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Tripartite Advisory Meeting on Environment and the World of Work

Geneva, 2-4 November 1992

**ILO activities for environment and the
world of work**



CHAPTER I

ENVIRONMENTALLY SOUND AND SUSTAINABLE DEVELOPMENT AND THE ILO

Environment and the world of work

The protection of the general environment, including lands, water, forests and other natural resources, as well as the air we breathe, has acquired widespread support in recent years. The conservation of the world's resources has become a prerequisite for the satisfaction of basic human needs. This has called for action at the international level and for cooperation and coordination between all nations. Consequently, the role of the United Nations system in this direction has been reaffirmed.

Matters pertaining to environment and development have been inherent in the ILO's mainstream activities ever since the creation of the Organisation in 1919. However, in recent years increasing attention has been devoted by the ILO to this subject, including expansion of environment-related activities in the fields of employment, management and training, the working environment, industrial relations, sectoral activities and tripartism.

Sustainable development has thus become a fundamental theme in the various ILO programmes. As indicated in the Report of the World Commission on Environment and Development (WCED), entitled "Our Common Future", the concept of sustainable development has become the basis of economic and social development. The concept is viewed from various perspectives, notably time, i.e. present and future generations; needs, i.e. meeting the basic needs of the world's poor; the limitations of technology and social organisation; equity, within and between countries; integrated approaches to policies and actions; natural resource management; and anticipation and prevention as well as rehabilitation.

Based on this concept, the ILO, within its general mandate of social justice, has a crucial role to play, and this role is unique, in view of the tripartite structure that the ILO enjoys at the United Nations level. The linkage that the ILO maintains with environmentally sound and sustainable development is embedded in and emanates from its standard-setting, information exchange and technical cooperation activities. This was reasserted by the Director-General at the Oslo Conference on Sustainable Development, in July 1988, when he noted that "every ILO activity - and no doubt this is true of all our UN agencies and entities - is directed, in principle, to the achievement of sustainable development".

Equally important are the efforts by the United Nations Environment Programme (UNEP) which published, in 1987, its document entitled "Environmental perspectives to the year 2000 and beyond", a work that also inspired various measures and actions by other international organisations in the field of environment.

Environment and the world of work was the theme of the Report of the ILO Director-General to the 77th Session of the International Labour Conference of June 1990. This was a direct response to the mounting national and international concern with environmental issues. Such concern was enhanced by the gradual shift from the mere focus on pollution to a wider and integrated coverage of the management of environmental resources deemed essential for sustainable development. The environment, in this context, is related to such

issues as poverty, employment, development, working conditions, training, population growth and industrial relations.

The WECD Report, "Our Common Future", also known as the Brundtland Report, asserts that poverty is a major contributory factor to ecological catastrophes. It is thus suggested that the satisfaction of basic needs in the developing countries is essential to the achievement of sustainable development.

Employment is essential for poverty alleviation. Within the framework of its mandate, the ILO always stresses the need for creating and maintaining freely chosen and remunerative employment as a prerequisite for sustainable development and for alleviating poverty. In the process, the concept of "sustainable livelihoods" is forged. The labour market moreover is boosted by the introduction of sound pollution abatement techniques and cleaner process technologies. It follows that the prevention of environmental degradation is conducive to the promotion and safeguarding of employment.

With the advent of advanced research and modern analytical techniques, the linkage between the amount of environmental pollution and unsafe industrial and agricultural activities is becoming clearer. In some cases the disastrous effects of industrial accidents are too obvious to cast any doubt on this relationship. Examples of such accidents are many, as in Seveso, Italy, where 220,000 persons had to be evacuated from local villages when an industrial process malfunction released the chemical dioxin into the atmosphere in 1976; in Bhopal, India, with the leakage of methyl isocyanate from a fertiliser plant, resulting in over 2,500 deaths and 200,000 injuries in 1984; and in Basle, Switzerland, when toxic chemicals were released into the Rhine river following a fire and caused an environmental disaster in 1988. The impact of modern biotechnology on the workers' health and the environment is drawing increasing attention. The prevention of major industrial accidents, chemical safety and radiation protection are fields with direct linkage to environmental concerns.

