaty of Rome contains a number of prohibitions against national measures which create trade barriers and transboundary activities. Free movement of goods can, for example, be hindered if national regulations with demands for a product's quality are formulated differently, so that products cannot be marketed in countries other than the one they are produced in without the additional costs of adjustments during or after production.¹²⁹

The EU is a customs union with a common border. The customs union is concerned with all trade of goods, and customs duties cannot be applied either on goods which are exported or imported between countries. Charges with the same effect are also banned. Once a product has passed the common border, it has free movement within the community and is covered by the Treaty of Rome's regulations on free movement of goods.

In principle, the Treaty of Rome's regulations do not cover the member countries' tax systems. Tax regulations may not, however, create barriers for the free movement of goods, services, capital and services. Therefore, the treaty contains regulations directed towards fiscal discrimination. It is forbidden to levy tax on other member states' products above the level of direct or indirect taxes on similar domestic products or to, using taxation, indirectly protect certain products. If similar products are taxed unevenly, then that difference must be for objective reasons.

Other barriers to the international flow of goods are covered by the Treaty of Rome's Article 30. This article prohibits quantitative import restrictions and all measures having an equivalent effect (see page 101). In a fundamental ruling¹³⁰, the EC Court of Justice explained that the prohibition in Article 30 covers any measure which can "directly or indirectly, actually or potentially" influence trade negatively.¹³¹ In reality, it covers any measure which can be thought to prevent someone from moving goods from one member state to another.

An important principle — "Cassis de Dijon"

To the extent that specific directives (common regulations) for particular goods do not exist, the general EU rule is that if a product is accepted in one member state then it can also be sold freely in other member states. Perhaps the most well-known example of the questions which concern this principle and have been handled in the EC Court of Justice concern a French liqueur, Crème de Cassis de Dijon. When the West German government tried, at the request of their own liqueur producers, to stop the import of similar French liqueurs, they referred to West German alcohol policy regulations: the French liqueur, which has a lower alcohol content than the West German liqueur, was declared to be hazardous to some sections of the population as it would be abused by certain groups of people. This argument was not approved of by the EC Court of Justice and West Germany was forced to withdraw its sales ban.¹³²

Exceptions for environmental protection

The equivalent to Article 20 in GATT is Article 36 in the Treaty of Rome, which establishes that measures which act as trade barriers can be introduced on the basis of particular considerations. These considerations are similar to those which are named in Article 20 in GATT and are, with regard to consideration for the environment, described as "protection of the health and life of human beings, animals or plants".

Measures which are based on these considerations do not need to treat foreign and domestic goods alike. They may not, however, be arbitrarily treated differently or in a protectionistic manner, in the same way as according to the GATT rules. The principle that a measure must be necessary is also contained in the Treaty of Rome. If the Council has adopted a harmonization measure a member state can also refer to article 100a4 if it deems it necessary to apply, i.e. stricter, national environmental requirements.

A requirement for environmental measures influencing trade, which is found in the Treaty of Rome but not in the GATT, is that *the environmental measure must be proportionately formulated*. In reality this means that the "environmental gain" should be at least as large as the potential "trade loss".

Two of the most important court cases in the EC Court of Justice which are concerned with the environment are described below.

Danish bottles in the EC Court of Justice

In 1981 Denmark decided that all beer and soda must be sold in recyclable bottles. The decision was made in the context of an old and well-functioning glass bottle recycling system which was threatened by increased sales of non-returnable beer bottles and other non-returnable bottles. The EU Commission considered the law to add greater costs to suppliers of imported goods than to suppliers of Danish goods and that the law thereby created a trade barrier preventing free movement of goods within the community. The case was handled in the EC Court of Justice in 1986.

The Commission claimed that Danish law conflicted with the basic regulation that all goods accepted in one member state are automatically accepted in all other countries. Even though foreign bottles were not directly prohibited, foreign suppliers had greater difficulty creating a system to handle all the recyclable bottles. The Commission regarded this as discrimination against the foreign companies. They also stated that the law was not in proportion to the environmental gain and that sufficient environmental protection could be reached by other means, for example, voluntary collection systems and recycling instead of re-use.

The court ruling in September 1988 allowed Denmark to keep its law on obligatory re-use. The court confirmed that environmental protection is a consideration within the EU which can allow an exemption from the general rule of free movement of goods. If there is no specific EU law in that particular area, situations may arise where distortions of trade are caused as a result of acceptance of different regulations in different countries. The court decided that a law stating that beverage packaging must be returnable was necessary in order to reach a high level of returns and that the measure was therefore "in suitable proportion" to the goal.

However, Denmark's requirement for approval of bottle types was not accepted. After 1984, foreign manufacturers were required to sell goods in bottles which were accepted by Denmark or in their own bottles, but for test periods only and in limited quantities. The motive behind approving bottles was that it is not possible to have an effectively functioning return system (with high levels of returns) if there is a wide variety of types of containers on the market. By controlling the types of bottles, the amounts could be restricted. The court found that a system of recycling non-acceptable bottles does not guarantee a maximum recycling level but does protect the environment. As a result of this ruling, very few beverages are imported into Denmark. The court thereby found that the environmental gain from an obligatory approval of bottle types was not in proportion to the substantial drawbacks for foreign suppliers.¹³³

Trade in Waste: The Walloon Ruling

In 1985 the Belgian Walloon region introduced regulations prohibiting the storage and depositing of waste from other countries or regions of Belgium. The EU Commission requested Belgium to appear in the EC Court of Justice and stated that the country had not fulfilled its commitment according to the Treaty of Rome's Article 30 and 36 in addition to several different directives dealing with waste which exist within the EU.¹³⁴

On July 9, 1992 the EC Court of Justice confirmed that:

- * Waste should be regarded as goods. Recyclable waste has a commercial value, but even non-recyclable material which is transported over a border and is an object for business transactions should be considered as goods, regardless of how the transaction may appear. It is, however, difficult to distinguish recyclable waste from other types of waste.

- * It is not permitted to introduce general import prohibitions of environmentally hazardous waste under the "exception" Article 36, since there is harmonized legislation in this area.¹³⁵
- * The Walloon situation is exceptional, with an abnormally large influx of waste from other regions. The overwhelming need for environmental protection can therefore justify an exception from Article 30.
- * For an exception to be granted according to Article 36, the measures must not discriminate. The court ruled that particular regulations for waste from outside the immediate district should exist, since waste disposal management is a special process. According to Article 130 r2, environmental damage should be rectified at source, and the court stated that waste should be dealt with as close as possible to its place of origin so that the need for transportation is limited.

The conclusion from the Walloon ruling is that it would not be in accordance with EU legislation to introduce a general import ban for environmentally hazardous waste, since there is already a harmonized EU law in this area. However, there are possibilities to stop individual shipments of toxic waste.¹³⁶

EU waste policy after the Walloon ruling

Since the Walloon ruling, EU waste policies have been amended. The directive on transportation of waste¹³⁷ was replaced by a new directive in late 1992.¹³⁸ The new directive confirms the principle of subsidiarity. It states that the transportation of waste should be avoided as far as possible and that each country should be responsible for its own waste. Each country should also be able to refuse to accept waste from other regions. The directive follows the Basel Convention, which states that the export of hazardous waste is only permitted when the government of the importing country has accepted it. The new directive is based on the Treaty of Rome's Article 130s and 130t, which state that the harmonized environmental law specifies a minimal level but that individual countries can introduce more stringent measures if desired. The earlier directive was founded on Article 100a, that is to say implementation of the free market. Article 100a states that legislation is completely harmonized and that individual countries may not introduce more stringent measures.¹³⁹

In 1991, the general waste directive was modified.¹⁴⁰ The legal basis for this modification is Articles 130s and 130t. The EU Commission then

suggested that Article 100a could instead be used as the legal basis. In March 1993, the EC Court of Justice confirmed that, since the environmental goal is the main aim of the law, then Article 130s which is regarded as the embodiment of EU environmental policy, should apply. The aim of the general waste directive is to restrict the production of waste, to encourage recycling and returning, and to guarantee that member states manage their own waste in addition to restricting the transportation of waste. This emphasizes the principle of subsidiarity and the self-supporting principle: the community as a whole should take care of its own waste and each member state should strive towards that goal. The EU ruling thereby states that regarding the waste issue the subsidiarity and self-supporting principles have greater validity than the interests of free trade.¹⁴¹

From the Treaty of Rome

Article 30. *Quantitative restrictions on imports and all measures having equivalent effect shall...be prohibited between Member States.*

Article 36. *The provisions of Articles 30 to 34 shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of...protection of the health and life of humans, animals or plants...Such prohibitions or restrictions shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States*

Article 130 r2. *Action by the Community relating to the environment shall be based on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay. Environmental protection requirements shall be a component of the Community's other policies.*

The entirety of Articles 130 r, 130 s and 130 t can be found in Appendix 5.

Environmental protection and free trade areas

A development which has become more definite during the last few years is the growth of ever larger free trade areas, the sheer geographical area as well as the volume of the markets which are affected. The two foremost examples are the EU's efforts to establish a common inner market, and the realization of NAFTA (North American Free Trade Agreement) between the

USA, Mexico and Canada. There are also plans for a similar arrangement among countries in East Asia, although those plans will most likely be realized at some future date.

