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**CHE 5104 – INTERNATIONAL ENVIRONMENTAL LAW AND POLICY**  
 Methods and strategies for promoting solutions to global environmental problems, policymaking from the perspective of developed and developing countries, the United Nations system, international financial entities, and non-governmental interest groups, progress of international community, obstacles preventing effective international solutions, links between politics, policy and the environment, origins and evolution of different forms of environmental policy, different stages of the environmental policy process, study of academic research papers.

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## 1. DEFINITION OF INTERNATIONAL ENVIRONMENTAL LAW

Environmental laws are the standards that governments establish to manage natural resources and environmental quality. The broad categories of "natural resources" and "environmental quality" include air and water pollution, forests and wildlife, hazardous waste, agricultural practices, wetlands, and land-use planning. In the United States, some of the more widely known environmental laws are the Clean Air Act, the Clean Water Act, the National Environmental Policy Act, and the Endangered Species Act. The body of environmental law includes not only the text of these laws but also the regulations that implement and the judicial decisions that interpret this legislation.

In general, the standards set forth in environmental laws can apply to either private parties or the government. The Clean Air and Clean Water Acts, for example, are frequently used to regulate the polluting activities of private enterprises. These laws mandate certain pollution-reducing technology or limit the levels of pollution for power plants and factories. The National Environmental Policy Act (NEPA) applies only to the actions of the U.S. government. NEPA requires that the federal government undertake a comprehensive environmental impact assessment before it can proceed with projects that are likely to affect the environment negatively.

Environmental law is a relatively new subject that has grown dramatically in scope and complexity in the last 25 years, presenting students with a daunting array of laws, regulations, institutions, and acronyms.

### 1.1. Differences between national and international environmental law

To understand the nature of international environmental law, one must first understand the difference between national and international law:

National law is law that is adopted by the government of an individual country. Example, in the United States, the most common examples of national laws are federal and state legislation and judicial decisions. Agency regulations and executive orders would also fall within this category.

Although these national laws are adopted by an individual country, they may have international impacts. A foreign manufacturer whose defective product injures a person living in the United

States may be held liable for resulting damages under U.S. law. The U.S. Corrupt Practices Act prevents a U.S. corporate executive from bribing a foreign government official. While these laws affect international activities and non-national parties, they are generally not considered international law. Rather, they are considered extraterritorial applications of national law.

International law, on the other hand, concerns agreements among different nations, or between citizens or corporations of different nations. Agreements or treaties among different nations are generally referred to as public international law. Contracts between private parties (corporations or citizens) residing in different nations are generally referred to as private international law. Because the field of international environmental law focuses on the relations and agreements among nations, it is part of public international law.



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## 1.2. Difference between hard and soft international law

A distinction is often made between hard and soft international law: Hard international law generally refers to agreements or principles that are directly enforceable by a national or international body. Soft international law refers to agreements or principles that are meant to influence individual nations to respect certain norms or incorporate them into national law. Soft international law by itself is not enforceable. It serves to articulate standards widely shared, or aspired to, by nations. Similar parallels can be found at the national level. Often an official, a legislative body, or an agency will announce a new public policy or priority. In this announcement, or proclamation, there are often pledges to incorporate this new policy or priority into specific legal provisions. While the announcement itself is not enforceable in court, it nonetheless can have a powerful influence on the development and implementation of specific legal provisions.

Private international law generally concerns business transactions between citizens or corporations of different countries. Because most of the rules governing these private transactions are enforceable in the courts of the concerned countries, these rules are usually deemed hard international law. Most of international environmental law, however, concerns general principles agreed upon among nations. Although these principles sometimes oblige countries to adopt implementing legislation, they are not usually enforceable on their own in court.

The soft status of international environmental law, and most international law, is a result of concerns over sovereignty. Nations are generally reluctant to surrender control over their territory, peoples, and affairs to external international authorities. Even when nations have joined in international agreements, many of them have added reservations to preserve their right to decline to be bound by particular parts of the agreement. The exercise of this power weakens the total effectiveness of many international agreements.

## 1.3. Means of Implementing and Enforcing International Environmental Law

There are forums where international environmental disputes can be adjudicated, such as national courts, the International Court of Justice, and international arbitration panels. These forums, however, generally require that the disputing parties voluntarily submit to the jurisdiction of the court or panel. Additionally, even when these forums obtain jurisdiction over an international environmental dispute, they must rely on the cooperation of national governments to enforce rulings. For economic and political reasons, this cooperation is often withheld.

A small number of environmental agreements have established international institutions that can directly impose trade sanctions (such as the Montreal Protocol) or have authorised member states to impose trade sanctions against violating parties (such as the International Convention for the Regulation of Whaling), for instance, in response to Japan's violation of the International Whaling Commission's whaling moratorium, the United States threatened to restrict Japanese fishing vessel activity in U.S. territorial waters. Japan elected to accede to the whaling moratorium rather than suffer any such restrictions.

The type of sanctions envisioned under the Montreal Protocol and International Whaling Commission are procedurally very difficult to impose. In general, there is no international body authorised to directly enforce international environmental law. The task of direct enforcement is left to the member nations, whose governments propose and adopt implementing policies. Sometimes the implementing national legislation is identical to the international agreement. For example, Canada implemented the Migratory Birds Treaty (with the United States) by



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adopting the Migratory Birds Treaty Act. Because the language of this act is identical to language in the treaty, the law is basically a legislative codification of the international agreement.

Other times, however, the international environmental agreement is of a general nature and national governments must draft and implement more specific laws. For instance, in 1989 the International Convention on Transboundary Movement of Hazardous Waste was signed in Basel, Switzerland. This convention forbids the export of hazardous wastes to countries that lack “adequate means to dispose of them.” Under the terms of the convention, signatory nations are called upon to draft their own more specific national laws to implement this pledge.

Although international institutions are generally not responsible for directly implementing and enforcing international environmental law, they often play important monitoring, informational, and diplomatic roles. For example, agendas adopted at the 1992 Convention on Environment and Development at Rio de Janeiro created a new international body, the Commission on Sustainable Development (CSD).

The CSD meets yearly at the United Nations in New York to review and advance the implementation of Agenda 21—an enormous and complex mandate. Most global agreements, such as the Biodiversity Convention and the Framework Convention on Climate Change, are implemented by an annual or biennial Conference of Parties (COP). These COPs lack the power to bring enforcement actions against either governments or private parties. They help monitor national compliance by requiring member nations to submit annual reports. Through meetings and publications, COPs also provide a forum to discuss and debate issues associated with the implementation of the agreement.

There are other institutions similar in function to the CSDs and the COPs. The North American Commission on Environmental Cooperation (NACEC), based in Montreal, Canada, monitors compliance with the North American Agreement on Environmental Cooperation, one of the side agreements under the North American Free Trade Agreement (NAFTA). The European Environmental Agency, based in Copenhagen, Denmark, monitors the compliance of individual European countries with environmental directives adopted by the European Union.

Although the CSD, COPs, NACEC, and the European Environmental Agency indicate that the international community is trying to improve compliance with environmental agreements, there is still a lack of effective implementation and enforcement. A 1992 study by the U. S. General Accounting Office concluded that international environmental agreements lack adequate procedures to monitor and ensure compliance.

Countries have become skilled in negotiating international environmental agreements, but they are much less skilled at making the agreement operate effectively. In the past two decades, states have also used economic incentives and trade bans to encourage compliance with international environmental agreements. For example, the Montreal Protocol, the Framework Convention on Climate Change, and the Biodiversity Convention provide economic incentives in the form of technical assistance, technology transfers, and money to build the administrative capacity of national environmental agencies. These incentives have been of particular value in promoting the involvement and compliance of developing countries—part of the Rio bargain between northern (developed) and southern (developing) countries. The Global Environmental Facility (GEF), a new international funding institution, also provides money for training, equipment, and enforcement related to environmental protection measures. Some recent international environmental agreements, such as the biodiversity Convention, have designated the GEF as their exclusive funding mechanism.



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#### 1.4. Jurisdiction for Disputes: Courts, Parties, and Enforcement

Roughly speaking, jurisdiction may be defined as a court's legal ability to hear a complaint. If the subject matter of the case is not within the scope of a court's jurisdiction, or if one of the parties, either the one bringing the case (plaintiff) or the one against whom it is brought (defendant) is not within a court's jurisdiction, the court will not hear the dispute. This is particularly relevant to international environmental law for a number of reasons. First and foremost, if a treaty or convention does not specify an international forum that has subject-matter jurisdiction, often the only place to bring a suit with respect to that treaty is in the member state's domestic court system. This then presents at least two additional hurdles. If the member state being sued does not have domestic implementing legislation in place to hear the dispute, there will be no forum available. Even in the event that the domestic legislation provides for suits of this nature, the judges who decide the case are residents of the country against which it is brought, and the resulting potential conflicts of interest are apparent. With respect to parties, only nations are bound by treaties and conventions.

In international forums, such as the International Court of Justice, countries must consent to being sued in order to preserve their sovereignty. Thus, it is often impossible to sue a country. In any case, it is often a transnational corporation (TNC), not a country that has violated an international agreement. It is nearly impossible to sue a country for not enforcing its laws against a TNC or for not enacting sufficient implementing legislation.

The final difficulty in the jurisdictional arena is the question of who may bring a suit. Often, only countries may sue countries, not individual citizens and not nongovernmental organizations. This has huge repercussions in that the environmental harm must be large and notorious for a country to even notice it. Second, for a country to have a stake in the outcome of the subject matter, some harm may have to cross the borders of the violating country into the country that is suing.