Training is also an essential ingredient in the process of achieving environmentally sound and sustainable development. It is a valuable tool in developing skills and in keeping pace with new technologies and new environmental management policies. Management and vocational training are essential tools for the identification of new mechanisms aimed at integrating environmental skill programmes at the enterprise level. Equally important is training in the fields of labour inspection and occupational safety and health as they relate to environmental issues.

Population growth and crushing poverty in developing countries are inextricably linked. Poverty - and particularly massive unemployment and underemployment - has led to both the degradation of the environment and the denial of human dignity and social status. In order to break this vicious circle it is necessary to improve access to education, credit and income-generating activities in the formal as well as the informal sector. This is an immense challenge which the ILO is facing through its training and employment programmes, particularly focusing on the special needs and requirements of target groups, such as women, children and indigenous and tribal peoples. Finally, the field of industrial relations is important in dealing with the possible employment and social repercussions of environment-related structural changes.

The challenge facing the ILO

In view of the intricate interrelationship between environment and the world of work, the challenge faced by the ILO is immense. The constitutional mandate of the ILO in the field of social justice, and its unique tripartite approach, demand that such a challenge be as binding on the Organisation as its own Declaration of Philadelphia, which stated that poverty anywhere constitutes a danger to prosperity everywhere, and that social justice must be observed as an ultimate objective. It is increasingly important for the ILO to support the efforts made by its tripartite constituents to deal directly and effectively with relevant environmental matters within the context of the world of work.

In general terms, the challenge relates to the promotion of the creation of safe, remunerative, environmentally sound and sustainable employment. The ILO's mandate and structure make this task crucial. Based on its mandate, the ILO can reinforce its activities to support today's structural adjustment by assisting in formulating environmental policies in industrial and rural development. The ILO experience already gained in making innovative efforts that are needed to ensure a flexible, mobile and skilled labour market can contribute to renewed efforts by all sectors of the economy to adapt to more environmentally sound and sustainable practices.

Equally challenging is the need to ensure the distinct role of international labour standards in achieving both environmental and development objectives. This will include the promotion of tripartite collaboration in helping to build a constructive consensus on the environment.

Special attention should be given to identifying possible ways in which governments, especially ministries of labour and employment, and employers' and workers' organisations can promote and participate in environmentally sound and sustainable development. The discussion at UNCED has revealed a number of policy areas which warrant more active action by the ILO's constituents. The progress in these areas will require not only an integrated approach, but also an equitable sharing of the costs and benefits of environmental protection within and between countries. International cooperation through the ILO and other United Nations agencies will need to be strengthened in this direction, especially in providing assistance to those countries and sectors which are faced with difficult situations and need direct support to incorporate due consideration of environmental concerns in dealing with these situations. This assistance should cover small and medium-sized enterprises, the informal sector and agriculture, as well as the new emerging democracies in Central and Eastern Europe and to meet the urgent need to alleviate poverty in developing countries.

Areas of priority for the ILO

Following the discussion of the Director-General's Report on Environment and the world of work at the 1990 International Labour Conference, and the resolution adopted by the Conference on environment, employment and the role of the ILO, increasing priority has been given to these matters within the ILO. The environment was first cited as one of the ILO's priority themes in the 1990-91 programme and budget and has been given high priority in subsequent biennial provisions. Environmental concerns were also highlighted in the ILO Medium-Term Plan 1990-95.

Priorities for action in the field of environment must be targeted on issues unquestionably within the ILO's core mandate. At the same time, priority should be given to activities which complement and do not compete with or duplicate the work of other organisations.

There is a number of priorities for ILO action in the field of environment. The first of these is the strengthening of the ILO tripartite constituents, through direct assistance to ministries of labour and employment and employers' and workers' organisations, so as to enable them to promote environmental issues by themselves.

In collaboration with UNEP, the ILO has been carrying out a series of training activities to support action by employers. These activities cover a number of areas, such as environmental legislation, environmentally sound technologies, environmental awareness, training and exchange of information. A similar programme of training and institutional support in the field of environment has been launched for the workers' organisations worldwide. This activity will support ongoing activities of the ILO programme in workers' education.