The definition of the word "free trade" is, as already discussed, not totally clear-cut, since regulations within the EU's inner market (see page 94) and the NAFTA Agreement offer opportunities for the introduction of barriers against the transboundary free movement of goods due to, for example, environmental protection. However, the aim in both cases is undoubtedly to encourage as free as possible a flow of goods between countries.

The genesis and development of free trade areas (to use the current term) can be both positive and negative for the environment, depending on how regulations are formulated. It is clearly positive if the formulation of the trade agreement is such that the strictest applicable protection regarding, for example, the ban of goods containing hazardous substances within the trade area should be applied in all of the countries included in the free trade area ("upwards harmonization"). The implementation of such a prohibition may be somewhat problematic, depending on which countries are included and their respective development level. It can be more difficult for poor countries to apply strict protection levels than their wealthier neighbours. A changeover to a stricter protection level can be facilitated by connecting some form of structure assimilation funds where wealthier countries in the region donate money which the poorer countries can utilize to reach a higher level of environmental protection.

On the other hand, if regulations within a free trade area were formulated so that the lowest applicable level was allowed for the entire area, it would have an obviously negative effect on the environment. However, it is hardly likely that the regulations would be formulated in such a way, since a number of countries are, after all, striving for a higher level of environmental protection, which, e.g. is manifested and signed in the Rio Declaration and Agenda 21.

Naturally, there are a number of possibilities which lie somewhere between these two extremes; where some levels are raised and others are lowered. It is also possible to formulate regulations in the trade area so they provide minimum protection, for example a minimum requirement on the maximum amount of traces from pesticides allowed in food products, and that countries are free to raise that standard if so desired. However, it should be pointed out that the more of this type of possibilities there are, the less "free" the flow of goods over borders is likely to be since stricter standards in some countries but not others can in practice constitute a trade barrier.

Another environmental aspect of liberalization of trade is the question of whether it will lead to an overall level of higher economic activity (higher total production) and a changed direction for production, and whether

sufficiently stringent environmental measures are being taken to combat environmental effects such as increased use of land, increased transportation, increased air and water emissions, etc. According to the EU's own research into the internal market's influence on the environment, it can be estimated that transportation via highways and roads will increase by 30-50 per cent.¹⁴²

Trade influences price relations in both export and import countries, and since prices influence the utilization of resources, different prices create new production and consumption patterns. This has indirect consequences for the environment. Observers have, for example, warned that NAFTA can lead to more corn being cultivated in the USA and less in Mexico, whereby many small Mexican farmers would disappear from the market. It is predicted that part of beef production will move southward, resulting in an increased destruction of forested areas by creating new pastureland.¹⁴³ These aspects were discussed in the introduction and will not be further explored in this chapter.

In connection with the establishment of NAFTA, Mexico, the USA and Canada in the OECD introduced (individually and as a group) analysis of the environmental consequences of the free trade agreement. This was most likely the first time an analysis of this type has been carried out. Without going into the details of the result, it can be said that the agreement contains a number of "safeguards" with regard to environmental protection. The safeguards which are of principle interest are:

- * NAFTA interprets Article 20 of GATT as including environmental measures (that is, the word "environment" is specifically listed, which it is not in the GATT Agreement) necessary to protect the human, animal or plant life or health, as well as measures which aim to preserve living or non-living exhaustible natural resources (compare to GATT Article 20 page 92).
- * The contracting parties have the right to themselves decide which environmental protection levels they will introduce or maintain.
- * All of the partners will work for a unified upwards harmonization of environmentally related standards (upwards harmonization).
- * If a dispute concerning environmental standards should arise, then the burden of proof lies with the party bringing the complaint (the reverse of the situation in GATT).

- * Reports on resolution of disputes which concern environmental measures will be published 15 days (at the latest) after the report is sent to the NAFTA Commission.
- * All the parties involved pledge to strengthen the observance of environmental laws and regulations.
- * Trade decisions in CITES, the Basel Convention and the Montreal Protocol (see page 63) take precedence over NAFTA decisions.

It should therefore be absolutely clear that the NAFTA Agreement, *as such*, can be positive for the environment, since none of the current standards will be lowered and countries will be working for a successive and shared tightening of requirements. It remains to be seen whether the undertakings will be observed. Uncertainty also remains as to how overall increased production and consumption may lead to increased emissions and exploitation of water and land resources.

Ground rules for ecologically sustainable trade

In discussions on trade and the environment, the opinion that environmental measures should be applied in order to solve environmental problems is frequently heard, and that trade policy measures should be used to solve trade policy problems. The implicit assumption is that each policy area exists independently of the other, and that measures therefore should only affect their "own" area. Measures which influence trade should thus not be used to protect the environment. It is a badly kept secret that such reasoning is mainly spread by trade policy proponents and that they aim to separate environmental issues from trade policy, since trade in itself, supposedly, does not have any negative impact on the environment.

Such an outlook, for reasons described earlier in this report, results in an antiquated world view. Today's reality is to an ever greater extent characterized by increased internationalization and an integration of politics and economics. Trade is an integrated part of today's production and consumption structures. Therefore, it is not feasible to view trade separately, as if it were not linked to environmental damage resulting from transportation, production and consumption. Trade lubricates the economy and transportation lubricates trade. Concisely put: without transportation there is no trade, in principle, and without trade, in principle, there is no economy (production and consumption).

What is therefore needed to solve the world's pervasive environmental problems is increased cooperation between, for example, trade policies and

environmental policies, so that environmental concern is included in the ground rules developed for international trade. In Sweden, this "cooperation" between different policy areas is normally called *sector responsibility*. In reality, this implies that all policy areas must consider the broader consequences of measures within their particular policy area; the Minister of Transport is responsible for environmental concern within the transportation area, the Minister of Agriculture is responsible for environmental concern in agriculture and so on, with the Minister of the Environment acting as the spider in the web.

The same outlook is apparent in the EU's fifth environmental management programme and Agenda 21. It is stated there that environmental consideration must be built into all decision-making processes in society, since most decisions can potentially influence the environment.

For this to actually happen, the *direct* effect of trade regulations on the environment and environmental policy (measures introduced to promote environmental protection), and the *indirect* effect of trade regulations on the environment must be taken into account (NAFTA can lead to increased erosion of earth in Mexico, realization of the EU's inner market can increase road transportation by 50%). The environmental consequences of trade agreements must be analysed if the indirect effects of trade regulations are to be considered. This has been rare until today, largely because there has not been any obvious need. For meaningful analysis to be executed, methods need to be developed to identify the potential indirect environmental effects of trade agreements. Where negative effects can be identified, it is necessary that measures must be taken to prevent the occurrence of such effects.

Preparing methods for analysis of the environmental consequences of trade agreements is an essential task for our future.

Regarding the direct influence of trade regulations on the environment and environmental policy, i.e. the opportunity to take measures for environmental protection which influence trade, there are several dimensions for approaching the problem. It is quite clear that measures taken by individual countries in order to fulfill their commitments according to international environmental conventions cannot be construed as opposing the GATT for reasons of legitimacy (see page 92). In other words: *the GATT rules or interpretation of the GATT rules must be changed, so that it is completely clear that measures taken in accordance with international environmental conventions cannot be regarded as opposing the GATT*. This means that, for example, discrimination could be allowed if it is necessary to reach an environmental goal in the convention. It should also be emphasized that the necessity for discrimination is not a question for GATT to decide, but rather lies within the framework for negotiations of the environmental convention.

One of the central questions in the complexities surrounding environmental and trade policy is the possibility of protection of areas outside the territory of individual states, given that there is *no* such international environmental convention. Should individual states have the right to introduce measures which influence trade in order to protect the environment in other countries? Should individual states have the right to introduce measures which influence trade in order to protect the value of the environment which can be attributed to *global commons*, but where environmental destruction is a result of production processes in other countries?

One of the most important tasks when working with environmental and trade questions in the future will probably be to identify the conditions under which it will be legitimate to introduce trade barriers in reaction to environmental damage resulting from production processes. From an environmental viewpoint, it is unacceptable that it is legitimate to adopt regulations against products manufactured by prisoners, yet at the same time not be permitted to ban the trade of products manufactured in a manner which threatens the earth's protection against ultra-violet rays. Scope should be provided for such measures within a framework for international agreements, but it cannot be denied that in special cases, where environmental degradation is advancing rapidly and is especially serious, scope may also be needed for countries to take individual initiatives and stop trade in goods stemming from environmentally damaging production processes.

However, it is important to identify the real need for all types of trade measures, i.e. in which cases it is necessary to adopt measures against trade so that the effects of environmental measures in certain countries will not be reduced as a result of other countries' insufficient efforts to protect the environment. At the same time, it is absolutely essential that fixed regulations are established within a framework for different trade regulations. For small economies fixed ground rules are especially important, in order to eliminate the risk of ending up with a situation where "might makes right". Furthermore, it is essential to have fixed and well-functioning trade regulations to prevent the occurrence of conflicts and acts of reprisal, which in the long run can be a breeding ground for much more serious conflicts than "mere trade wars".