Finally, even if transboundary harm does exist, the issue of causation, especially in the environmental field, is often impossible to demonstrate with any certainty. In addition, in all fields of international law no country is ever in perfect compliance with every international obligation. Moreover, some countries are substantially more powerful than others. This may seem self-evident and unimportant, until one considers that suing another country may expose the plaintiff country to retaliatory actions. In spite of this political reality, however, Mexico successfully challenged the United States in the World Trade Organization in the Tuna Dolphin Case, and several Asian countries successfully challenged the United States over U.S. efforts to compel shrimp-exporting countries to harvest shrimp without harming turtles.

The enforcement issue is one where advocates for a safer environment often find themselves stymied. The entirety of international law, beyond the environmental field, remains largely unenforceable, even if a treaty or convention provides for specific substantive measures to be taken by a country (which is not always the case, since many treaties merely provide frameworks), and even if a forum for litigation or dispute resolution is specified or sanctions by member states for noncompliance are authorized. A country cannot be forced to do what it is not willing to do. One can sanction the country, order damages, restrict trade, or, most frequently, declare noncompliance, but beyond that, if a country will not comply, there is very little to be done. Countries usually accept or avoid international environmental obligations because it is in their economic self-interest to do so. Nations rarely take actions that may harm their domestic economy or their international trade for altruistic reasons. They take these actions expecting some economic or political benefit sooner or later



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## 2. INTERNATIONAL STANDARDS RELATING TO THE ENVIRONMENT/HEALTH

The International Organisation for Standardisation (ISO) is the worldwide confederation of 135 national standards organisations. Its purpose is to develop voluntary technical standards of products and services to make their manufacture and supply more efficient, safe and clean and to facilitate their international trading process.

By producing the ISO 14000 standards, ISO has recently generated huge interest from the world communities conscious about the importance of integrating the principles of sustainable development into world business and trade activities.

The standards ISO produced before were highly specific to the size, feature or format of products or materials and although its 9000 series was the first generic standards, it was not until the development of ISO 14000 series that ISO entered into the realm of environmental management.

ISO is a non-governmental organisation having no direct authority to enforce the standards it develops. But the legal significance of its 14000 series stems mainly from the possibilities of using, in particular, its 14001 standard as a regulatory condition for entry into international trade and business. Such possibilities have been endorsed in the provisions in the 1994 WTO Technical Barriers to Trade Agreement (TBT), which allow States to use the international standards as basis for technical regulations governing access to their markets. 8

The TBT also requires States to develop their national standards on the basis of international standards like ISO 14001. ISO 14001 spells out the elements of Environmental Management Systems (EMS) and requires organisations/companies to get certified as conforming to those systems. Because of the strong endorsement of ISO standards in the TBT agreement, ISO 14001 might influence a large area of international business and trade activities in the near future. This raises a new concern for the developing countries. This concern is mainly due to the fact that the ISO approach to the development of the standards apparently deviates from some established trends in public international law. One fundamental aspect of those trends is the efforts of nation-states and intergovernmental bodies (especially those under the UN Framework) to make international environmental and development norms more reflective of the context of developing states. These efforts were manifested in adopting policies and procedures to secure those states' participation in the law and policy-making process and to integrate their concerns and priorities into the substance of the various instruments by providing differential and contextual obligations. As a result, mechanisms such as technical, technological and financial assistance, information exchange, extended timetables and different target levels are established and the principle of 'common but differentiated responsibility' has been reflected in many important international environmental agreements and soft law instruments.

ISO 14001 makes no reference to the different economic and environmental capabilities and priorities of developing countries. The management elements ISO 14001 has specified are equally and invariably applicable to the most developed as well as the least developed countries. This flat generalization of the management standard raises a number of challenges for developing countries. These challenges are manifold and often inter-linked as far as economic, financial and environmental issues are concerned.

This study, however, focuses mainly on the legal challenges developing countries may have to face from the growing dominance of ISO 14001 in the areas of international business and trade.

Its purpose is to examine the legal impacts ISO 14001 may exert on the international environmental regime and to discuss the desirability of those impacts from the perspective of developing countries. It will also suggest the



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measures developing countries should take to cope with the challenges the standards have posed for them. The first part of this article describes the contents and requirements of ISO 14001 and indicates its significance. The second part explains the potential mandatory status the ISO 14001 has gained through its recognition in the WTO TBT agreement. This entails an analysis, in the third part of this article, of ISO's standard-making process to explain what the growing dominance of 14001 standards would mean to the least-developed countries compared to their developed counterparts.

The fourth part examines the relevant provisions of the TBT agreement to see their adequacy in protecting the interests of developing countries from the possibilities of the use of the ISO 14001 as a trade-restrictive regulation. The next part illustrates the problems developing countries may face in the implementation stage of ISO 14001 by comparing the relevant laws of two neighbouring countries, Bangladesh and India. The conclusion follows with a discussion of the measures that may be considered by international organisations as well as by developing countries to make the EMS standards more efficient and suitable from those countries' perspective.

## 2.1. ISO 14000 standards and their status

ISO 14000 is a series of voluntary environmental management standards and guidelines. It provides a common framework for managing corporate environmental issues, which in turn may facilitate trade and improve environmental performance. As generic management system standards, the ISO 1400 series is applicable to any organisation irrespective of the nature of its product or service and irrespective of its size or whether it is a governmental department or business enterprise.

Developed under ISO Technical Committee 207, the 14000 series of standards address the following aspects of environmental management:

- Environmental Management Systems (EMS) (ISO 14001 and 14004);
- Environmental Auditing and Related Investigation (EA) (ISO 14010-12);
- Environmental Labels and Declarations (EL) (ISO 14020 series);
- Environmental Performance Evaluation (EPE) (ISO 14030 series);
- Life Cycle Assessment (LCA) (ISO 14040-43);
- Terms and Definition (T & D) (ISO 14050).

Among the ISO 14000 standards, the ISO 14001 has special significance. It is the 'centrepiece' of the 14000 series and the only ISO 14000 standard for which an organisation is expected to seek either self-declaration or certification by an independent third party. Other standards of ISO 14000 series basically provide the environmental management tools for strengthening or supporting the Environmental Management Systems.

The ISO 14001 standard was published in September 1996. It provides the basic elements of Environmental Management Systems (EMS) and further guidelines on those systems are provided in ISO 14004.

## 2.2. Key elements of ISO 14001 (environmental management systems – specification with guidance for use)

ISO 14001 deals with the steps an organisation or a company (companies are defined as organisations, ISO



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14001 does not differentiate between types of organisations) should take to establish, maintain and continually improve its environmental management systems (EMS).

It specifies the key elements of satisfactory environmental management systems, which should be an integral part of a company's overall management system. The elements of ISO 14001 are inter-linked and would not be assessed in isolation while a company applies for its ISO 14001 certification or registration. These elements, in brief, are as follows:

- Environmental Policy: A company should have an environmental policy which must include commitments to all 'applicable' environmental laws and regulations as well as other relevant requirements and to 'continual improvement' of the EMS. The policy must be appropriate to address the environmental impact of the company's activities, products and services. It must be documented, communicated to all employees and made available to the public.
- Planning: The company should have a plan to establish and maintain various procedures in order to be able to i) identify the environmental impacts of its processes, activities and services, ii) identify all applicable statutory and regulatory requirements, iii) set its environmental objectives and goals in line with its environmental policy, iv) set an environmental programme for achieving its environmental goals and objectives.
- Implementation and operation: The company should inter alia employ adequate human, technological and financial resources to ensure that efficient environmental management systems are established, implemented and maintained. It should make arrangements for training of all the concerned employees, internal and external communication proceedings, and environmental documentation.
- Checking and corrective action: This stage consists of regular monitoring and measurement of the company's activities that can have a significant impact on the environment and initiating corrective and preventive actions. The company should develop a procedure to define responsibilities and authorities for investigating non-conformance with its environmental targets, objectives and legal requirements, and for completing appropriate corrective actions. It should have a system of periodic EMS audits in order to determine whether its EMS conforms to ISO 14001 and whether it has been properly implemented.
- Management review: This stage requires periodic review of the EMS by the organisation's top management. The review should address the needs for modification of the company's policy, procedures, targets and objectives particularly in the light of the EMS audit results and the changes, if any, in the applicable legal and other requirements. It should lead to continual improvement of the EMS to ensure its continuing suitability, adequacy and effectiveness. It would complete the cyclical process of plan, implement, check, review and continually improve.

### 2.3. Conformity assessment and certification

Conformity assessment in the case of ISO 14001 EMS specification is the basis for the certification/registration of a company to the standard. Once a company has established an EMS, it may make a self-declaration that its EMS conforms to the ISO 14001. But, in order to achieve the confidence of the market and consumers, the conformity of an EMS to the ISO 14001 standard should be assessed by a third party (registration or certification body) accredited or approved for that purpose by an authoritative body. Normally that authoritative body is the National



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Accreditation Body, which a country may set up to control the environmental management system certification bodies.

#### 2.4. The ISO 14004 guidelines

ISO 14004 (Environmental management systems – General Guidelines on principles, systems and supporting techniques) provides the general guidelines that supplement the requirements of ISO 14001 for a comprehensive EMS. Although these guidelines are not essential requirements for certification under ISO 14001, they are useful in establishing efficient EMS or modifying existing EMS.

Some guidelines of ISO 14004 are not explicitly mentioned in the ISO 14001. These relate to establishment of a senior management committee, initial environmental review to find a baseline for an appropriate EMS, principles of environmental policy of EMS, long and short-term environmental strategic plan, integration of EMS into management elements, defining accountability of all employees, etc.

#### 2.5. Significance of ISO certifications

As a product of a non-governmental organisation, ISO standards, including the ISO 14000 series, are not obligatory even for ISO members. But these standards can attain mandatory or quasimandatory force mainly through two ways. First, as has happened in cases of the ISO standards concerning health, safety and environment, countries may incorporate the standards in their regulatory framework or may refer to them in legislation to serve as technical basis. Second, the standards may become a market requirement, as has happened in the case of ISO 9000 quality management systems, or ISO freight container dimension. In case of ISO 14000 series, as we will see below, the likelihood of attaining mandatory force both through government initiatives and market factors has increased due to the prior endorsement of the international standards in the 1994 WTO Agreement on Technical Barriers to Trade.