A second priority is that of collaboration with other United Nations organisations. ILO's work cannot be carried out in isolation. It should be conducted within the framework of cooperation and collaboration with these other agencies. This experience has so far been very successful, and is exemplified by the ILO's active participation in the International Programme on Chemical Safety (IPCS), which is a joint venture between ILO, WHO and UNEP. Another example is the active role played by the ILO at the UNCED in June 1992, and other examples include ILO's active participation in the inter-agency coordination mechanism of Designated Officials for Environment Matters (DOEM), and the System-Wide Medium-Term Environment Programme (SWMTEP).

A third priority is the integration of environmental issues within the ILO technical cooperation programmes. The Office will ensure that all future technical cooperation activities will take into account possible environment and sustainable development implications in their design, implementation and evaluation.

A fourth priority in the field of environment and sustainable development is the integration of the issue within the Office's mainstream programmes. In this regard, several areas of ILO activities have been identified, which include: employment, poverty and development; environmental training; the working environment; industrial relations and tripartism. A more elaborate review of these activities is given in Chapter II of this report.

CHAPTER II

ILO ACTIVITIES RELATED TO ENVIRONMENTAL ISSUES

ILO activities, historically, have always placed emphasis on the working environment. However, the general environment has also been receiving attention in the past 20 years through an expansion in the activities of technical cooperation, research and training.

In 1972 the Director-General submitted to the 57th Session of the International Labour Conference his Report on Technology for freedom: Man in his environment - The ILO contribution. The Report stated: "We cannot turn our backs on economic growth and technological innovation on the grounds that they are responsible for the deterioration of the environment. Economic growth is the motive power of development ... there is no irreconcilable conflict between growth and innovation and environmental protection. We need increased productivity to provide the wherewithal for improving and protecting the environment. This is particularly true in the developing countries, where many of the most serious environmental problems are linked directly to poverty."

A wide range of activities related to the environment has been developed by the Office, including international labour standards in the form of Conventions and Recommendations, codes of practice, guidelines, meetings and technical cooperation activities. Reference may be made to the adoption in June 1990 of the Chemicals Convention (No. 170). In June 1992 the Conference started its first discussion of a possible new international standard on the prevention of industrial disasters.

Resolutions on the environment have already been adopted by the ILO Fourth European Regional Conference (1987) and the Seventh African Regional Conference (1988). A number of conclusions were adopted on the issue in 1989 by the ILO Tripartite Meeting of Experts on Employment and Training Implications of Environmental Policies in Europe. In addition, various conclusions and resolutions on environmental issues have been adopted by industrial committees and tripartite technical meetings on subjects such as forestry, chemicals, iron and steel, mining, petroleum and fishing.

The results of the discussion at the 1990 Session of the International Labour Conference on the Report of the Director-General: Environment and the world of work, have subsequently been reflected in ILO activities in the 1990-91 and 1992-93 biennial programmes. The ILO also actively participated in the preparation of UNCED themes and in the discussion during UNCED, and this work is elaborated upon in Chapter III. ILO activities related to environmental issues are outlined in the following review of the content of mainstream programmes.

Employment, poverty and development

The work of encouraging the adoption and implementation at the national level of active policies "designed to promote full, productive and freely chosen employment" has, in particular, been a major concern of the ILO employment and development programme. This programme also aims at the promotion of the principles outlined by various ILO Conventions concerning employment.

In the field of environment, the employment-related activities have aimed at analysing the interrelationship between environment, employment and poverty. In developing countries, a major reason for environmental degradation is that the poor, who are highly dependent on natural resources, deplete those resources in various local circumstances. Improving the access of the poor to employment opportunities in rural areas would mean that ecologically fragile marginal lands would be used less intensively; at the same time population pressure on the towns would be eased.

ILO country studies have developed concrete indicators to quantify the complementary relationships existing between environment, employment-income and food security. Investigative work has also provided some insights into the nature and strength of the triangular interrelationships between technology, environment and poverty.

Another area of activities consisted of analysing the process of poverty generation and environmental degradation at the micro level. The vital role of women in the survival of poor households and their diminishing access to natural resources have been stressed in various studies. In spite of an increasing awareness at the international level, this dimension of environmental degradation has yet hardly been addressed by policies. Fighting poverty and securing sustainable and equitable development for women are important issues which are included in Agenda 21 of the UNCED.