Overall, it would be reasonable to argue that the GATT is more in need of protection from poorly reasoned demands for reform based on environmental arguments, than the environment is from the rules of the international trading system.

Patrick Low, International Trade and the Environment, World Bank Discussion Papers 159, 1992, ed. Patrick Low, page 12.

In order to avoid a situation where individual countries adopt measures on their own as a result of a lack of opportunities for international cooperation (whether trade policy or environmental policy), it is therefore of the utmost importance for trade as well as environmental policy makers that well-defined and sufficient scope for environmental measures is created within central trade regulations. Such an institutional framework must include possibilities for countries to adopt measures which are necessary to reach a long-term ecologically sustainable development. If this does not occur, it is most likely — unfortunately — only a question of time before environmental degradation has gone so far that environmental issues may develop a dimension of national security policy, which in reality means that Article 21 in GATT could be invoked for environmental protection measures. It is, however, in the interest of the entire human race to solve the problem before it has advanced to that point. This requires world governments, as well as the negotiators of future trade agreements, to act with a great deal of responsibility and seriously tackle the challenge that this scenario presents.

Fact Sheet 8. Rain forests and international trade

Nearly half of the world's rain forests have disappeared. During the 1980s, destruction of the forests increased by 50 per cent, 17 million hectares of tropical forests are deforested annually: an area equal to 40 per cent of Sweden's surface area. The rate of felling is rising most rapidly in Central Africa, the Caribbean and South-East Asia. Logging is estimated to account for 30 per cent of the carbon dioxide in the atmosphere and 20 per cent of the total greenhouse effect.

Several factors contribute to the processes which destroy the forests. Deforested areas are nearly always converted into agricultural areas: Either in the form of large plantations of, for example, oil palms or rubber trees, or more often small-scale cultivation by poor farmers. They generally move to the rain forest because, for many different reasons, they have been forced off their own land. Agriculture is not the main cause of deforestation; the forest has, in most cases, been opened up by loggers. Logging in the rain forest does not have to mean environmental degradation but it must be managed in a sustainable manner.

Tropical deforestation

Forest areas and annual deforestation in tropical forests, the total for each section of the world and examples from individual countries and smaller regions.

	Shadow areas 1980, 1000 hectares	Annual felling 1000 hectares	Annual felling, per cent
Latin America	923 000	8 300	0.9
Brazil	500 000	2 500	0.8
Asia	310 800	3 600	1.2
Malaysia	113 900	1 000	1.5
Indonesia	21 000	270	1.0
Africa	650 300	5 000	0.8
West	55 200	1 200	2.1
Central	230 100	1 500	0.6
Africa			
Total	1 884 100	16 900	0.9

Source: World Resources 1992-93, reworking of Tables 8.2 and 19.2. The figures are uncertain and are based upon assessments which are several years old.

Development projects such as road building, power station dams and mining also destroy forests and open the way for small farmers. In Latin America, large tracts of forest have been converted into pasture for beef cattle, often after first being occupied (and then abandoned) by small farmers. In 1988-89 in Brazil, tax regulations which directly encouraged clear felling of the forest were altered, but a failed agricultural reform means that people seeking land still move to the Amazon area.



Source: Reworking of *The Vanishing Jungle*, Ecologists make friends with economists, *The Economist* October 15, 1988.

Timber trade and the rain forest in South-East Asia

South-East Asia is the region where the linkage between commercial felling and the destruction of the forests is most apparent. The region provides 87% of the total export of rain forest trees. Malaysia alone provides half of the total. The

greatest proportion is exported to Japan, where it is used for moulds in the construction business.

Only a small proportion of the value of the forest is reflected in timber prices. Some examples of actual but difficult to measure value are the climate-regulating and soil-conserving functions of the forest, gene resources and the commercial value of items other than trees. Protests against the destruction of the rain forests have grown during recent years. An attempt by the last Malaysian nomads, the Penan, to prevent forest felling by setting up road blockades has received a great deal of attention.

Restrict imports?

In the Western world, growing concern for the consequences of deforestation has led to a demand for decreased importation of rain forest timber. Germany stopped the use of tropical timber in 1989 and the USA has prohibited imports from Myanmar (Burma).¹⁴⁴ In 1990, the European Parliament adopted a resolution that the EU should regulate import of rain forest timber and also create a fund to support the development and realization of plans for sustainable forestry in tropical countries. According to the proposal, licenses will be required for import of tropical timber. The licenses will be based on annual negotiations with export countries and connected to the realization of forest conservation plans.¹⁴⁵

In 1992, Austria introduced a law on obligatory labelling of goods made from or containing tropical timber. At the same time, quality marking of goods was introduced, with high requirements for products which come from "enduring forestry". Singapore, Brazil, Malaysia and other timber-exporting countries questioned the laws and threatened to restrict all their imports from Austria. The countries felt that the labelling requirements were discriminatory, since timber from temperate climates did not need to be marked, and that the marking would give a negative image even if the import of timber was not formally prevented. Timber exporters also protested because Austria had reacted on her own in defining what could be regarded as sustainable forestry. On April 1, 1993 the mandatory labelling goods with their place of origin was discarded.¹⁴⁶

Generally, it can be said that reduced exports lead to lower prices, but opinions are divided on what effect price changes will have on rain forest timber. Many observers believe that lower timber prices would make the forest less profitable in relation to other ways of utilizing the land, so that people would have even greater reason to convert the forest into agricultural land. A ban on import could therefore lead to increased deforestation.¹⁴⁷

Other experts believe that if ownership rights are poorly defined, which they generally are, then higher timber prices would lead to more rapid felling. If a felling company has permission to cut down trees for a specific period and does not know if it will gain from the future profits from the forest, that company

will be quick to fell trees while prices are high and the opportunity is available.¹⁴⁸ Many people also believe that since felling nearly always opens up the forest for agriculture, it is a necessary prerequisite for nearly all conversion of forested areas. Reduced felling for export is therefore of vital strategic importance.

Export ban for raw timber

Indonesia has successively raised tariffs on the export of raw timber and introduced a total export ban in 1984. The explanation is, officially, that by retaining a larger proportion of the value added within the country they will not need to fell trees as quickly in order to earn the same income. The export ban has resulted in a rapid increase of plywood and veneer manufacturing and completely replaced timber export. The export of timber products today accounts for 14% of the country's total exports, and the industry employs 3.7 million people directly and 15 million indirectly.

The export ban points out the importance of many of the trade barriers which the *Western world* today has applied, compared to developing countries, and which makes it difficult for them to develop refining industries. Customs duties for timber products, for example, have risen at the same tempo as the rate of refining in many countries. The Indonesian export ban can therefore be said to be the answer to the tariffs which, for example, Japan has imposed on refined wood.

The export ban is frequently discussed. Some people feel that an export ban will in the long run result in a reduction of logging even though it may not seem to have had that effect so far. A local refining industry has more reason to conserve the forest over a long period of time than a felling company which can move its activities to another country when the forest resources have been totally used up. Other observers believe that domestic industry will instead intensify deforestation, since refining is less effective than in the Western world (10% more waste according to a study¹⁴⁹). The export ban is questioned by, among others, the EU, and a GATT panel is discussing the issue.

Other possibilities to arrest the plundering of the rain forest

As with many other questions where both trade and the environment are involved, it is not trade itself which causes the problem. The root of the problem is often the internal policy in that country, the depreciation of natural resources. Trade policy is therefore not the best solution — even though it in certain cases seems to be one of the only practical possibilities — and may also result in a number of undesirable side effects. What other possibilities are there to influence the internal policies of rain forest countries when the sovereign rights of a country must be respected according to international law?

- * Firstly, nothing prevents organizations and individual consumers from halting the purchase of rain forest timber felled using non-enduring methods. One example of this is that Swedish architects have decided not to use rain forest timber.
- * The initiative has been taken to form an organization with the aim of developing a global and generally accepted environmental marking of products originating from tropical as well as temperate forests. Environmental organizations, timber companies, governmental authorities, environmental marking organizations and local populations will be represented in the Forest Stewardship Council (FSC). Ten general principles for intelligent forestry, complemented by local and more detailed criteria, will be the basis for marking.
- * By increasing information and supporting the positive forces in rain forest countries, countries' policies can be influenced. These forces can, for example, be individual organizations, organizations of local populations or governmental authorities.

The most important thing is to influence the fundamental reasons for deforestation, otherwise a ban on logging, for example, will have no effect. A total ban on felling was introduced in Thailand, but illegal felling continued and many felling companies moved to Myanmar (Burma). Illegal felling and trade of timber products occurs on a massive scale. In South-East Asia alone, hundreds of thousands of hectares of land are illegally felled or exported illegally every year. 150

A global problem

Since the diversity of species contained in the rain forests can be considered to be our common inheritance, and since the deforestation of rain forests contributes to the greenhouse effect, the deforestation in tropical forests must be regarded as an international problem. Does this mean that we should no longer accept the choices made by a country's government, but instead take the matter into our own hands by introducing trade barriers when deforestation so obviously conflicts with long-term sustainable development?