The Agreement requires the Contracting Parties to use the international standards as a basis for their national regulations as well as standards governing access to international trade.

### 3. INTERNATIONAL STANDARDS AS ENDORSED IN THE TBT AGREEMENT

The TBT agreement deals with issues related to technical barriers to international trade. While it seeks to ensure that technical regulations and standards do not create 'unnecessary' obstacles to international trade, it also recognises countries' rights to use international standards, where these are appropriate, for protection of human, animal or plant life or health or the environment. Article 2 of the Agreement contains the key provisions that allow countries to use international standards as basis for their technical regulations. Article 2.4 of the Agreement reads:

Where technical regulations are required and relevant international standards exist or their completion is imminent, Members shall use them, or the relevant parts of them, as a basis for their technical regulations. As the latter part of the same article provides, this obligation does not apply in cases "when such international standards or relevant



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parts would be an ineffective or inappropriate means for the fulfillment of the legitimate objectives pursued, for instance because of fundamental climatic or geographical factors or fundamental technological problems.”

The TBT not only encourages the Parties to use the standards as a basis for their technical regulations, it also appears to justify their legitimacy as a basis for regulations limiting access to markets. Article 2.2. read with Article 2.5 suggests that:

- Technical regulations could permissively be trade-restrictive to the extent they are necessary to fulfil any legitimate objective.
- Those legitimate objectives include national security requirements, prevention of deceptive practices, protection of human health or safety, animal or plant life or health or the environment.
- Trade-restrictive regulations with any of the above objectives shall be rebuttably presumed not to create an ‘unnecessary’ obstacle to international trade.

It can thus be argued that, because of the above provisions of the TBT agreement, any country may effectively justify a trade-restrictive regulation concerning environmental management systems by designing it in line with the ISO 14001 standard. Apart from mandatory regulations, the TBT agreement has also mandated the use of international standards for formulating national standards. A clear reference to that effect is made in Annex C to the agreement, which Article 3.5. of the agreement requires to be accepted and complied with by the countries (as well as by their local government and non-governmental bodies) for the development and application of national standards.

This annex contains a ‘Code of Good Practice for the Preparation, Adoption and Application of Standards’ and according to Article 15.5, it constitutes an integral part of the TBT agreement. The Code requires national standardizing bodies to use the international standards as the basis for national standards and instructs the national members of ISO to become a member of ISONET.

Given that the validity of trade-restrictive regulations and national standards relates so much to the ISO standards, it is relevant to examine the extent to which the ISO standards have reflected the interests and priorities of vastly diverse world communities. Further, examination is required to determine;

- whether the WTO TBT agreement has taken the interests of developing countries into account while authorising uniform standards to be the basis of technical regulations and
- what measures it has actually taken for preventing discriminative use of the international standards against its weaker and less-developed members.

### 3.1. ISO process and developing states

The capacity of a country to comply with international obligations largely depends on whether it or a sufficient number of other similarly situated countries were able to effectively participate in the negotiation of those obligations. This is more obvious in cases of environmental obligations, which tend to exert great influence over the economic and development activities of states. That is why intergovernmental organisations, particularly those in the UN system, put heavy emphasis on ensuring a very broad-based participation in the negotiation of environmental instruments. The UN has developed several methods to ensure particularly the participation of less developed countries constrained by their financial and logistic problems.



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### *3.1.1. ISO procedural rules*

As a private body, ISO does not have to follow the methodologies of intergovernmental negotiations adopted by the UN for ensuring broad-based participation. To date, it is clear that ISO does not follow them either.

Although ISO has membership from many developing countries, their participation in the standard setting process is generally very limited. The highly developed OECD countries dominate the ISO Technical Committees, their Sub-Committees and the Working Groups, which carry out the most important work in developing ISO's standards. According to the ISO Annual Report 1998, the non-OECD countries together had only 56 members of a total of 705 members of Technical Committees (TC) and Subcommittees (SC). In case of the convenors of Working Groups (WG), the non-OECD countries had 46 of the total of 1967 members.

TC 207, the Technical Committee that was entrusted with preparing the ISO 14001, was not an exception to the general practice. Its membership was 'heavily concentrated in large global industry and industry-related government standard-setting bodies' and at the working groups in which most of the drafting work was done, 'a significant majority of the 16 convenors come from corporations or industry federations'.

These ISO's procedural rules differ from those of the United Nations and many other intergovernmental bodies. As a draft UNCTAD report states, 'For the ISO 14000 series, the chairs of all the TC Subcommittees are in the industrialised countries and the convenors of TC 207 Working Groups come from industrialised countries as well. In the UN system practice the chairs of the intergovernmental groups are distributed throughout the geographic or political regions used by the sponsoring organisation'. Compared to the UN system, the ISO also has 'different voting procedures, different membership classes, different rules for participation, different procedures for adopting final reports, and different methods of having international staff support for negotiations'. The influence of those differences in the formulation of ISO 14001 is summed up in the UNCTAD report.

The practical aspects of their participation together with membership and procedural rules have made it difficult for developing countries to participate or participate effectively in designing the ISO standards. Existing ISO standards do not fully reflect the economic, cultural, social and business background and other elements that are typical in many developing countries. In short, the impression given by interviews of those participating in the ISO 14001 negotiations is that developing countries have voted on a standard in which they have had no input, on a standard largely prepared and developed by corporate experts from industrialised countries.

The resultant ISO 14001 standard, unlike the outcomes of public international law negotiations that offer developing countries access to mechanisms such as extended timetables and technical and financial assistance, has instead suited the companies in large developed countries, which already had similar EMS and far greater logistic capabilities. In spite of that, the compelling reason for accepting those standards by developing countries might have been the fear of 'more stringent and less controllable unilateral trade action by developed countries or their organisations'. But it was foreseeable that uniform standards would be 'impossible' for many developing country industries to meet, and the industries and businesses of the developed world would far outpace their counterparts in the developing world in taking the advantages of ISO 14001 certification. ISO's own survey on ISO certifications three years after the introduction of ISO 14001 in 1996 substantiates such suggestions.



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### *3.1.2. Key findings on ISO 14000 certification*

Developing countries have many industrial sectors to which EMS could be applicable. These include agriculture and fishing, food products, beverage and tobacco, textile and textile products, leather and leather products, pulp, paper and paper products, rubber and plastic products, basic metal and fabricated metal products, gas supply, and water supply. But as the Ninth Cycle (up to and including 31 December 1999) of the ISO survey of ISO 9000 and ISO 14000 reveals, their rate of having ISO 14001 certification is miserably low compared to the most developed OECD countries.

According to this latest available survey, up to the end of 1999, the total number of ISO 14001 certifications in 84 countries is 14106. Among them, the companies of the 29 OECD countries together account for 12381 certifications. The total number in the most advanced six countries – Japan (3015), UK (1492), Germany (962), Sweden (851), Australia (708) and US (636) – alone is 7664, which is more than 50 % of the total certifications worldwide.

Among the world growth of 6219 certifications in 1999, Japan had the highest increase with 1473 new certificates awarded. The United Kingdom follows with an increase of 571 and the increase in Sweden, Australia, USA and Germany is 547, 356, 345 and 311 respectively. The growth in these six countries together is 3603, well above 50% of the total growth.

The companies in the 21 African/West Asian Countries have 337 ISO 14001 certificates, which are only 2.39% of the total number. Barring India (111) and South Africa (82) the number reduces to 193 that is around 1% of the total number. Fourteen countries of Central and South America together hold 309 certifications, that is 2.21% of the total certificates. Barring Brazil (165) and Argentina (84), the number reduces to 60; that is less than 0.5%.

Among the 150 countries that have at least one ISO 9000 certified company, 76 countries have no 14000 certifications at all. With a very few exceptions, these countries are either in Africa, West Asia or in the Central and South America. Some of them – for example Bangladesh, Jamaica, Kyrgyzstan, Nigeria – have adopted the ISO 14001 and 14004 as their national standards and have given the standards a national designation (for example: Bangladesh – BDS ISO 14001:1996). But they have not yet achieved a single ISO 14001 certified company by the end of 1999.

It can be well assumed that unless some radical steps are taken to assist the developing countries, their companies will always lag way behind those of the developed countries in obtaining ISO 14001 certification. The consequence may be far-reaching. The certified companies would not only receive an early competitive edge over the non-certified; some of them may put pressure on suppliers, including those in the developing countries, to conform to EMS standards. As a UNDP report predicts, such pressure could go as far as to 'use certification as a criteria to award preferential trade status, fix suppliers quotas or even drop suppliers without certification in favour of certified competitors'.

The ISO 14001 standard might have more serious implications for the developing countries once the developed countries incorporate the elements of the standard into the regulation governing access to their market or promote its implementation by private companies or require suppliers' compliance as a condition for procurement. A number of United Nations specialised agencies or affiliated bodies has already raised concern about the impact of ISO 14000 standards, particularly ISO 14001, on the developing states.

The apprehension of trade-restrictive use of the ISO 14001 was also voiced in the Technical Committee that developed the ISO 14000 series. The Committee stated that it is 'aware that environmental management



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standards can be used to limit trade' and it still has a challenge to 'help ensure' that the standards are not used 'as a barrier to trade'. As long as barrier removal is not ensured, it is obvious that the principal sufferers of such trade barriers would be the least developed countries. They have various constraints, including poor technical and financial resources, lack of skilled human resources, weak legal systems, inexperience in environmental management, urgent development needs etc., to conform with EMS standards. As we will see in part 5, even if the companies in those countries establish their EMS, they will still face problems in conformity assessment controlled by countries with much more transparent and comprehensive environmental legal systems.