The ILO's Programme on Rural Women addresses the issue of poverty, women's livelihood and environment from three perspectives:

- (a) Programmes on women's access to land use and ownership in Africa and Asia have attempted to provide a better understanding of the patterns of women's access to land and their impact on employment and livelihood of the poor. In 1988, a regional African Workshop on Women's Access to Land as a Strategy for Employment Promotion, Poverty Alleviation and Household Security defined a number of policy issues involved. A series of national workshops, to be held in 1992, will further elaborate on national policies and programmes.
- (b) An interregional project on "Energy and Rural Women's Work", initiated by the ILO in 1982, analysed the effects of the energy crisis and shortage of household fuels on rural women's work and family welfare.
- (c) Programmes have been developed in the field to demonstrate the viability of employment promotion and environmental generation through management of resources by women's grass-root organisations. Two wasteland development projects in India are examples of this pioneering activity.

These initiatives have further pointed to the need for a deeper understanding of the complex interrelationships between environment, poverty, women's livelihood and the necessity of bringing these issues into the mainstream of policy debate and action. This understanding is essential for devising appropriate employment and income-generation policies and programmes addressing the poor, with particular emphasis on the sound management of natural resources.

Over the last decade there has also been increasing concern regarding environmental degradation and the rights of indigenous and tribal people. Land and its resources are crucial for the livelihood and survival of indigenous and tribal peoples as distinct societies. Moreover, there is increasing evidence that indigenous knowledge and management of ecologically fragile environments, apart from preserving the biological diversity of these

environments, have larger long-term employment and income potential. It is also well known that environmental degradation affects production and subsistence systems of indigenous societies, while the restriction of access of indigenous peoples to their territories leads to the contraction of productivity and further resource depletion.

ILO Convention No. 169 on Indigenous and Tribal Peoples includes the concept of territorial rights, recognises indigenous and tribal peoples' rights to the lands traditionally inhabited by them, and points out that no sustainable development is possible without preserving and protecting the environment. Within the framework of the promotion of this Convention, a special report was prepared on the indigenous and tribal peoples' access to land, providing the basis for technical advisory services and inter-agency collaboration in this area.

In its work on employment-intensive schemes, the ILO promotes the use of environmentally sound labour-intensive technologies, and aims at strengthening the institutional capacity within developing countries to design, operate and maintain sustainable employment-intensive infrastructure programmes. The development and dissemination of employment-intensive works and technologies for the public and private sector often affect the environment to a certain degree and environmental concerns must thus be integrated into the strategies.

There is an increasing focus on environmental impacts in construction projects, for example, of the effects on land-use systems, water-catchments, precious ecosystems and historical sites. A number of projects are also directly addressing land degradation through improved irrigation systems, farm forestry, water-source protection and flood-control.

Environmental management and training

The ILO training activities aim at expanding the opportunities of workers to seek free remunerative employment and to enable them to respond easily to a changing labour market. The activities also aim at assisting the tripartite social partners to develop their training and retraining capabilities to adapt to new technologies and changing demographic trends. A third aim is to assist government-sponsored, community-based programmes for the disabled in an attempt to provide them with opportunities of productive employment.

When environmental policies are focused on managing or controlling "end-of-the-pipe" pollution, specialist environmental training is the obvious response. However, such training is insufficient when environmental policies aim at preventing negative environmental impact at the source by, for example, developing new, clean technologies and organising economic and social activities in a sustainable manner. Making economic activity sustainable demands that producers and consumers become environmentally literate. Environmental protection objectives and concerns must therefore become an integral part of the occupational profiles and the intellectual and attitudinal baggage of skilled workers, technicians and managers. This means that environmental training has to be an integral part of mainstream occupational and managerial training programmes, namely, private and public enterprises, cooperatives, rural development, labour-intensive public works projects, employment and technology projects and activities related to working conditions and environment.

The ILO entrepreneurship and management development activities play an important role in promoting environmentally sound business practices. This

role has become increasingly important in the advent of the shift from centrally planned to market-oriented economies in several countries. Environmental management skills of small and medium-sized enterprises are also given special attention.