It is important to find cooperative methods which take all the parties' interests into account. Perhaps the most important condition needed to stop deforestation is that people who live in and near the forest areas be allowed to enjoy a part of their real value. International measures to protect tropical forests must therefore contain some form of compensation to rain forest countries for, among other things, gene resources and carbon dioxide

absorption services. Developing countries' governments today require that all forests, not just rain forests, are included in the international cooperation on forests protection. Strict protection of boreal forests may prove to be essential to the salvation of the rain forests.

Sources: Alberto, C. och P. Braga, (1992), Tropical Forests and Trade Policy: The Case of Indonesia and Brazil. World Bank Discussion Papers 159; Barbier, E.B. and M. Rauscher, (1992), Trade, Tropical Deforestation and Policy Interventions. Beijer Discussion Paper Series No 15; Burgess, J.C. (1991), Timber Production, Timber Trade and Tropical Deforestation, *Ambio* 20:2-8; Callister, D.J. (1992), Illegal Tropical Timber Trade: Asia-Pacific. TRAFFIC Network; Daly, H.E. och Goodland, R., An Ecological Assessment of Deregulation of International Commerce under GATT, text for an article in *Ecological Economics*; Myers, N. (1989) Deforestation rates in tropical forests and their climatic implications, Friends of the Earth; Nectoux, F, och Y. Kuroda, (1990) Timber from the South Seas. WWF International; The Forest Stewardship Council, A discussion paper, 1992; World Resources 92-93 page 120; Wright, Martin, Selling timber without selling out, *Tomorrow*, page 87 no. 2, 1991.

Chapter 4

The New Playing Field — Towards Sustainable Development

Global integration, the increasing exploitation of resources, and growing environmental problems have highlighted the dependence of the global community on functioning ecosystems and ecological services. Economics and trade must therefore be viewed from a holistic perspective which clarifies the link between ecological and economic systems.

The importance of integrating environmental issues in decision-making processes was emphasized in the Rio Declaration and in the EU fifth programme for environmental action, since most decisions have a potential effect on the environment. In Sweden, "cooperation" between various policy areas is denoted sector responsibility. In practice, this means that all policy areas need to take into account the more far-reaching consequences of measures implemented in their own fields. This also applies to trade policy.

Trade is a self-evident element of today's economy, and a key driving force in the global integration process. It cannot, therefore, be treated as a separate issue.

With such looming problems as global warming, deforestation, or biodiversity loss, at least the issues are clearly defined. Trade, on the other hand, cuts across all those problems...

French, Hilary F, Costly Tradeoffs, Reconciling Trade and the Environment, World Watch Paper 113, page 5.

This report presents an integrated ecological-economic view of overlapping issues in trade and environmental policy. The analysis consists of three main areas: objective, means and scope for implementation.

The objective is ecologically sustainable economic development. Our welfare and survival depends on life support systems and ecological services, as does a functioning economy. A necessary (but insufficient) condition for the production and consumption of goods and services to be

considered sustainable is that the process does not impede the ability of the ecosystem to recover after disturbances. The ecological system consequently provides the framework for human activity.

As a result of the true uncertainty which will always exist with regard to ecological thresholds and limits, it must be possible to undertake measures to protect the environment even when their necessity is not completely evident; it is too late to prescribe medicine when a patient is already dead. Individual countries or ecosystems cannot be seen as isolated from each other. "Local" environmental problems should thus, to an increasing extent, be seen and dealt with as transboundary and global problems. The challenge is to be far-sighted and to respond in time - instead of powerlessly facing an established fact.

Given the ecological framework, *economic analysis can be used as a means* of influencing actors in society and of formulating rules for trade which will lead to efficient use of *all* of society's scarce resources. In practice, this involves different types of policies, aimed at ensuring that production processes and products which damage the environment to a greater extent carry the true costs of their actions.

An integrated ecological and economic analysis sets the conditions for ecologically sustainable development, establishing a new playing field. The feasibility of *implementing* the specified policies depends on how the institutional framework — in this context primarily GATT rules and EU regulations — are formulated and *how they develop in the future*. Whether they will change in accordance with the framework provided by the new playing field depends largely on our ability to change our view of humanity as superior and independent of ecosystems. Such a change will be facilitated if processes that are difficult to grasp, such as depletion of the ozone layer, become visible so that people are confronted by the overall problems in their day-to-day decision-making.

It is of no avail in this vital process of change to blame certain actors, find scapegoats, or attempt to stop all economic advance, adopting the view that the limits have already been reached. This will only delay the process and create further deadlocks. The key to a solution lies rather in opportunities to change the behaviour of society vis-à-vis the ecosystem. There is no point in trying to stop the train. It should instead be switched to a new track, where ecology and the economy work together.

Ground rules for sustainable development

Signalling "the new scarcity" to the actors on the market

According to economic theory, liberalization of international trade may lead to long-term sustainable development. A precondition for this is that environmental values are included and that the cost of damage to the environment is borne by the products and production processes which give rise to it, i.e. that "the new scarcity" is signalled to the economic actors in society. In practice, we are, however, far from such a situation. On the contrary, few countries have even commenced the internalization of environmental costs. The environment is continuing to deteriorate rapidly. Most indications are that environmental costs are increasing rather than decreasing. It is thus difficult to provide a simple answer to the question of whether liberalization of international trade is good or bad environmentally.

Two principles from the Rio Declaration (12 and 16) deal explicitly with trade and the environment. They recommend that states should promote an open international economic system which can contribute to economic growth and sustainable development. *An open international economic system and economic growth, however, will not in themselves result in sustainable development.* It is when an open international system is formed in conjunction with its resource base, and when economic growth is based on this interaction, that environmental damage can be avoided and management of the ecosystem can proceed in a constructive and sustainable manner.

The Rio Declaration states further that internalization of environmental costs and use of economic policy is to proceed in such a way that international trade and investment are not distorted. It is in fact unavoidable that internalization of environmental costs will in many cases result in significant changes in patterns of production and consumption. This will have repercussions on the present system of trade. Since trade is based on market prices, it will change if environmental values are internalized. The purpose of internalization is specifically to promote more efficient use of society's resources, and to influence markets to increasingly include all of society's costs and benefits.

To realize the insights gained about the new playing field, the indirect effects of trade regulations on the environment must be taken into account. Methods for undertaking environmental impact assessments of trade agreements must therefore be upgraded and refined, so that the negative effects of new trade agreements can be predicted and avoided.

It is often claimed in the debate on trade and the environment that trade measures are not effective and that other measures should be taken to

address the actual causes of environmental damage. While this is correct in theory, in practice it would mean that environmental gains from measures aimed at national production and consumption would be reduced through imports from countries lacking corresponding environmental standards. It would also mean that countries would have their hands tied, with regard to opportunities to influence environmental damage in their own territory, when the causes of the damage originate outside their own borders. Trade barriers can be an effective means to exert various forms of pressure on countries. Their effect, however, depends on how measures are formulated in individual cases, and the extent to which they are experienced as meaningful by the various nations, in other words, how rules are observed in practice. *Trade barriers can accordingly be a significant component in an environmental strategy to prevent that the effects of other environmental policy measures are being reduced.*

Developing and intensifying international cooperation

Introduction of identical environmental standards in all countries will not be effective, since natural and economic conditions and human values vary from country to country. A situation where countries draw up their own rules, however, can cause problems. Many countries decide, consciously or otherwise, to avoid internalizing environmental costs, which corresponds to *indirectly subsidizing environmentally damaging activities*. This is the case in all countries when environmental rules or environmental charges are avoided for trade policy reasons. The problem of indirect subsidies is particularly relevant with regard to transboundary environmental effects of industrial pollution. This is due to the fact that not only the exporting country but also many other countries suffer the environmental effects, so that they too involuntarily subsidize environmentally damaging industrial production.

Transboundary environmental problems can only be solved by international cooperation. It is in the interests of all nations to solve environmental problems, but the interests of different countries are far from identical, since both the cost and benefits of tackling such problems differ between countries. The key to fully effective forms of cooperation is therefore to take the interests of different countries as the starting point and to co-ordinate them so that all countries have an interest in participating. This may mean that countries commit themselves to differing levels of involvement. Cooperation must be formulated so that involvement at different levels — nationally and internationally — prepares a mutual way forward and obliges separate nations to follow agreements. In order for developing countries to raise environmental standards, transfers of different types will be necessary in many cases.

Act now!

The GATT rules are, in principle, based on international law, and do not permit an importing country to discriminate against goods in terms of *how* they are produced or, with the help of trade barriers, to attempt to influence the environmental policy of another country. Under international law, each nation has the sovereign right to decide on matters concerning its own territory and to form its own individual policy. When the source of an environmental problem is in another country, the only course of action currently available is to attempt to *persuade* the culprit nation to stop polluting the environment. International law, however, is not adapted to current conditions, where one country, by environmentally damaging behaviour, can impair fundamental living conditions in another.