It may be argued here that the differentiation embodied in ISO 14001 in terms of compliance to the legal requirements of the country in which a company operates is indeed the mechanism to allow companies in developing countries to implement ISO 14001 without struggling to comply with performance standards that companies in developed countries have achieved. But the real problem for the companies in many developing countries may rather lie in applicable domestic laws and regulations that are vague and indeterminable. These loopholes may expose those companies to enormous risk of financial losses unless their attempted implementation of ISO 14001 satisfies the scrutiny of a certification body that can interpret the applicable laws in a different way. The TBT agreement did not ignore these issues while endorsing the ISO standards. But the measures it has suggested fall short of protecting the developing countries from technical trade barriers.

### 3.2. TBT agreement on the issues of developing countries

The TBT agreement recognizes the special difficulties of the developing countries in the formulation and application of technical regulations and standards (paragraph 10 of the preamble) and provides for special and differential treatment of developing country members (Article 12).

### 3.3. Key provisions

Article 12.3 provides that Members shall take account of the special development, financial and trade needs of developing country Members in the preparation of technical regulations, standards and conformity assessment procedures in order to ensure that these do not create unnecessary obstacles to exports from developing country Members. Article 12.4. provides that developing country Members should not be expected to use international standards as a basis for their technical regulations or standards, including test methods, which are not appropriate to their development, financial and trade needs. The member states are also required:

- to take 'available' reasonable measures to ensure active and representative participation of all countries in the organisation and operation of international standardising bodies and international systems for conformity assessment (Article 12.5);
- to take 'available' reasonable measures to ensure that international standardising bodies, upon request of developing country Members, examine the possibility of international standards concerning products of special interest to developing country Members and, if practicable, prepare such standards (Article 12.6);
- to provide technical assistance to developing country Members to ensure that the preparation and application of technical regulations, standards and conformity assessment procedures do not create



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unnecessary obstacles to the expansion and diversification of exports from them (Article 12.7).

In order to ensure that developing country Members are able to comply with the TBT agreement, the Committee on Technical Barriers to Trade (provided for in Article 13) is allowed to grant, upon request, specified, time-limited exceptions in whole or in part from obligations under the Agreement (Article 12.8). The Committee could, in particular, take into account the special problems of the least-developed country Members (Article 12.8).

### 3.4. Shortcomings of TBT provisions

The above provisions do suggest that the TBT agreement recognises the special difficulties of the developing countries in conforming with uniform environmental standards governing access to international markets. But the adequacy of the TBT measures in addressing the problem can be criticised for the following reasons.

- The TBT encourages differential treatment for the developing countries on the basis of standards which themselves do not recognise or reflect the principles of differential treatment. The ISO 14000 standards, which according to the TBT agreement may be the basis for mandatory regulations or national standards, are premised on establishment of same management elements by companies irrespective of where they are operating. Furthermore, the TBT does not clarify how the legitimacy of developing technical regulations to protect one state's 'health, safety and environment' (as provided in Article 2.2 and 2.5. of TBT) would be balanced with the need for differential treatment of developing countries. The complexity of this question may yet to be resolved in future disputes brought before the WTO dispute settlement panel.
- While encouraging its contracting parties to take the interests of the developing countries into account, the TBT makes no references to the relevant provisions of the intergovernmental environmental instruments (like the Montreal Protocol, Basel Convention, Climate Change Convention or Biodiversity Convention) on differential treatment of developing countries. Therefore, if national regulations governing access to market are developed in the light of those agreements or on the basis of intergovernmental guidelines like UNEP Environmental, Health and Safety Guidelines, it might be claimed that those regulations are technical barriers to trade. Because of the strong endorsement of ISO standards in the TBT, such claims, however, could not be made Environmental Law in Developing Countries in cases of regulations developed on the basis of ISO standards. This prejudice of the TBT towards ISO standards may encourage ignoring intergovernmental agreements in favour of ISO standards and if that happens, 'it may reduce the authority of the governments and the UN system to set and enforce international environmental agreements'.
- The requirement of the TBT for active and representative participation of the developing countries is limited to the measures 'available' to its members. As noted earlier in part 3.1 of this article, the process of development and adoption of the ISO standards falls far short of ensuring 'active and representative' participation of the states having financial and technical constraints. The TBT has not suggested any obligation of following the principles of intergovernmental negotiations in this regard. It has not clarified whether an international standard developed without such participation could be equally weighed as an acceptable basis for technical regulations.
- The TBT provisions in Article 12.6 allow developing countries to request the development of standards for 'products' of special interest to them. As an assistance measure, however, this is not adequate. It will not have any impact on the ISO 14000 standards which are generic standards relating to the processes and



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services, not to any specific product.

- The TBT is unable to ensure that conformity assessment of an EMS in one country would be accepted in another country. Article 6.1. of the TBT agreement encourages countries to recognise each other's conformity assessment procedures provided that they are satisfied that the procedures of other countries offer 'an assurance of conformity with applicable technical regulations or standards equivalent to their own procedures'. The requirement of such assurance" itself may operate as a technical trade barrier and it is obvious that because of the weakness of legal and technical requirements of many developing countries, it would be difficult for their conformity assessment procedures to offer such assurance.

#### 4. LAW AND POLICY OF THE EU RELATED TO GREENHOUSE GAS EMISSIONS REDUCTION

The European Union is a unique regional organization for integration of economy and other public affairs. As such, its law and policy on greenhouse gas emissions reduction are the expression of the political will of the entire union on climate change and its mitigation.

The regime of greenhouse gas emissions reduction of the EU must operate under the legal framework of the EU and its Member States. The sources of EU law are Regulations, Directives and Council Decisions (which are adopted by the Council of the European Union, in cooperation with the European Parliament and the European Commission). Regulations are directly applicable and binding in all Member States; and there is no need for any further domestic legislation.

Although Directives are also binding, they are binding only as to the result to be achieved. They must be implemented through national legislation. Council Decisions are binding in their entirety on those to whom they are addressed. Regulations and Directives on important matters such as finance and energy supply require unanimous action of the Council. Under the EU treaties, the Member States have limited powers in adopting environmental policies and legislation that diverge from those adopted at the EU level. The Member States are obliged to follow the EU environmental regulations and to implement environmental directives adopted at the EU level.

In the past, the European Commission made great effort to develop common and coordinated policies and measures for implementing a unified climate change strategy. As early as in 1986, the Council of Ministers adopted a resolution which set new Community energy policy objectives for up to 1995. In October 1990, the Council of Environment and Energy Ministers of the EU agreed that the Community and the Member States will take actions aimed at reaching stabilization of the total carbon dioxide emissions in the Community as a whole at the 1990 level, assuming that other leading countries would undertake similar commitments and acknowledge the targets identified for stabilizing or reducing emissions by specified dates. The ministers also agreed that Member States which start from relatively low levels of energy consumption and therefore low emissions measures on a per capita or other appropriate basis are entitled to have carbon dioxide targets and/or strategies correspondent to their economic and social development, while improving the energy efficiency of their economic activities. Since then, many initiatives on law and policy concerning climate change and greenhouse gas emissions reduction were proposed by the Commission to the Council and Parliament. Those initiatives have resulted in some EU legislation, policies and programs.



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#### 4.1. EU law related to greenhouse gas emissions reduction

The programs of the European Community play an important role in promoting greenhouse gas emissions reduction within the EU, providing for norms and standards for the implementing legislation of the Member States. In particular, there are two major EEC programs that have fostered the development of the Union's legal framework in the field of energy efficiency and greenhouse gas emissions reduction.

The first major program is the "Program of Specific Action for Vigorous Energy Efficiency" (SAVE Program).

SAVE was a four-year, 35 Million ECU program that ran from 1 January 1991 to 31 December 1995. It consisted of four parts:

- the development of Council Directives and standards for energy efficiency;
- the provision of financial support for the creation of energy efficiency infrastructures in Member States;
- information exchange network for energy efficiency matters;
- a sub-program called PACE for developing energy efficiency standards.

The first part (energy standards) fostered a number of important Community legislation on energy efficiency and related matters. Because of the success of the SAVE Program and the importance of the issues of energy efficiency and greenhouse gas emissions reduction, the Community decided to continue the effort, initiating a "SAVE II Program."

SAVE II is focused on the preparation and implementation of cost-effective measures and actions to promote energy efficiency within the Community. The general objectives of SAVE II include:

- to stimulate energy efficiency measures in all sectors;
- to encourage investment in energy conservation by private and public consumers and by industry;
- to create the conditions for improving the energy intensity of final consumption.

It is estimated that the implementation of SAVE II Program will result in a decrease of energy intensity, because there is a cost effective efficiency potential around 20% of total current energy consumption using current technologies.

The second major program is the "Program for the Promotion of Renewable Energy Sources" (ALTENER). Like SAVE, the ALTENER Program began long before the Kyoto negotiations and, because of the success of the program, in 1998 the Council decided to continue the program.

Methodologically, the SAVE and ALTENER Programs are important for two reasons. First, they implement and materialise the general EU policy on greenhouse gas emissions reduction, providing frameworks of practically meaningful and operational options for achieving greenhouse gas reduction through energy efficiency and renewable energy sources. Second, they have fostered the creation of specific legal and policy measures for achieving greenhouse gas emissions reduction and the development of renewable energy sources. In essence, they function as a bridge connecting the general goal and policy of the EU at one end and the concrete implementing measures of the EU and its Member States at other.



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## 4.2. Legislation on improving energy efficiency

Based upon the SAVE Programs and ALTERNER Programs, the EU developed a number of legislative documents on energy efficiency and renewable energy sources.