Training activities have also been conducted at the International Training Centre of the ILO in Turin and at the International Institute for Labour Studies. The ILO Bureau for Employers' Activities has launched a series of environmental training activities designed to raise awareness among employers' organisations in Asia, Africa and Latin America, and has since been expanded to provide direct support to the environmental activities of other organisations. A similar training programme is also being carried out by the ILO Workers' Education Branch to assist workers' organisations to introduce and enhance their occupational safety and health training programmes to include environmental matters. In addition, the Office has placed more emphasis on activities aimed at preventing environmental degradation, rather than on those dealing with rehabilitation work.

The working environment

The improvement of working conditions and environment and the well-being of the workers is, in particular, the general objective of ILO activities in the field of working conditions and environment. These activities include: the application of standards on occupational safety and health and conditions of work, in particular those adopted in recent years; the upgrading of the constituents' capacity to formulate and implement policies for the improvement of working conditions and environment, including strengthening of infrastructures; and providing practical guidance on improvements at the workplace. Since well-managed safety and health programmes can make an important contribution to the protection of the general environment, a more integrated approach to the working and general environment is promoted within these activities.

In pursuit of this integrated approach, particular attention has been paid to occupational pollutants and hazards, which have an effect far beyond the workplace, causing problems in the general environment. Special emphasis is placed on chemical safety, prevention of major industrial accidents, dissemination of information on potential environmental pollutants as well as technical advisory services and technical cooperation activities that take account of the linkage between the various measures to improve the working environment as they relate to better general environment. In all of these activities, attention is drawn to the need for strengthening tripartite cooperation.

In the field of chemical safety, the ILO has been devoting significantly increasing resources, mainly through its safety and health programme, including the elaboration of policy guidance, participation in the International Programme on Chemical Safety (IPCS) jointly with the WHO and UNEP, and information exchange and implementation of technical cooperation projects. Although primarily related to the working environment, all these activities have a direct bearing on the protection of the general public and the environment.

The Chemicals Convention (No. 170) and its associated Recommendation (No. 177) adopted by the 1990 International Labour Conference lay down the principles for safety in the use of chemicals through their life cycle, and

call for the establishment of a coherent national policy and active involvement of both management and workers in all enterprises concerned. The two instruments serve as a basis for establishing national systems for chemical safety.

In response to the 1989 Conference resolution concerning the harmonisation of systems of classification and labelling for the use of hazardous chemicals at work, the ILO reviewed major existing national, regional and international systems and evaluated the task of harmonising these systems. In collaboration with the IPCS, the ILO commenced the task of the harmonisation of the classification criteria. Guidelines on national level action for a classification and labelling system of chemicals will be developed and used.

Within the framework of the IPCS, the Office also carries out and disseminates evaluations of the effects of chemicals on human health and the quality of the environment through the preparation of health criteria documents, guides and chemical safety data sheets. Currently, the ILO is actively involved in elaborating a restructuring of the IPCS to enable it to respond effectively to the UNCED recommendations, proposing that the IPCS be strengthened to become the nucleus of a worldwide coordinating mechanism for activities in the field of chemical safety, including risk assessment, harmonisation of classification systems, information exchange, promotion of chemical safety programmes and upgrading of national capabilities in this area, as stressed in Chapter 19 of UNCED Agenda 21.

After industrial disasters, such as those in Bhopal, Seveso and Mexico City, a series of activities has been undertaken for the prevention of major industrial accidents. These accidents, should they occur, have the potential to kill and injure a large number of workers within and outside the premises of the plant, and could cause extensive damage to the general public and environment. Following the development of a practical manual on major hazard control, a code of practice on the prevention of major industrial accidents was published in 1991. The 1992 International Labour Conference discussed this subject with a view to adopting new international standards in 1993. Major hazard control is today an important area of the ILO's technical cooperation activities. Projects for establishing national major hazard control systems have been executed in India, Indonesia and Thailand.