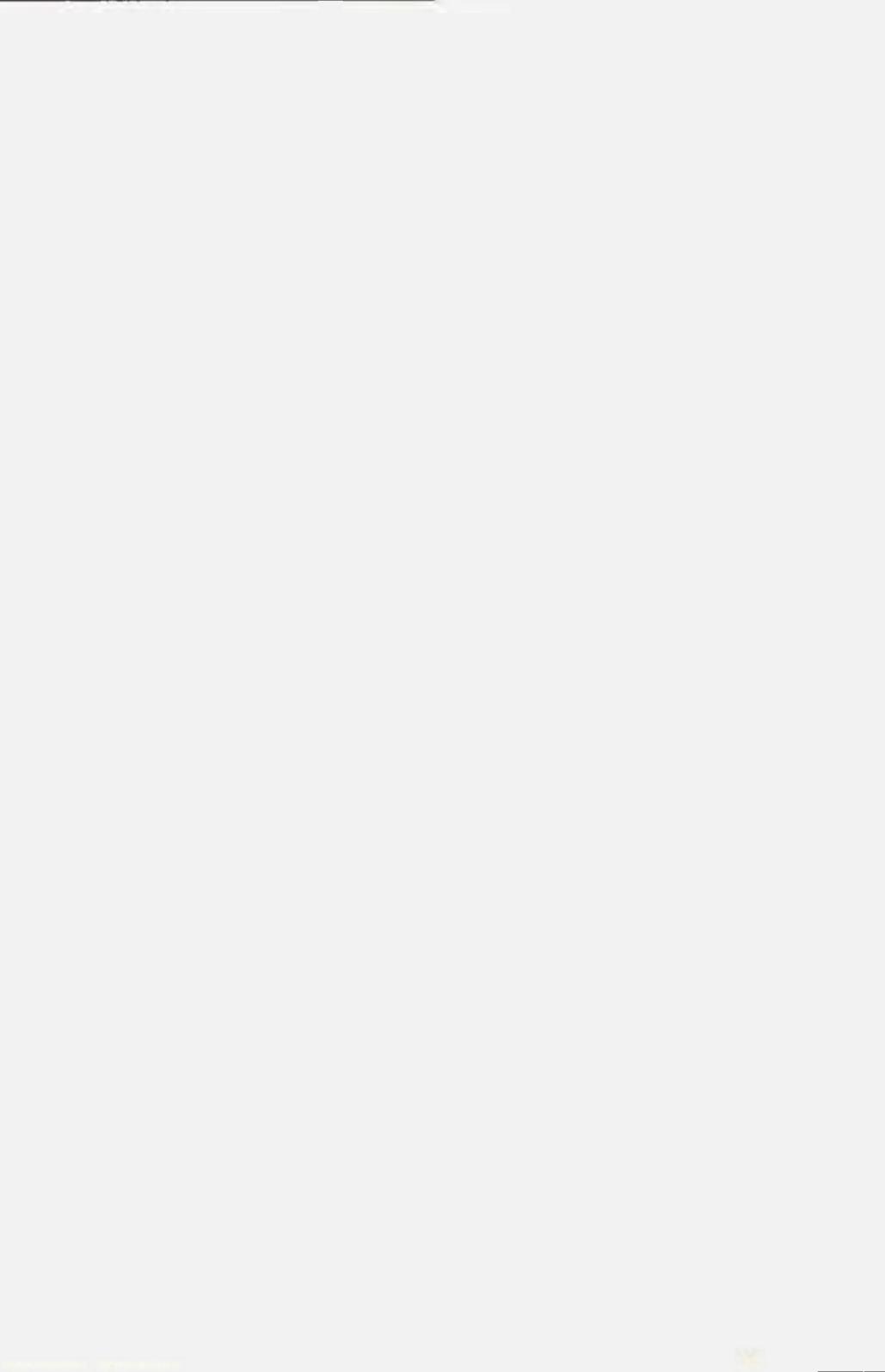
Worsening environmental problems are making the present situation unsustainable. Fundamental precepts of international cooperation must therefore be re-examined. If environmental conditions continue to undergo rapid change, demands for the introduction of trade barriers will undoubtedly increase. The GATT rules, or the interpretation of GATT rules, must therefore be amended so that it is clearly established that measures adopted in conformity with international environmental conventions cannot be seen as being in conflict with GATT. Negotiations should then commence at once on the formulation of rules which allow the introduction of trade measures against products from countries with unacceptably low standards of environmental protection. It is particularly important that measures can be taken against production processes which inflict global environmental damage.

It is imperative that such measures are implemented through international cooperation. Otherwise, the risk exists that environmental arguments will be abused, especially by large countries, to motivate protectionist measures in general. Circumvention of international conventions is mainly at the cost of small countries. But it is also in the interests of larger countries that disorder does not spread across the world market. Unilateral action for protection of global commons may undermine the mutual confidence between states, and opportunities for international cooperation would deteriorate and there would be a heightened risk of trade policy sparking off trade wars. Welldefined international ground rules for world trade are therefore required, which fully account for the dependency of world trade on life-supporting ecosystems. *In other words, it is in the interests of both trade and environmental policies that international rules and regulations for trade are formulated in a manner which accelerates the process towards sustainable development.*

Conclusions and recommendations

1. A society that neglects the environment moves closer to ecological thresholds and boundaries and thereby reduces the scope for socio-economic development.
2. In pace with continuous population growth and an expanding world economy, the natural capital is increasingly becoming a limiting factor — "the new scarcity". Local environmental degradation is increasingly becoming a transboundary issue.
3. Institutional frameworks for economic development must be introduced which take into account genuine uncertainty as to the limits of global ecological systems.
4. To the greatest possible extent, those responsible for inflicting environmental damage should carry the costs of the damage. Environmentally harmful activities must otherwise be seen as being subsidized by society.
5. Trade is a magnifier of economic development, regardless of whether or not it is sustainable.
6. Trade is not the primary cause of environmental problems. As a priority the source of the problems should be rectified.
7. Trade barriers aimed at counteracting the environmental effects of production within another country's territory may be justified in order to facilitate an effective domestic environmental policy. Such measures, however, should be based on multilateral agreements. Unilateral measures should be avoided.
8. Individual states should have the right to introduce product norms and standards which regulate the local environmental effects of consumption. When the rules are harmonized in order to facilitate a free flow of goods within a free trade area, individual countries should not be forced to lower their environmental standards.
9. International harmonization of environmental standards is largely inefficient, although minimum requirements are justifiable.

10. Transboundary environmental problems must be solved by international cooperation and the coordination of international and national measures in different countries. It should be recognized that the environmental standards of different countries do not have to be identical and that certain countries receive financial support in order to comply with international agreements.
11. The GATT rules must be further developed in order to reflect that measures taken by individual states which affect international trade but which comply with international environmental agreements should not be considered to violate the GATT rules.
12. Before trade agreements come into effect, impact assessments of environmental effects should be carried out and corrective measures implemented in cases where serious environmental damage is identified. Irreversible damage demands the most urgent attention.
13. The internalization of environmental effects provides new types of investment and changes the conditions for international competition. The state has an important role to play in promoting the spread and development of environmentally-friendly technology.
14. National and international measures are required in order to increase access to reliable information on ways in which individual companies and institutions affect the environment.
15. The lack or absence of democracy, freedom of speech and freedom of the press contribute in no short measure to environmental damage in many countries.
16. Appropriate institutional frameworks for trade can accelerate the shift to sustainable development. This is in the interests of effective trade policy as well as effective environmental policy.



Appendix 1.

Ideas to be developed.

Many ideas have appeared about how international trade can be transformed so that it facilitates a move towards sustainable development. These ideas must be developed and carefully analyzed before any of them can be recommended. Several of them are not compatible with the GATT. They are presented here in condensed form and are intended as points of departure in continuing work on trade and the environment.

1. Linking the liberalization of trade to environmental conditions

The idea of combining environmental agreements with trade agreements has been termed EATLA by the author M.D. Young (Ecologically-Accelerated Trade Liberalization Agreements). Such agreements should be based on rules defining *how* goods are to be manufactured. Agreements should be multilateral, but do not need to encompass all GATT member countries.

Agreements should provide tariff-free access to all goods that are produced in conformity with any individual agreement. Tariff-free status would extend to all commodities that contain more than, for example, 25 % of EATLA-consistent inputs. These conditions are particularly attractive to developing countries, which often pay duties proportionate to the level of processing in export products. A country should only impose standards on a production process if it can classify goods produced by desirable methods as duty-free. Goods from at least one manufacturer of a certain product in another country should also be exempt from duties.

One professed advantage of the proposal is that instead of working against certain kinds of trade, it favours trade in goods which are produced in a sustainable manner.

2. Environmental agreements involving trade restrictions

Linking international environmental agreements with trade sanctions, in line with Young's presentation, can be termed TREA (Trade Related Environmental Agreements). The aim is that possible exposure to trade barriers should act as a means of pressure and impel countries to commit themselves to environmental cooperation. An example of an agreement which has already come into effect is the Montreal Protocol, where non-members are discriminated against as regards trade in products containing

substances that deplete the ozone layer. One of the problems with the increased application of such agreements is that they can lead to inefficiency and that the system can be exploited, resulting in traditional protectionism. Because of the risks involved it is important to arrive at clear rules for the formulation of such agreements.