Council Directive 92/42/EC on the energy efficiency of boilers requires the Member States to ensure that boilers cannot be put into service unless they satisfy the efficiency requirements set out by the Directive. Member States are required to appoint bodies to examine all boilers, to ascertain and attest to compliance with these measures. The Directive provides a standardized set of procedures for the energy efficiency examination. Boilers passing examination shall be labeled with the EC uniform conformity mark "CE" so that they can be moved freely in the EC Member States. In addition, boilers passing the examination must be labeled with one or more energy performance marks according to their energy efficiency levels.

Council Directive 96/57/EC concerning energy efficiency of household electric appliances is directly related to greenhouse gas emissions reduction. It points out in its preamble that electricity generation and consumption account for 30% of man-made Carbon dioxide emissions and about 35% of primary energy consumption in the Community, and that these percentages are increasing and notes that stronger measures are required for achieving that Council objective of stabilizing CO<sub>2</sub> emissions in the Community at 1990 level by the year 2000.

The Directive applies to new electrical household refrigerators, frozen food storage cabinets, food freezers and combinations of these appliances. It requires Member States to take all necessary measures to ensure that refrigeration appliances covered by this Directive can be placed on the Community market only if the electricity consumption of the appliance in question is less than or equal to the maximum allowable electricity consumption value for its category as provided by this Directive.

The manufacturer of a refrigeration appliance is specifically declared to be responsible for ensuring compliance. The Directive sets forth the method for calculating the maximum allowable electricity consumption and the conformity assessment procedures. All such appliances must be in conformance with the maximum allowable electricity consumption to bear the CE mark.

In its provisions on enforcement, the Directive requires Member States to take all necessary measures to restrict or prohibit the placing on the market of the products that do not meet its requirements or to ensure that they are withdrawn from the market.

It is expected that similar energy efficiency standards are going to be expanded to cover other household electrical equipment and appliances, such as washing machines, TVs and VCRs. It is estimated that the market transformation of all such equipment will result in 10% saving of electricity.

Council Directive 93/76/EEC, is perhaps the earliest EC legislation directly relating energy efficiency to the climate change problem. The purpose of the Directive is to limit carbon dioxide emissions by improving energy efficiency of buildings. The preamble of the Directive explicitly acknowledges the objective of stabilizing total carbon dioxide emissions by the year 2000 at the 1990 level, as agreed by the Council of Environment and Energy Ministers of the EEC Member States in 1990. It points out that residential and tertiary sectors account for nearly 40% of final energy consumption in the Community and that growth of these sectors is bound to increase energy consumption and hence also to increase carbon dioxide emissions.

Therefore, a collective effort by all Member States, to enhance the energy efficiency of buildings and equipment is necessary in order to limit carbon dioxide emissions and promote the rational use of energy. To this end, Member



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States should draw up and implement programs in the following fields:

- o energy certification of buildings;
- o billing heating, air-conditioning and hot water costs on the basis of actual consumption;
- o third-party financing for energy efficiency investments in the public sector;
- o thermal insulation of new buildings;
- o regular inspection of boilers; and
- o energy audits of undertakings with high energy consumption.

These programs must include laws, regulations, economic and administrative instruments, information, education and voluntary agreements whose impact can be objectively assessed.

The Council Directive 96/61/EC concerning integrated pollution prevention and control requires that the Member States must take energy efficiency into account when they decide the best available techniques (BAT) for pollution control. This will result in energy saving from the application of BAT in pollution prevention and control. Member States must take necessary measures to ensure that "energy is used efficiently" in the operations of all stationary industrial installations.

The operators must report to the competent authorities of the Member States about the energy used or generated by their installations when they apply for permits. Because of this Directive, energy efficiency becomes a factor that the government must consider when it sets emission limit values based on BAT and issuing operating permits for emission sources.

Council Directive 79/530/EEC, Council Directive 79/531/EEC, and Council Directive 92/75/EEC address issues of energy labeling. Council Directive 92/75/EEC replaced the Directive 79/530/EEC and revised the Directive 79/531/EEC. It greatly enlarged the coverage of the energy labeling requirement. It applies to refrigerators, freezers and their combinations; washing machines, dryers and their combinations; dishwashers; ovens; water heaters and hot water storage appliances; lighting sources and air-conditioning appliances.

The coverage of the new Directive can be enlarged to cover more household appliances. Therefore, the new Directive provides a new legal framework for the energy labeling scheme of the EU. All suppliers of household appliances covered by the Directive shall supply a label and a product fiche on the consumption of energy and be responsible for the accuracy of the label and fiche. All dealers who sell such appliances must attach this label in the clearly visible position according to the specifications of relevant implementing directives and in the relevant language version.

Council Directive 92/75/EEC has far reaching implications in terms of energy labeling legislation in the EU. The Council believes that the provision of accurate, relevant and comparable information on the specific energy consumption of household appliances may influence the public's choice in favor of these appliances which consume less energy, thus prompting manufacturers to take steps to reduce the consumption of the appliances which they manufacture.

Recognizing that information plays a key role in the operation of market forces, the Council believes that it is necessary to introduce a uniform label for all appliances of the same type, to provide potential purchasers with standardized information on energy efficiency. In order to implement this Council Directive, the Commission has adopted seven Commission Directives, covering household ovens; household electric refrigerators, freezers and



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their combination; household washing machines; household electric tumble dryers; household combined washer-dryers; household dishwashers and household lamps. In 1998, a study financed by the SAVE Program evaluated the energy labeling scheme and found that the level of compliance as comparatively low.

But the Commission pointed out that “in spite of this, the label, when applied, was shown to have a substantial impact, with a third of purchasers saying that the label had influenced their choice of refrigerator or freezer”.

Methodologically, these Directives represent three very different approaches for greenhouse gas emissions reduction. The first three Directives are targeted at specific energy consuming commodities such as boilers, home electrical appliances and buildings. They set technical energy efficiency standards for them, and place the responsibility for compliance on the manufacturers or builders of those commodities. They represent the approach of governmental “command and control”. The last two of the above mentioned Council Directives are methodologically different.

Rather than targeting certain commodities, they directly impose upon governmental agencies (in case of BAT technology identification) and manufacturers/dealers (in case of energy efficiency labeling) certain obligations related to energy conservation and greenhouse gas emissions reduction. Both are focused on the role of information in greenhouse gas emissions reduction. In the case of BAT identification, governmental agencies are required to take into account of the factor or information on energy efficiency of the technologies under review. In this way, it too represents a “command and control” approach. The energy labeling requirements also operate on a command and control level with regard to manufacturers and dealers in energy consuming commodities (who are required to disclose the energy efficiency information of the commodities to consumers). But when those labeled products are release to the market, the force of market comes into play. The regulation assumes that consumers will choose to buy the commodities with higher energy efficiency. It represents the approach of economic incentive and market force. Thus, energy efficiency information is used as a tool to change both the governmental decision-making and the consuming behavior of the general public as mechanisms for achieving energy conservation and greenhouse gas emissions reduction.

#### 4.3. Legislation on promoting renewable energy sources

With Decision 93/500/EEC the European Economic Community launched the “ALTENER Program”, addressing renewable energy sources such as biomass, small scale hydro-power (under 10 MW), wind energy, solar thermal and solar photovoltaics, geothermal energy, and tidal, wave and other ocean energies. The overall purpose of the program is to establish a framework for specific actions to promote renewable energy sources in the community.

The original ALTENER Program set forth three specific objectives for the development of renewable energy sources in EC:

- increasing the market share of renewable energy sources from 4% in 1991 to 8% in 2005
- (equivalent to a 180.00 Gg reduction of CO<sub>2</sub> by the year 2005);
- tripling the production of electricity from renewable energies; and
- securing a 5% market share of biofuels in motor vehicle consumption.

The program ran from 1993 to 1997 and had a budget of 40 Million ECU. In 1998, the Council decided to continue the ALTENER I, approving a new ALTENER II Program and allocating ECU 30 million for its implementation in the



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year 1998-99.

The ALTENER II ran for four years, from 1998 to 2002. It provided funding for five categories of actions and measures relating to renewable energy sources:

- o studies and other actions intended to implement and complement Community and Member States measures taken to develop the potential of renewable energy sources;
- o pilot actions aimed at creating or extending structures and instruments for the development of renewable energy sources;
- o measures intended to develop information, education and training structures for the development of renewable energy sources;
- o targeted actions facilitating the market penetration of renewable energy sources and relevant know-how; and
- o monitoring and evaluation actions for the development of renewable energy sources.

The European Commission had declared a new target on the share of renewable energies in the total energy consumption, doubling from 6% to 12% the share of renewable energies in the total energy gross inland consumption of the EU. Through ALTENER II, the use of renewable energy could reduce CO<sub>2</sub> emissions by 16% (compared with 1990 levels) by 2020.

The ALTENER Programs represent a different methodology for greenhouse gas emission reduction. While the Directives on energy efficiency as mention in 1.2 aimed at conservation of conventional energy sources such as gas and oil, the legislation on ALTENER Programs is focused on development of new sources of energy such as biomass, wind and solar power. While the former seeks to decrease traditional energy consumption, the latter looks instead towards increasing new sources of clean energy.

## 5. EU POLICY INITIATIVES RELATED TO GREENHOUSE GAS EMISSIONS REDUCTION

In addition to the EU programs and legislation, there are a number of important policy initiatives related to greenhouse gas emissions reduction. To a large extent, those policy initiatives give direction to the development of the EU law and policy in this area.

### 5.1. European Program on Climate Change (EPCC) – an institutional framework

The European Commission launched a European Program on Climate Change (EPCC) in June 2000, in responding to the European Council's request, for a list of priority actions and policy measures that could reinforce existing actions to reduce greenhouse gas emissions.