The Office has also been active in the field of information exchange on toxic chemicals and risks. Special efforts are being made by the International Occupational Safety and Health Information Centre (CIS) to collect, process and disseminate, in electronic and printed form, safety and health information which includes environmental protection aspects, such as workplace impact on the environment, hazardous waste disposal, air pollution, neighbourhood protection and prevention of industrial disasters. The work is done through the worldwide network of 69 national CIS centres, half of which are in developing countries, to help transfer the needed information from developed to developing countries.

The International Occupational Safety and Health Hazard Alert System has functioned since 1978. It is designed to disseminate rapidly the alerts and calls for information about newly identified specific hazards issued by any one of the participating agencies in 102 member States. The ILO acts as a clearing-house to receive replies, compile them and use them in preparing a summary of the available information on a specific subject.

A number of technical cooperation projects are operational in occupational safety and health, including two long-term regional projects on promoting occupational safety and health programmes, training and information

in Africa and Asia. The basic aim of these projects is to strengthen national infrastructure, improve enforcement practices and advisory services, set up and expand training systems and reinforce the exchange of practical safety and health information.

Special importance is attached to the provision of support for small and medium-sized enterprises in implementing practical improvements. This support includes practical advice on identifying and finding solutions for improving the working environment. A new training approach in Asia and Latin America, developed by the ILO and some developed countries, has focused on securing local, positive achievements in these enterprises, participatory action and simple low-cost solutions. Training and information will continue to play a key role in promoting future action to improve the working environment, which could also have a positive impact on the general environment.

Safety in the use of agrochemicals has also been given a priority in chemical safety activities. An ILO guide on safety and health in the use of agrochemicals has provided practical guidance in minimising the risk to agricultural workers and the environment.

The activities of the ILO in radiation protection include participation in the revision of the IAEA/ILO/WHO/NEA-OECD Basic Safety Standards for Radiation Protection. Also included within these activities is the completion of a study on safety requirements in the safe dismantling of nuclear power stations, as well as the production of a guide on occupational safety and health in transport-related accidents.

Current efforts in many countries to implement practical and economically feasible solutions to the most important and urgent working environment issues need to be strengthened and further extended to various working populations not yet receiving adequate protection. In this respect, training and information activities that support active participation of employers and workers will be particularly important in broadening the scope of improvement action to include general environment issues. Special efforts will be made to review future technical cooperation activities from this perspective.

Environment and industrial relations and labour administration

The industrial relations and labour administration major programme aims at the promotion of sound systems of labour relations, appropriate legal frameworks for labour matters, enhanced tripartism, improved effectiveness of labour administration and the observance of the Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy. As far as environmental issues are concerned, two aspects have been dealt with under this programme. The first is the role which labour relations can play in the preservation and rehabilitation of the environment. The second is the role that labour inspection systems play in general environmental protection.

Since employers' and workers' organisations have displayed a growing concern with environmental issues in addition to their long-held conviction of the importance of a safe and healthy work environment, the role of industrial relations is becoming increasingly important. Many employers' and workers' organisations have already engaged in environmental activities in pursuit of joint consultation and negotiation. This mandate could be incorporated within that already followed by the safety and health committees at the enterprise level. Under these circumstances, collective agreements might acquire a new dimension, namely, the inclusion of what are referred to as "green clauses".

This new concept might give workers the right to be consulted in the setting of environmental policy, to have access to unpublished material related to environmental hazards, to participate in environmental audits, to provide training, to refuse work leading to serious pollution problems, to receive expert advice and to have the power to subject plants to inspection by environmental protection agencies.

In cases where environmental policies are likely to affect levels and location of employment, the role of industrial relations instruments will become even more crucial in providing assistance to disadvantaged workers. This assistance could be in the form of action for protection of their employment or in the form of retraining. The introduction of "clean technologies" may also dictate adjustment in work practices, thus requiring new levels of skills, a subject which requires consultations between employers and workers.

As part of the ILO's efforts to incorporate problems of environmental protection within its mandate and general sphere of interest, the industrial relations programme has recently launched a research project entitled "Labour relations and environmental protection", which covers both the general and working environment repercussions on labour relations.