According to the author, agreements should:

- be transparent (clearly stated, publicly applied and contestable) so that they can be questioned and discussed openly,
 - preclude cross-compliance — so that environmental conditions cannot be used to discriminate against other sectors,
 - offer open membership to all countries,
 - be restricted to a few pressing issues of global significance.
- This is of particular importance in minimizing the risk of misuse and discrimination against developing countries.

Some of the ideas on the formulation of rules come from the GATT.

3. Environmental tariffs

There are several proposals for environmental tariffs on goods when their production has a significant environmental effect. Environmental tariffs should counteract other countries implicitly subsidizing their production (Steininger, Constanza). The purpose of the tariffs is to protect the environment, not domestic industry, which distinguishes them from conventional tariffs, even though there is a risk that they might be misused for protectionist ends. An important issue is how the scale of trade barriers should be determined. Steininger refers to this type of trade sanction as "counterbalancing measures" and discusses two approaches to determining their size:

a) Determining the real difference in the environmental impact of production with the help of product life cycle analysis. This method should only be used in connection with primary goods production, without complicated production processes, but can also be used informally in ecolabelling. A disadvantage of the method is that it is difficult to measure and assign a value to the costs, which will lead to long drawn-out negotiations. Neither is it possible to compare the damage caused by emissions in different countries, apart from genuinely global problems such as depletion of the ozone layer and climatic changes. An advantage of the method is that it spreads the use of "physical accounting", which assists

companies in enhancing production efficiency and often has an extremely high return.

b) *Balancing disparities in environmental expenditures on a cost basis.* The precondition here is that nations decide on their own environmental ambitions — and invest their own resources in achieving them. If a country chooses a level that implies higher control costs than its trading partners incur, it could protect itself against competition from countries with lower levels of environmental investment. It has been proposed that the differences in purification costs between countries should amount to a maximum of 25 per cent before trade barriers are applied. The main drawback here is to identify environmental costs and distinguish them from other investments, at the same time establishing such costs for specific products.

c) *Safe minimum standards.* Minimum acceptable levels can be agreed on within the framework of the UN, for example a minimum standard for traces of toxic substances in products. These conditions could be expanded to include "environmental human rights". Failure to meet these minimum demands should entail the risk of liability to environmental tariffs.

4. Recompensing Duties

The purpose of "Recompensing Duties" is to counteract implicit subsidies ("environmental dumping") without penalizing the exporting country. The promotion of sustainable production and trade should be the preferred goal, achievable through the return of revenues from import duties to the exporting country in the form of project support or negative tariffs on other, sustainably produced goods from the same country. (This can be seen as a parallel to the earlier social chapter debate within GATT and elsewhere [see page 91]. Several industrialized countries at that time proposed that import duties be levied on goods from countries with poor working conditions.) In time, tariffs would become unnecessary since the aid and development received would lead to the gradual improvement of working conditions in developing countries. Indirectly, Recompensing Duties link trade with foreign aid, since the voluntary return of state revenues to another country can be regarded as a type of aid. This is of benefit in the sense that trade policy and aid policy, both of which to a considerable extent influence relations with the third world, are often treated separately.

These objectives are embodied in several proposals for different types of Recompensing Duties and Mutual Tariffs. A resolution on the import of tropical timber has been adopted by the European Parliament (see Fact Sheet 8). It is difficult to arrive at a norm determining the scale of these and other

environmental tariffs. A further problem with this system is the risk of encouraging continued production of environmentally-damaging goods, since greater exports can lead to the increasing return of contributions to the exporter. The early announcement of a gradual discontinuation, however, may be effective in counteracting such a trend (DeBellevue, Runnalls and Cosbey, among others).

5. Consumption tax

Internalizing of environmental costs is most frequently associated with different types of production charges and regulations. A different, complementary approach is to tackle the problem in conjunction with consumption. A consumer tax could be introduced on the basis of environmental damage caused by the manufacture of products — regardless of the country of origin. Through input/output analysis, the carbon dioxide levels emitted during production, transportation, consumption and disposal or scrapping can be calculated. A consumption tax should not be confused with value-added tax, which is based on the retail price of products.

A consumption tax would give clear signals to consumers about the sort of consumption they should restrict. However, it would not signal to the producer which type of technology ought to be adopted for a specific product in cases where different methods of production give rise to varying degrees of environmental damage. The tax could be differentiated for a given country depending on the production methods employed (Måler, K.-G., personal communication).

6. Sectoral trade agreements

The GATT, in principle, is a general agreement where the same regulations apply to all sectors of industry and commerce. An alternative proposal is that trade agreements should be drawn up by sector. These would better reflect particular conditions, market structure and environmental effects in specific sectors (Harris).

7. Institutional changes

Several of the changes presented above require that modifications be made to the GATT. Environmental issues will be expressly discussed in the next round of GATT talks. This may lead to changes in the agreement itself, for example in Article 20 (General Exceptions), to which several alterations have already been suggested. However, other ideas also exist concerning

ways in which international institutions can undergo change in order to make a greater contribution to global sustainable development.

It is a widely held priority that there should be regular venues for high-level discussions on trade and environmental issues. Proposals include delegating responsibility for sustainable development to the UN Security Council and arranging informal summits on the same theme (Runnalls and Cosby). A further proposal is to create a special institution with the express purpose of arbitrating conflicts between environmental and trade interests (GATE — General Agreement on Trade and Environment). Such an institution would effectively be a forum where trade, development and environment representatives would be obliged to sit down at the same table and find solutions, with sustainable development as the common objective (DeBellevue et al.).

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Personal communication: Måler, Karl-Göran, Professor and Executive Director of the Beijer International Institute of Ecological Economics, The Royal Swedish Academy of Sciences, Stockholm.

Appendix 2.

International environmental agreements with trade provisions

The date next to the title of the agreement is the date on which it was signed.

Convention Relative to the Preservation of Fauna and Flora in their Natural State, 1933

The aim of this agreement is to preserve natural fauna and flora of the world, particularly of Africa, by means of national parks and reserves, and by regulation of hunting and collection of species. The agreement includes a prohibition against the import and export of trophies, unless the exporter is given a certificate permitting export.

International Convention for the Protection of Birds, 1950

The objective is to protect the populations of birds, and particularly migratory birds, from extinction. Ten West European states have signed the agreement. It includes a prohibition of the import, export, transport, offer of sales or sale of live or dead birds killed or captured during the protected season, or of eggs or their shells or their broods of young birds in the wild state during the breeding season.

International Plant Protection Agreement, 1951

The objective of the convention is to maintain and increase international cooperation in controlling pests and diseases of pests and plant products. The undersigned agree to strictly regulate the import and export of plants.

European Convention for the Protection of Animals during International Transport, 1968

The parties agree to fulfil the provisions of the convention governing the international transport of animals.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973

The trade of certain species is regulated in order to protect threatened animals from extinction. Certain species cannot be traded while the trade of other species is authorized by export and import permits. Endangered species are listed in three classes. Species threatened with extinction: appendix 1, species that may become endangered unless trade is strictly regulated: appendix 2, species that a party identifies as being subject to

regulation within its own jurisdiction and as requiring international cooperation to control trade: appendix 3. The agreement is based on a long history of controlling trade in endangered species through the issue of export permits (species listed in appendices 1 and 2). It adds the twist of requiring an import permit for an export permit to be issued, in order to prevent circumvention to non-parties

Montreal Protocol on Substances That Deplete the Ozone Layer, 1987

The Montreal Protocol is an application agreement to the Vienna Convention regarding substances which cause depletion of the ozone layer (1985)

The parties have agreed to reduce CFC production by 50 per cent by 1999. During negotiations in London in 1990, requirements were further restricted and completely new substances were included in the agreement. According to the latest decisions, CFC production will stop completely by 1996. The agreement will take effect three months after a sufficient number of countries have ratified it, in reality this takes approximately two years after an agreement is signed. In March 1993, 111 countries had agreed to the 87 year agreement. Among those who had not signed were South Korea, Columbia and Vietnam. Brazil signed in 1990, as did Chile and Argentina.

In 1992, 21 more countries signed, including India, Indonesia and Israel. The amendments proposed in London 1990 were ratified by 51 countries, mostly the industrialized countries but also including Chile, China, India and Mexico. No country has yet ratified the changes made in Copenhagen in November 1992. The parties agree to, after a certain date, not export or import specific substances to non-parties and ban importation of CFC-containing products as of 1 January 1993.

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989

Each party has the right to prohibit the import of hazardous wastes. Export should only be permitted when the importing country's government has given permission in writing. If there is reason to believe that the waste will not be disposed of in an "environmentally sound manner", then it should not be exported. Trade with countries which have not signed the agreement is not allowed.

International agreements not signed by Sweden:

- Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, 1940
- Plant Protection Agreement for the South East Asia and Pacific Region, 1956
- Convention on Conservation of North Pacific Fur Seals, 1957

- Agreement Concerning the Cooperation in the Quarantine of Plants and their Protection against Pests and Diseases, 1959
- Phyto-sanitary Convention for Africa, 1967
- African Convention on the Conservation of Nature and Natural Resources, 1968
- Benelux Convention on the Hunting and Protection of Birds, 1970
- Agreement on the Conservation of Polar Bears, 1973
- Convention for the Conservation and Management of the Vicuña, 1980
- ASEAN Agreement on the Conservation of Nature and Natural Resources, 1985.