The overall objective of the EPCC is to identify and develop all those elements of a European Climate Change strategy that are necessary for the implementation of the Kyoto Protocol. The program will bring together all relevant stakeholders, including representatives from the Commission's different departments, the Member States, industry and environmental groups, to co-operate in the preparatory work of common and coordinated policies and measures to reduce greenhouse gas emissions. Under this program, the Commission takes a "twin track"



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approach to the issue of greenhouse gas emissions reduction. On one hand, the Commission proposed a series of new policies and measures, as listed in the Annex 3 of the Communication (COM (2000) 88/7). It lists 8 categories (and 32 items) of such policies and measures:

- energy supply,
- industrial sector,
- energy consumption in the domestic and tertiary sector,
- energy consumption in the transport sector,
- transportation policy and infrastructure,
- waste,
- research,
- international cooperation.

The EU is preparing an EU-wide emissions trading scheme which will put into operation by 2005. EPCC provides an institutional framework for the development of all the relevant common and coordinated policies and measures. A Steering Committee was established for the overall management and coordination of the EPCC both in terms of policy approach and organization. Comprised of representatives of all the Commission services involved, the Steering Committee can create working groups to address specific issues and decide their terms of reference and timetable.

Each working group has a specific 'set of stakeholders' representing a European rather than a national or regional clientele. Thus far, the Steering Committee has set up six working groups working in areas of flexible mechanisms (emission trading, joint implementation and clean development mechanism), energy supply, energy consumption, transport, industry and research respectively since its establishment. It is expected that the number of working groups will increase in the future in order to cover more related areas such as agriculture, forestry and waste.

## 5.2. Policy initiatives on introducing a tax on carbon dioxide emissions and energy

The Commission believes that the introduction of a carbon dioxide/energy tax is an essential element of an overall strategy for energy efficiency, essential in bringing about changes in the use of less-polluting energy sources. Since 1992, the Commission has submitted three proposals to the European Council on this subject. Neither of the first two received unanimous support from the Council. The last one is still pending in the Council, according to the information from the Second Communication of the European Community under the UN Framework Convention on Climate Change.

The third proposal was submitted by the Commission in 1997. It recommends that the Council adopt a Directive restructuring the Community framework for the taxation of energy products (COM (97) 30). It would enlarge the scope of the Community minimum tax rate system beyond mineral oils to cover all energy products, including mineral oils, natural gas and solid fuels (coal, peat, lignite) when used as heating or motor fuel or to generate electricity. According to the Commission, "the main objective behind the proposed Directive is to strengthen the internal market by eliminating economic distortions among the different types of fuels. It would, in addition, give Member States the opportunities to shift the burden of taxation away from employed labor and towards users of natural resources which damage the environment."



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This expansion of scope will widen the application of Community provisions taxing CO<sub>2</sub> emitting products from 40% to nearly 90%.

Community minimum levels of taxation on mineral oils will be up-rated and minimum levels of taxation will be introduced for products other than mineral oils. The proposal provides Member States with a number of options enabling them to pursue more ambitious environmental policies, by specifying a minimum level of taxation on all energy products.

It is said that, compared to a "business-as-usual" scenario, the proposal will result in a reduction in CO<sub>2</sub> emission between 0.5 and 1.7% from the year 2005 onwards – equivalent to a reduction of between 20 and 60 Million tons of CO<sub>2</sub>

The Commission claimed that "estimates of the macro-economic costs of the proposed Directive made by using three separate models confirm that when the tax revenues are used in a budget-neutral way to reduce employers' non-wage costs, the proposal will have positive impacts on GDP and employment. Compared to economic projections for 2005 with the existing tax system, GDP under the proposed directive is estimated to increase by between 0.02% and 0.24%. Overall employment in the EC is expected to be 150,000 to 450,000 persons higher in the same period."

The proposal is pending, because of strong opposition from a number of Member States and industrial sectors involved, as well as the lack of support from the USA and Japan – the EU's main competitors on international markets. In a recent communication, the European Commission has called for the Council and Parliament to take action on this proposal.

### 5.3. Policy initiatives related to transportation

Transportation sector has very large potential for greenhouse gas emissions reduction. The European Commission pointed out in a Communication in 1998 that transport accounted for around 20% of total EU emissions in 1990 and that, in the absence of new policy measures, it is the transport sector which has the greatest potential for growth in CO<sub>2</sub> emissions up to 2010.

The transport sector is, therefore, one of the EU's top priorities for greenhouse gas emissions reduction. In this area, policy initiatives focus on passenger cars, fuel quality, transportation price, public transportation, rail transport and aviation.

#### *5.3.1. Passenger cars*

According to the European Commission's Second Communication under the UN Framework Convention on Climate Change, road traffic accounts for about 85% of overall transportation CO<sub>2</sub> emission and shows a strong CO<sub>2</sub> emission growth. Passenger car transportation is expected to grow by 30% over 1990 levels by the year 2005, and freight transport shows a forecast increase of 25% per year up to 2003.

In 1995, to deal with the passenger car CO<sub>2</sub> emission problem, the European Commission adopted a "Community strategy to reduce CO<sub>2</sub> emissions from passenger cars and improve fuel economy," which was accepted by the Council on 25 June 1996. The objective of the strategy for newly registered cars is to achieve average CO<sub>2</sub>



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emissions of 120g/km (measured on the European test cycle according to Directive 93/116/EC) by 2005, and at the latest by 2010.

The strategy consists of three “pillars.” The first (and key) pillar, is an agreement between the European Commission and the European Automobile Manufacturers Association (ACEA) for reduction of CO<sub>2</sub> emissions from passenger cars through technological improvement. Under this agreement, ACEA made the following commitments;

- o to achieve an average CO<sub>2</sub> emission figure of 140 g/km by 2008 for all its new cars sold in the EU, as measured according to the EU test procedure;
- o to bring to the market individual car models with CO<sub>2</sub> emissions of 120 g/km or less by 2000;
- o to set an indicative intermediate target of 165-170 g/km in 2003 as the basis for monitoring progress; and
- o to review the potential for additional improvements with a view to moving the new car fleet average further towards 120 g/km by 2012. This latter review will be undertaken in 2003.

Soon after the agreement between EC and ACEA, Japanese and Korean automobile companies joined in and the Commission reached similar agreements with Japan Automobile Manufacturers Association (JAMA) and Korea Automobile Manufacture Association (KAMA) in 1999. The Commission and the three automobile associations decided to jointly monitor and report the progress made in CO<sub>2</sub> emission reduction.

The second “pillar” is a legislative proposal on fuel-economy labeling for cars. In February

1999, the Council had reached a Common Position which included the text of a proposed council Directive relating to the availability of consumer information of fuel economy and CO<sub>2</sub> emission in respect of the marketing of new passenger cars. The Common Position recognizes the close relation between providing consumer information on fuel economy and the CO<sub>2</sub> reduction target of the EU. The Council believes that “information plays a key role in the operation of market forces; ... the provision of accurate, relevant and comparable information on the specific fuel consumption and CO<sub>2</sub> emissions of passenger cars may influence consumer choice in favor of those cars which use less fuel and thereby emit less CO<sub>2</sub>, thereby encouraging manufacturers to take steps to reduce the fuel consumption of the cars that they manufacture.”

Therefore, the Council believes that it is necessary to develop a fuel economy label for all new passenger cars displayed at the point of sale allowing potential customers to identify the most fuel efficiency passenger car models available through that point of sale.

As adopted, the Directive declares that its purpose is to ensure that information relating to the fuel economy and CO<sub>2</sub> emissions of new passenger cars offered for sale or lease in the Community is made available to consumers in order to enable consumers to make an informed choice.

Member States must take measures to ensure that the a label on fuel economy and CO<sub>2</sub> emissions, in accordance with the requirements described in the Annex 1 of the Directive, is attached to or displayed in a clearly visible manner near each new passenger car model at the point of sale.

Member States must also produce a portable, compact guide on fuel economy and CO<sub>2</sub>

Emissions in consultation with the manufacturer on at least an annual basis and make it available free of charge to consumers on request both at the point of sale and from a designated body within each Member State.

All promotional literature must contain the fuel economy and CO<sub>2</sub> emission data.

Finally, Member States must determine the “effective, proportionate and dissuasive” penalties



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applicable to breaches of the national provisions adopted pursuant to this Directive.

The third "pillar" is the promotion of car fuel efficiency by fiscal measures. According to the First report of the Commission on the effectiveness of the strategy, intensive work on the fiscal measures is underway currently.

The Commission is, reportedly, quite satisfied with the progress they made. In its First Annual Report on implementing the Community Strategy to Reduce CO<sub>2</sub> Emissions from Cars, the Commission concluded that "the implementation of the Community's strategy to reduce CO<sub>2</sub> emissions from passenger cars and improve fuel economy shows significant progress. Two of the three main pillars (commitments of the car industry and fuel-economy labeling of cars) are in place, intensive work on the third (fiscal measures) is underway." The first set of "Joint Report " shows that the ACEA and JAMA are on the way to match the interim targets. Based on those reports the Commission feels that it "has no particular reasons to believe that any of the associations would not live up to its commitment."

Meanwhile, the Commission suggests the Community to continue its work in developing and implementing the two pillars for consumer information and fiscal measures.

### *5.3.2. Aviation*

Although currently the contribution of air transportation to total CO<sub>2</sub> emission is relatively minor, current and forecast air traffic growth is causing concern from a climate change perspective as a growth of 5.2% per year up to 2003 is forecast. A recent report of Intergovernmental Panel on Climate Change (IPCC) estimates that carbon dioxide emission will grow at 3% annually over the period from 1999 to 2015. Air transportation is growing faster than the development of environmentally sound technologies for air transportation.