Sources: International Trade 1990-1991, appendix 1 Trade and the Environment, GATT 1992; Frihandeln ett hot mot miljöpolitiken — eller tvärtom? Ds 1992:12; Status of Ratification of I. The Vienna Convention for. . . , II. The Montreal Protocol on . . . , III. The Amendment to the Montreal Protocol on . . . , UNEP 1993.

Appendix 3.

Excerpts from the Rio Declaration

Principle 2

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 11

States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

Principle 12

States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

Principle 13

States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

Principle 16

National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

Appendix 4.

Excerpts from GATT

From Article 3. National negotiations regarding the question of internal taxation and regulation.

1. The contracting parties recognize that internal taxes and other internal charges, and laws, regulations and requirements affecting the internal sale, offering for sale, purchase, transportation, distribution or use of products, internal quantitative regulations requiring the mixture, processing or use of products in specified amounts or proportions, should not be applied to imported or domestic products so as to afford protection to domestic production.

4. The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to *like products* of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use. The provisions of this paragraph shall not prevent the application of differential internal transportation charges which are based exclusively on the economic operation of the means of transport and not on the nationality of the product. (No italics in the original text.)

From Article 11. General Elimination of Quantitative Restrictions

1. No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licenses or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party or on the exportation or sale for export of any product destined for the territory of any other contracting party.

2. The provisions of paragraph 1 of this Article shall not extend to the following:

(a) Export prohibitions or restrictions temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party;

(b) Import and export prohibitions or restrictions necessary to the application of standards or regulations for the classification, grading or marketing of commodities in international trade;

Article 20 General Exceptions

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

(a) necessary to protect public morals;

(b) necessary to protect human, animal or plant life or health;

(c) relating to the importation of gold or silver;

(d) necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement, including those relating to customs enforcement, the enforcement of monopolies operated under paragraph 4 of Article II and Article XVII, the protection of patents, trade marks and copyrights, and the prevention of deceptive practices;

(e) relating to the products of prison labour;

(f) imposed for the protection of national treasures of artistic, historic or archaeological value;

(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;

(h) undertaken in pursuance of obligations under any inter-governmental commodity agreement which conforms to criteria submitted to the CONTRACTING PARTIES and not disapproved by them or which is itself so submitted and not so disapproved;

(i) involving restriction on exports of domestic materials necessary to assure essential quantities of such materials to a domestic processing industry during periods when the domestic price of such materials is held below the world price as part of a governmental stabilization plan; *provided* that such restrictions shall not operate to increase the exports of or the protection afforded to such domestic industry, shall not depart from the provisions of this Agreement relating to non-discrimination;

(j) essential to the acquisition or distribution of products in general or local short supply; *provided* that any such measures shall be consistent with the principle that all contracting parties are entitled to an equitable share of the international supply of such products, and that any such measures, which are inconsistent with the other provisions of this Agreement shall be discontinued as soon as the conditions giving rise to them have ceased to exist. The CONTRACTING PARTIES shall review the need for the subparagraph not later than 30 June 1960.

Article 21. Security Exceptions

Nothing in this Agreement shall be construed

(a) to require any contracting party to furnish any information the disclosure of which it considers contrary to its essential security interests; or

(b) to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests

(i) relating to fissionable materials or the materials from which they are derived;

(ii) relating to the traffic in arms, ammunition and implements of war and to such traffic in other goods and materials as is carried on directly or indirectly for the purpose of supplying a military establishment;

(iii) taken in time of war or other emergency in international relations; or

(c) to prevent any contracting party from taking any action in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security.

Appendix 5.

Excerpts from the Treaty of Rome

Article 100a4

4. If, after the adoption of a harmonization measure by the Council acting by a qualified majority, a Member State deems it necessary to apply national provisions on grounds of major needs referred to in Article 36, or relating to protection of the environment or the working environment, it shall notify the Commission of these provisions.

The Commission shall confirm the provisions involved after having verified that they are not a means of arbitrary discrimination or a disguised restriction on trade between member States.

By way of derogation from the procedure laid down in Articles 169 and 170, the Commission or any member State may bring the matter directly before the Court of Justice if it considers that another Member State is making improper use of the powers provided for in this Article.

Article 130r

1. Action by the Community relating to the environment shall have the following objectives:

- (i) to preserve, protect and improve the quality of the environment;
- (ii) to contribute towards protecting human health;
- (iii) to ensure a prudent and rational utilization of natural resources.

2. Action by the Community relating to the environment shall be based on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source, and that the polluter should pay. Environmental protection requirements shall be a component of the Community's other policies.

3. In preparing its action relating to the environment, the Community shall take account of:

- (i) available scientific and technical data;
- (ii) environmental conditions in the various regions of the Community;
- (iii) the potential benefits and costs of action or lack of action;
- (iv) the economic and social development of the Community as a whole and the balanced development of its regions.

4. The Community shall take action relating to the environment to the extent to which the objectives referred to in paragraph 1 can be attained better at Community level than at the level of the individual Member States. Without prejudice to certain measures of a Community nature, the Member States shall finance and implement the other measures.

5. Within their respective sphere of competence, the Community and the Member States shall cooperate with third countries and with the relevant international organizations. The arrangements for Community cooperation may be the subject of agreements between the Community and the third parties concerned, which shall be negotiated and concluded in accordance with Article 228.

The previous paragraph shall be without prejudice to Member States' competence to negotiate in international bodies and to conclude international agreements.

Article 130s

The Council, acting unanimously on a proposal from the Economic and Social Committee, shall decide what action is to be taken by the Community.

The Council shall, under the conditions laid down in the preceding subparagraph, define those matters on which decisions are to be taken by a qualified majority.

Article 130t

The protective measures adopted in common pursuant to Article 130s shall not prevent any Member State from maintaining or introducing more stringent protective measures compatible with this Treaty.

Literature on Trade and the Environment

The following is a sampling of some of the more important reports, books or chapters in books discussing the connection between trade and the environment. The majority of them are written so that a reader without substantial background knowledge could understand them.

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Free Trade versus Community by Herman E. Daly and John B. Cobb, Jr, 1989. Chapter 11 (27 pages) in *For the Common Good, Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*. Beacon Press Boston.

International Trade and the Environment, editor Patrick Low, 1992 (343 pages). The majority of the 18 articles were first presented at a seminar arranged by the World Bank. Discussion Papers 159.

Timber from the South Seas, An Analysis of Japan's Tropical Timber Trade and its Environmental Impact by François Nectoux and Yoichi Kuroda, 1990 (125 pages). Report published by WWF International.

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Chapter 2

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Chapter 3

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environment, World Watch Institute Paper 113, p.37
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Statens offentliga utredningar 1994

Kronologisk förteckning

1. Ändrad ansvarsfördelning för den statliga statistiken. Fi.
2. Kommunerna, Landstingen och Europa + Bilagedel. C.
3. Mäns föreställningar om kvinnor och chefskap. S.
4. Vapenlagen och EG. Ju.
5. Kriminalvård och psykiatri. Ju.
6. Sverige och Europa. En samhällsekonomisk konsekvensanalys. Fi.
7. EU, EES och miljön. M.
8. Historiskt vägval – Följderna för Sverige i utrikes- och säkerhetspolitiskt hänseende av att bli, respektive inte bli medlem i Europeiska unionen. UD.
9. Förnyelse och kontinuitet – om konst och kultur i framtiden. Ku.
10. Anslutning till EU – Förslag till övergripande lagstiftning. UD.
11. Om kriget kommit... Förberedelser för mottagande av militärt bistånd 1949-1969 + Bilagedel. SB.
12. Suveränitet och demokrati + bilagedel med expertuppsatser. UD.
13. JIK-metoden, m.m. Fi.
14. Konsumentpolitik i en ny tid. C.
15. På väg. K.
16. Skoterkörning på jordbruks- och skogsmark. Kartläggning och åtgärdsförslag. M.
17. Års- och koncernredovisning enligt EG-direktiv. Del I och II. Ju.
18. Kvalitet i kommunal verksamhet – nationell uppföljning och utvärdering. C.
19. Rena roller i biståndet – styrning och arbetsfördelning i en effektivt biståndsförvaltning. UD.
20. Reformerat pensionssystem. S.
21. Reformerat pensionssystem. Bilaga A. Kostnader och individeffekter. S.
22. Reformerat pensionssystem. Bilaga B. Kvinnors ATP och avtalspensioner. S.
23. Förvalta bostäder. Ju.
24. Svensk alkoholpolitik – en strategi för framtiden. S.
25. Svensk alkoholpolitik – bakgrund och nuläge. S.
26. Att förebygga alkoholproblem. S.
27. Vård av alkoholmissbrukare. S.
28. Kvinnor och alkohol. S.
29. Barn – Föräldrar – Alkohol. S.
30. Vallagen. Ju.
31. Vissa mervärdeskattefrågor III – Kultur m.m. Fi.
32. Mycket Under Samma Tak. C.
33. Vandels betydelse i medborgarskapsärenden, m.m. Ku.
34. Tekniskt utrymme för ytterligare TV-sändningar. Ku.
35. Vår andes stämma – och andras. Kulturpolitik och internationalisering. Ku.
36. Miljö och fysisk planering. M.
37. Sexualupplysning och reproduktiv hälsa under 1900-talet i Sverige. UD.
38. Kvinnor, barn och arbete i Sverige 1850-1993. UD.
39. Gamla år unga som blivit äldre. Om solidaritet mellan generationerna. Europeiska äldreåret 1993. S.
40. Långsiktig strålskyddsforskning. M.
41. Ledighetslagstiftningen – en översyn. A.
42. Staten och trossamfunden. C.
43. Uppskattad sysselsättning – om skatternas betydelse för den privata tjänstesektorn. Fi.
44. Folkbokföringsuppgifterna i samhället. Fi.
45. Grunden för livslångt lärande. U.
46. Sambandet mellan samhällsekonomi, transfereringar och socialbidrag. S.
47. Avveckling av den obligatoriska anslutningen till studentkårer och nationer. U.
48. Kunskap för utveckling + bilagedel. A.
49. Utrikessekretessen. Ju.
50. Allemanssparandet – en översyn. Fi.
51. Minne och bildning. Museernas uppdrag och organisation + bilagedel. Ku.
52. Teaterns roller. Ku.
53. Mästarbrev för hantverkare. Ku.
54. Utvärdering av praxis i asyl lärenden. Ku.
55. Rätten till ratten – reformerat bilstöd. S.
56. Ett centrum för kvinnor som våldtagits och misshandlats. S.
57. Beskattning av fastigheter, del II – Principiella utgångspunkter för beskattning av fastigheter m.m. Fi.
58. 6 Juni Nationaldagen. Ju.
59. Vilka vattendrag skall skyddas? Principer och förslag. M.
59. Vilka vattendrag skall skyddas? Beskrivningar av vattenområden. M.
60. Särskilda skäl – utformning och tillämpning av 2 kap. 5 § och andra bestämmelser i utlänningslagen. Ku.
61. Pantbankernas kreditgivning. N.
62. Rationaliserad fastighetstaxering, del I. Fi.
63. Personnummer – integritet och effektivitet. Ju.
64. Med raps i tankarna? M.
65. Statistik och integritet, del 2 – Lag om personregister för officiell statistik m.m. Fi.
66. Finansiella tjänster i förändring. Fi.
67. Räddningstjänst i samverkan och på entreprenad. Fö.
68. Otillbörlig kurspåverkan och vissa insiderfrågor. Fi.

Statens offentliga utredningar 1994

Kronologisk förteckning

- 69. On the General Principles of Environment Protection. M.
 - 70. Inomkommunal utjämning. Fi.
 - 71. Om intyg och utlåtanden som utfärdas av hälso- och sjukvårdspersonal i tjänsten. S.
 - 72. Sjukpenning, arbetsskada och förtidspension – förutsättningar och erfarenheter. S.
 - 73. Ungdomars välfärd och värderingar – en undersökning om levnadsvillkor, livsstil och attityder. C.
 - 74. Punktskatterna och EG. Fi.
 - 75. Patientskadelag. C.
 - 76. Trade and the Environment – towards a sustainable playing field. M.
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Statens offentliga utredningar 1994

Systematisk förteckning

Statsrådsberedningen

Om kriget kommit... Förbedelser för mottagande av militärt bistånd 1949-1969 + Bilagedel. [11]

Justitiedepartementet

Vapenlagen och EG [4]
Kriminalvård och psykiatri. [5]
Års- och koncernredovisning enligt EG-direktiv. Del I och II. Ju. [17]
Förvalta bostäder. [23]
Vallagen. [30]
Utrikessekretessen. [49]
6 Juni Nationaldagen. [58]
Personnummer – integritet och effektivitet. [63]

Utrikesdepartementet

Historiskt vägval – Följderna för Sverige i utrikes- och säkerhetspolitiskt hänseende av att bli, respektive inte bli medlem i Europeiska unionen. [8]
Anslutning till EU – Förslag till övergripande lagstiftning. [10]
Suveränitet och demokrati + bilagedel med expertutpsatser. [12]
Rena roller i biståndet – styrning och arbetsfördelning i en effektiv biståndsförvaltning. [19]
Sexualupplysning och reproduktiv hälsa under 1900-talet i Sverige. [37]
Kvinnor, barn och arbete i Sverige 1850-1993. [38]

Försvarsdepartementet

Räddningstjänst i samverkan och på entreprenad. [67]

Socialdepartementet

Måns föreställningar om kvinnor och chefskap. [3]
Reformerat pensionssystem. [20]
Reformerat pensionssystem. Bilaga A. Kostnader och individeffekter. [21]
Reformerat pensionssystem. Bilaga B. Kvinnors ATP och avtalspensioner. [22]
Svensk alkoholpolitik – en strategi för framtiden. [24]
Svensk alkoholpolitik – bakgrund och nuläge. [25]
Att förebygga alkoholproblem. [26]
Vård av alkoholmissbrukare. [27]
Kvinnor och alkohol. [28]
Barn – Föräldrar – Alkohol. [29]
Gamla är unga som blivit äldre. Om solidaritet mellan generationerna. Europeiska äldreåret 1993. [39]
Sambandet mellan samhällsekonomi, transfereringar och socialbidrag. [46]

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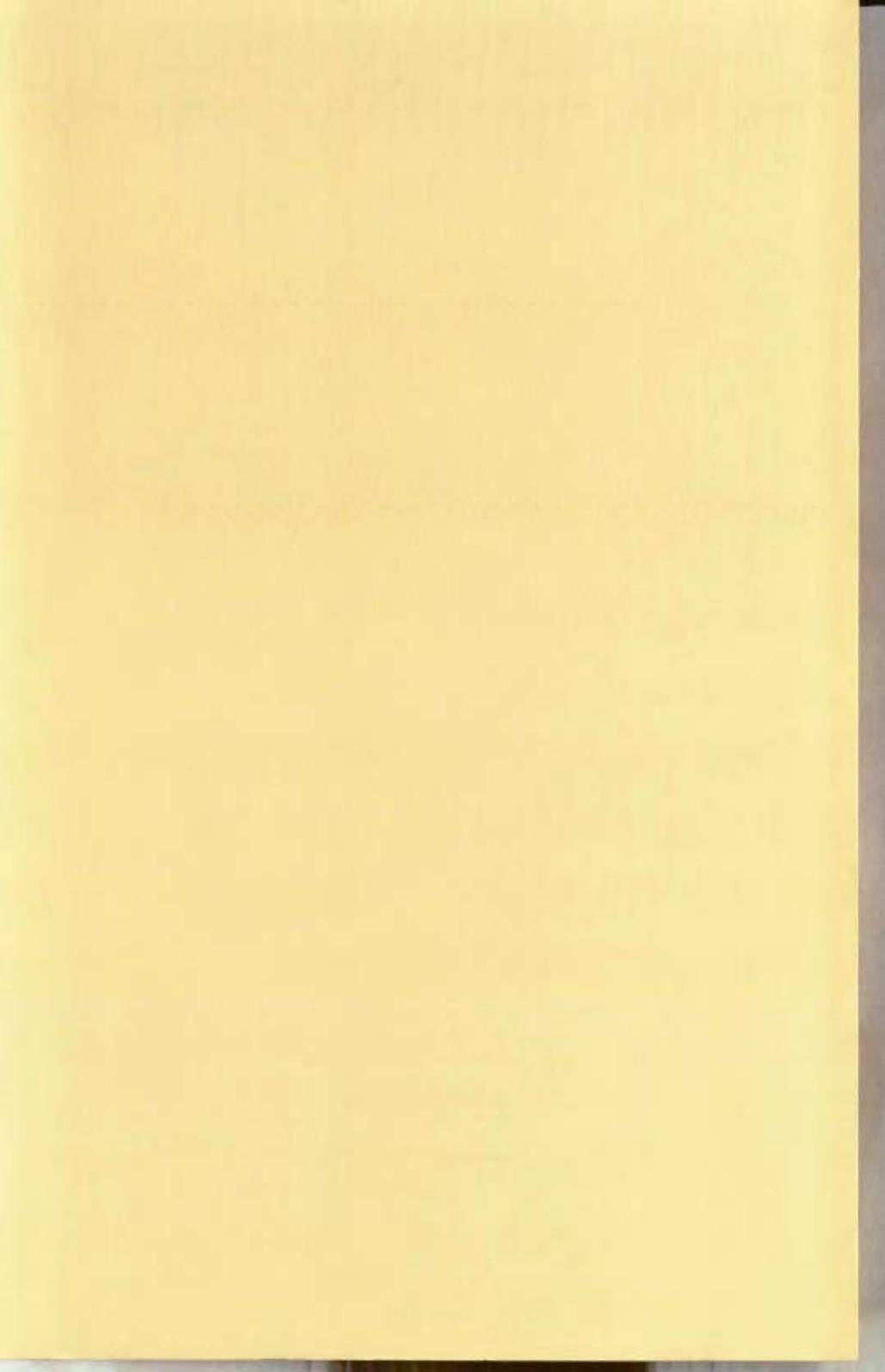
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