In order to make air transportation environmentally sustainable, the European Commission suggested a strategy in its Communication entitled "Air Transport and the Environment: Towards meeting the Challenges of Sustainable Development in 1999." The ultimate purpose of the strategy is to integrate environmental concerns into sectoral policies on air transportation. The strategy includes:

- o improvement of technical environmental standards on noise and gaseous emissions;
- o strengthening of economic and regulatory market incentives;
- o assisting airports in their environmental endeavors; and
- o advancing long-term technology improvements. Concrete actions are proposed and carried out in the each of the four areas.

### *5.3.3. Other related initiatives*

There are some other areas that can make important contributions to the reduction of greenhouse gases in the transportation sector, for example, improvement of public passenger transport systems, restructuring of the transportation price system, reform of the rail transport system, and improvement of fuel quality. The Commission has adopted policy initiatives to deal with each of these issues. For example, a Commission Green Paper on Citizens' Network suggests ways to making public passenger transport more attractive and usable.



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The Green Paper proposes an integrated transportation system called "Citizens' Network". It suggests three effective "integrations":

- integration of individual modes of transportation (including walking and cycling) and public transportation operations;
- integration of different modes of public transportation (including bus, tram, metro and rail operations);
- integration with other policy areas such as charge and fee systems of public transportation and land-use planning. A Commission Green Paper on reform pricing in transport suggests internalizing the externalities of transport such as costs of environmental pollution, congestion and traffic accidents.

#### 5.4. Policy initiatives related to methane emission reduction

Methane (CH<sub>4</sub>) is the second most common gas in the basket of six greenhouse gases controlled by the Kyoto Protocol. The main sources of methane emissions in the EU are agriculture, waste and energy. In the agricultural sector, the Commission suggested that the most promising area for reducing methane emission is animal manure management (Communication COM (96) 557). Anaerobic digesters or simple covered lagoons provide effective means to limit and to reduce methane emission. The Communication suggested a two-stage strategy in 1996.

In the first stage, there shall be demonstration programs on digesters and covered lagoons at the EU, national, regional and local levels and show their possibility and feasibility in methane emission reduction. In the second stage, an EU legal obligation to install recovery systems should be implemented at a later stage.

In the waste sector, the Commission suggested that there is a need to distinguish specific measures addressing new and existing landfills, with regard to general measures aimed at reducing organic wastes in landfills. For new landfills, EU legislation should require, in the absence of other methane reduction alternatives, that new anaerobic landfills be equipped with methane recovery and use systems. For existing landfills, legislation should require retrofitting in order to collect and to use the methane wherever possible. Where using is not feasible, it should encourage the use of flaring. The Second Communication under the UN Framework Convention on Climate Change reported that a proposal for the Council Directive on the landfill of waste is currently under discussion.

In the energy sector, because coal industry continues to decline in the EU, it is expected that methane emissions from coal mining will continue to decline. The European Commission Suggested that Member States promote the application of BAT technologies for those coal mines that will still be in operation beyond a certain time frame (10 years for instance). In addition, the Commission suggested to set-up an EU minimum leakage standard for natural gas pipeline and to increase control frequency of pipelines at national level.

#### 5.5. Policy initiatives on energy efficiency

The Commission adopted a comprehensive strategy for the rational use of energy in April 1998. The strategy proposed an indicative target for the Community as a whole of a one percentage point per year improvement in energy intensity to the year 2010 over and above that which would otherwise be attained. The Council of the European Union supported the strategy by adopting a Resolution on energy efficiency in December 1998 and requested the Commission to come forward as soon as possible with a proposal for a prioritized Community action



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plan for energy efficiency. The Commission proposed its Action Plan to Improve Energy Efficiency in the European Community in April 2000.

The underlying assumption behind the Action Plan is that there still remains a large economic potential for further improvement of energy efficiency, possibly as much as 18% of present energy consumption. Many barriers still exist, however, including:

- the fact that low energy prices do not accurately reflect energy costs and externalities;
- the lack of complete information on cost-effective and energy-efficient technology;
- the presence of institutional and legal barriers such as the continued practice of selling energy by kilowatt/hour (kWh), rather than in the form of efficient heating and cooling, lighting and power, which is what the energy consumer actually wants;
- the lack of harmonized and standardized components (and other technical barriers); and
- financial barriers such as unduly short pay-back periods required for demand-side investments, as compared with those for energy production.

In order to overcome those barriers and to further improve energy efficiency in the European Community, the Action Plan puts forward three groups of mechanisms:

- measures to enhance the integration of energy efficiency into other Community non-energy policy and program areas;
- measures for re-focusing and reinforcing existing successful Community energy-efficiency measures; and
- new common and coordinated policies and measures. The SAVE Program will be used as the principal coordinating arm of the Action Plan.

#### *5.5.1. Measures to enhance the integration of energy efficiency into non-energy policy and programs of the Community*

The Action Plan proposes measures to integrate energy efficiency into non-energy policies and programs where there are cost-effective advantages and where it is possible to do so without significantly altering the original intent of the policy or program in question. These mechanisms reflect the suggestions of the Commission Communication on Strengthening Environmental Integration. There are six policy areas being identified as the priority areas by the Action Plan for strengthening the integration. They are areas of transport policy, enterprise policy, regional and urban policy and programs, taxation and tariff policy, international cooperation and precession activities, and the Member States policies and measures.

#### *5.5.2. Measures for re-focusing and reinforcing existing successful Community energy-efficiency measures*

The Action Plan recommends measures to further improve energy efficiency in the areas of:

- transport efficiency;
- household appliance, commercial and other end-use equipment;



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- o industry;
- o combined heat and power (CHP);
- o electricity and gas industries;
- o building energy efficiency;
- o measures on research and technological development of building energy efficiency;
- o measures to encourage and organize the local and regional participation, such as to set up local energy management agencies in regions, islands and cities and to set up information network for transnational cooperation and transfer of know-how;
- o the practice of Third-Party Financing and model contracts;
- o dissemination of information and training; and
- o monitoring and evaluation.

### 5.5.3. *New common and coordinated policies and measures*

The Action Plan outlines a number of new policies and measures that have already been applied on a limited scale in a number of Member States. It suggests that there is a need to develop larger, EU-wide initiatives based on the successful experience of those policies and measures. The Action Plan suggested four policies or measures in the areas of public procurement of the energy-efficient end-use technology; cooperative technology procurement; energy audits in industry and the tertiary sector; and a best practice initiative.

### 5.6. Policy initiatives on renewable energy sources

Renewable energy sources are addressed in two specific Council Directives, as well as in the 1997 Commission strategy. This strategy is contained in a White Paper entitled Energy for the Future: Renewable Sources of Energy. The White Paper proposed a Community-wide strategy and an action plan for the promotion of renewable energy sources, recognizing that significant further development of renewable energy sources in the EU not only is necessary for purposes of GGER, but also represents an important development opportunity for the EU and its Member States. The Commission points out that renewable energy sources are indigenous and can reduce dependency on energy imports (and increase security of the energy supply). In addition, the development of renewable energy sources can actively contribute to job creation, especially for small- and medium-sized enterprises that are central to the Community economic fabric. Renewable energy sources can thus be a key feature in regional development, promoting greater social and economic cohesion within the Community. To meet its greenhouse gas emissions reduction target, the Community as a whole needs to reduce energy and carbon intensity. Accelerating the penetration of renewable energy sources is very important for reducing carbon intensity and CO<sub>2</sub> emissions in the EU.

The White Paper sets forth a strategic objective of doubling the current 6% share of renewable energy sources to 12% in the Community's energy mix by 2010. The Commission believes that the target is ambitious but realistic.



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According to the White Paper, two major obstacles currently prevent the further development of the renewable energy sources in the Community. The first is the higher initial investment costs for certain renewable energy sources such as solar energy. The second is the lack of confidence on the part of investors, governments and users, caused by lack of familiarity with the technical and economic potential of renewable energy and a general resistance to change and new ideas.

Council Decision 93/500/EEC of 13 September 1993 concerning the promotion of renewable

To overcome these obstacles and to further promote the development of renewable energy sources through close cooperation between the Member States and the Commission, the White Paper proposes a number of interrelated and complementary measures. The identified measures are aimed at providing fair market opportunities for renewable energies without excessive financial burdens:

- o internal market measures, such as fair access to the electricity market for renewable energy providers; fiscal and finance measures; a new bio-energy initiative for transport, heat and electricity; and improvements to building regulations;
- o reinforcement of Community policies, including policies in the areas of environment protection; growth, competitiveness and employment; competition and state aid; research, technology, development and demonstration; regional policy; common agricultural policy and rural development policy; and external relations;
- o strengthening cooperation between Member States;
- o supporting measures such as targeted promotion; market acceptability and consumer protection; better positioning for renewable energy sources on the institutional and commercial finance market; and renewable energy networking; and
- o a campaign to give a strong start to renewable energy development activities. The campaign proposes the development of 1,000,000 photovoltaic systems, 10,000 MW of large wind farms, and 10,000 MW of biomass installations, as well as the integration of renewable energies in 100 communities.

Although the doubling of the share of renewable energy sources may require an increase of approximately 30% in the total energy sector investment, the Commission believes that by 2010 it could create and estimated gross figure of 500,00 – 900,000 new jobs, save 3 billion ECU in fuel costs annually (a total of 21 billion ECU for the period 1997-2010), reduce the use of imported fuels by 17.4% and the cut CO<sub>2</sub> emissions by 402 million tons/year.

The strategy and action plan proposed in the White Paper gained strong support from other institutions of the Union. For example the Council held an open debate on renewable sources of energy and agreed to adopt the strategy and action plan proposed by the Commission. It went on to adopt a Resolution on renewable sources of energy on 8 June 1998. The Resolution “welcomed the general trust of the White Paper on a Community strategy and action plan as a basis for the development of actions at Community level complementary to actions at national level”, and noted that “the White Paper’s indicative target of 12% [of total energy from renewable sources] for the Community as a whole by 2010 provides useful guidance for increased efforts at Community level as well as in Member States”.

The Council welcomed the idea of a campaign for the launching the further development of renewable energy sources proposed by the Community. The European Parliament even suggested an objective of “at least” 15% share of renewable energy sources in its Resolution on a Green Paper for the same matter proposed by the Commission.



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## 5.7. Policy initiatives on greenhouse gas emissions trading within the EU

The Kyoto Protocol introduced three new international mechanisms by which Annex I countries can attempt to achieve their greenhouse gas emissions reduction targets. They are called flexible mechanisms" altogether. They consist of "international trading of greenhouse emissions (emissions trading)", which will become operational from the year 2008, "Joint Implementation (JI)" and "Clean Development Mechanism (CDM)". Emissions trading is applicable only within Annex B countries. Joint Implementation is applicable only within Annex I countries. CDM is applicable between developed countries and developing countries.

The European Commission explored the issue of greenhouse gas emissions trading within the EU by its Green Paper COM (00) The Commission believes that greenhouse gas emissions trading within the EU is an integral and major part of the EU implementation strategy. The Green Paper discusses several basic questions related to emissions trading and invites debate about how the mechanism shall be applied in the EU.

The Green Paper defines the concept of emissions trading as "a scheme whereby companies are allocated allowances for their emissions of greenhouse gases according to the overall environmental ambitions of their government, which they can trade subsequently with each other".

These allowances are sometimes called "quotas" or "permits." The total of all these allowances allocated to all the companies included in the scheme represents the overall limit on emissions allowed by the scheme. It is this overall limit that provides the environmental benefit of the scheme. One main attraction of emissions trading is that it provides certainty of environmental outcomes.

The Green Paper summarizes the principle and benefits of emissions trading as follows:

"[E]missions trading allows individual companies to emit more than their allowance on condition that they can find another company that has emitted less than allowed and is willing to transfer its "spare" allowances. The overall environmental outcome is the same as if both companies used their allowances exactly, but with the important difference that both buying and selling companies benefited from the flexibility offered by trading, without disadvantage to the environment. Both companies involved incur lower compliance costs than they would have been able to do without the possibility of trading (the "selling-company" receiving payment for the allowances transferred, and the "buying-company" incurring less costs than would have been implied by adhering to the pre-determined emissions allowance). A transparent price signal would also enable other companies to better judge the business opportunities involved in trading, and their potential benefit in engaging in this market. Furthermore, as emissions trading will induce competition between companies to find cost-effective ways to reduce their emissions, an additional boost will be given to environmentally friendly technologies".

The Green Paper identifies the key economic rationale behind emissions trading: to use market mechanisms to ensure that the emissions reductions that are required to achieve a pre-determined environmental outcome take place where that cost of reduction is the lowest. Moreover, the benefit of emissions trading can only be realized in practice when there is a robust monitoring and compliance regime at a reasonable cost.

The Commission believes that, any emissions trading organized at Community level would be a domestic measure for the European Community (which is a distinct Party to the Kyoto Protocol, listed in Annex B thereof), and would not be identical to international emissions trading under Article 17 of the Kyoto Protocol. Meanwhile, the Commission points out that it is very important to design such a "domestic" scheme from the outset in such a way as to be open to gradual extension, in terms of geographical, economic sectors, and gas coverage, because it must be compatible with the international emissions trading under the Kyoto Protocol governing six greenhouse



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gases and sinks after 2008.

The Green Paper discusses the issues of the scope of the emissions trading scheme, the price of trading allowance, relationship with internal market of the Community and the multilateral trade agreements, the roles of the Community and the Member States in the emissions trading scheme. Other related issues raised in the Green Paper include minimizing distortions of competition within the internal market; maximizing synergy with existing environmental legislation; ensuring compatibility with the Kyoto Protocol's international emissions trading; specifying methods of quota allocation; clarifying the relationship between emissions trading scheme and government command and control provisions relating to pollution; identifying and utilizing the relationship between the emissions trading scheme and the energy taxation; developing compliance provisions and an enforcement regime; and specifying monitoring, tracking and reporting requirements.

#### 5.8. Policy initiatives on reducing emissions of N<sub>2</sub>O and F-gases

In addition to the initiatives on common coordinated measures for reducing CO<sub>2</sub> and Methane (CH<sub>4</sub>) emissions, the EU has taken some preliminary initiatives on the common and coordinated measures for reducing other greenhouse gases controlled by the Kyoto Protocol.

One of these is N<sub>2</sub>O, which has a Global Warming Potential 310 times that of CO<sub>2</sub>. Its half-life in the atmosphere is 120 years. The main sources of N<sub>2</sub>O emissions are fertilizer applications, agricultural processes and combustion. To reduce these emissions, the Commission suggested in its Communication entitled "Climate Change – Towards an EU Post – Kyoto Strategy": a) reducing the use of fertilizers through the price reduction proposed in Agenda 2000 (a program about the agriculture of the EU); b) increasing support for the agro-environment measures to ensure more efficient use of fertilizers; c) maintaining and enhancing low-input farming systems and other sustainable agricultural practices; and, d) (if Member States are willing) direct payments conditional upon compliance with fertilizer use requirements.

HFCs, PFCs and SF<sub>6</sub> are another group of greenhouse gas under the control of Kyoto Protocol, called variously "F-gases," "FCs" or "halogenated gases". Although they comprise only a small portion in the overall greenhouse gases in the atmosphere (compared to CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O) their emissions are increasing quickly, suggesting that levels of F-gases could rise by 150% between 1995 and 2010. Moreover, the F-gases have a very high Global Warming Potential and some of them can last very long in the atmosphere. There is no significant action being taken at the EU level to reduce the F-gases so far.

Regarding the F-gases, the Commission engaged ECOFYS, a Dutch firm to make a preliminary assessment of the options and costs of their control, as well as the barriers for implementing reduction policies. The report of that study was issued in April 1999. It identifies categories of options for F-gases reduction:

- reduction and prevention of leakage during use (by better installations/materials, preventive maintenance) and during installation, maintenance, refill;
- recycling/reuse of discarded agents;
- application of alternative agents;
- development of modified (components of) installations, using less HFCs, PFCs, and SF<sub>6</sub>; and
- miscellaneous (e.g. incineration). The report estimates that, with maximum application of abatement



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measures, a reduction of 85% of total emissions in the EU 15 for those three gases together can be achieved at a cost of about 5000 million ECU. The report identifies barriers to the F-gas reduction in the EU and proposes some policy options accordingly. The major barriers are institutional, juridical, financial, commercial (market) and technological. The policy options suggested by the report include legislation (regulations), negotiated agreements, refund systems, taxation, subsidies, bans, research and technology development, and information dissemination.

### 5.9. Methodological significance of the EU policy initiatives

EU proposed a number of policy initiatives related to greenhouse gas emissions reduction. Those initiatives are important not only because they indicate the trend of the EU law and policy, but also because they indicate that the EU is trying to apply as many mechanisms as possible to achieve the necessary reduction. They clearly indicate that the scope of greenhouse gas emission control in the EU is expanding, and advocate putting more greenhouse gases under control (methane and F-gases, for example). They further suggest extending controls to aviation sector, and increasing attention to the areas of passenger cars and transportation systems.

These policy initiatives and the entire EPCC program indicate that the EU is strengthening its Institutional arrangements in preparation for further development of its law, policy and programs on greenhouse gas emissions reduction. The EU and its Member States have a long term perspective on the issue of greenhouse gas reduction. They realized that a strong institutional arrangement for the development of new policies and programs is necessary.

Clearly, the EU is trying to integrate the policy of energy efficiency and greenhouse gas emissions reduction into other non-energy areas and sectors. Such integration involves both taking measures to re-focus and reinforce existing successful energy-efficiency measures, and also taking measures to enhance the integration of energy efficiency into non-energy policies and programs, and developing new common and coordinated policies and measures. One important example is found in the EU's efforts to incorporate the objective of fuel efficiency within its financial policy.

The EU is exerting great effort to utilize market forces for greenhouse gas emission reduction. The three proposals of the European Commission on CO<sub>2</sub> and energy tax are examples of this approach, as is the initiative on fuel economy labeling. The most creative idea is the initiative on the scheme of greenhouse gas emissions trading (explored in detail in the Green Paper (00) 87). It is also clear from these policy initiatives that many EU efforts focus on encouraging voluntary participation by industries. The voluntary agreement between the European Commission and the ACEA for reduction of CO<sub>2</sub> emissions from passenger cars through technological improvement is a good example.

Finally, the EU has significantly strengthened its efforts to promote renewable energy sources, as evidenced by its comprehensive strategy and an action plan for promoting renewable energy sources.



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## 5.10. EU law and policy on greenhouse gas emissions reduction and their methodological significance to China

Over the past two decades, China has made great efforts to upgrade production technologies and improve energy efficiency. A recent study by an economist in The Netherlands pointed out for the first time the fallacy of the criticism of China being a “free-rider”, enjoying benefits from other countries’ efforts to abate greenhouse gas emissions but not taking responsibilities to abate its own.

However, the total volume of greenhouse gases presently emitted coupled with the fast economic growth rate in China suggests that more effort is needed to change the pattern of the growth to the pattern of sustainable development, and to contribute to global efforts to combat global warming. The experiences of other countries could contribute to the formulation and implementation of law and policy on greenhouse gas emissions reduction in China. This survey shows that methodologically there are many things China can learn from the experience of the EU. There is need for the following:

- comprehensive coverage of the issues of greenhouse gas emissions reduction by law and policy;
- integration of the objective of greenhouse gas emissions reduction into other programs and policies addressing the needs for development;
- adoption of a multi-method approach for achieving the target of greenhouse gas emissions reduction; and
- mandating the use of sound decision-making processes in dealing with the issue of greenhouse gas emissions reduction and improvement of the Chinese strategy on greenhouse gas emission reduction.