In the field of labour administration, the work related to labour inspection and environmental control will be designed to explore current worldwide trends concerning labour inspection's responsibilities in general environment protection, and prepare the ground for an ILO policy or guidelines on the issue, in accordance with international standards, notably of ILO Conventions Nos. 81, 129 and 155. A cautious approach will be adopted, analysing the variety of possible conflicts between working and external environment protection responsibilities, and the compatibility of existing trends and pressures with the standards mentioned. *

Environmental and sectoral activities

Sectoral activities are important in providing a sectoral dimension to ILO activities, thereby leading to an improved dialogue among ILO constituents and an improved capacity on their part to deal equitably and effectively with social and labour issues in different economic sectors. A major part of the ILO sectoral activities programme is represented by the 21 industries or sectors that are covered by established or regular sectoral committees and meetings. In addition, this programme deals with other industrial sectors and subsectors by preparing and holding ad hoc meetings, and by carrying out associated research and follow-up activities to provide the opportunity to highlight central ILO concerns in terms relevant to specific sectors, and at the same time to feed back sectoral concerns into the work of the Office.

A number of environment-related sectoral activities have been undertaken over several years, including technical cooperation and the provision of advisory services. Recent industrial meetings, such as those dealing with mines other than coal mines, forestry and wood industries, leather and footwear and iron and steel, have discussed specific environmental issues, following their treatment in the reports prepared by the Office for these meetings. Conclusions and resolutions have sought ILO follow-up action, including the holding of regional meetings to discuss specific problems related to the working and general environment of some industries. The ILO participated in the preparation of a technical guide entitled "Environmental aspects of selected non-ferrous metals ore mining", which was published by

UNEP with financial assistance from the ILO. The ILO also participated in an International Round-Table on Mining and the Environment in 1991, organised by UNDTCD, which adopted a document entitled "Environmental management guidelines for mining" that included guidelines for action addressed to the minerals sector and development assistance agencies. In the forestry sector in particular, practical experience in linking the natural and work environments has been gained in a number of technical cooperation projects. More recently, the Tripartite Meeting on Social and Labour Issues in the Pulp and Paper Industry, held in October 1992, discussed, inter alia, various issues concerning the natural and working environments of concern to this sector.

New areas of tripartite action

Traditionally, the role of ministries of labour and employment has been exercised mainly with respect to employment, working environment and other labour issues. As has already been stated in this report, the linkage between employment and environmental policies and between the working and general environments is likely to demand wider scope of action on the part of these ministries.

At the same time, employers and their organisations have developed a better recognition and appreciation of the need to become involved in environmental affairs. This attitude has become particularly true since we have witnessed a reconciliation of economic performance with environmental protection.

There are several specific areas and factors of concern to employers. These include support to legislation, standard-setting activities and guidelines related to the working and general environment at the national and local levels. The strong interest developed in environmental protection calls for employers' participation in the development of new business opportunities in the manufacture of "green" products, such as ecological detergents, mercury-free batteries, biodegradable plastic, recycled paper and unleaded petrol. The human losses and the high economic costs of major industrial disasters alone, with ensuing sky-rocketing insurance costs and liability claims, have disproved an old and widely held conviction that investments in the protection of the working environment were not economically viable.

By virtue of their role, the workers and their organisations have also attached high priority to the protection of the general environment. The predictions of plant closures and economic disruption due to environmental protection policies have not proved correct. The workers instead believe that, if properly formulated and implemented, environmental policies can lead to new employment opportunities. It is also understood that environmentally unsound jobs are not sustainable. Workers have also drawn attention to the need of equitable support from society in instances where environmental policies require the provision of a "safety net" for those workers directly affected, e.g. by retraining, placement and relocation assistance.

In view of the above, a magnitude of roles and activities may be envisaged for workers and their organisations in the field of environment. These include consultation at an early stage on all environment issues, including the formulation of national legislation, and participation in the establishment of enterprise environmental strategies and policies and environmental audits. The workers play a crucial role in the design and development of training programmes for workers, especially through safety and health representatives and management activities in the field of environmental

awareness. Their participation in environmental activities at the local community level enhances the exchange of views and influences consumers as well as policy-makers in promoting "green" products. Within the framework of cooperation with inspection authorities and government regulating agencies, the workers help in shaping the regulations and standards related to the working and general environment. The role of the workers in environment is also prominent at the regional and international levels. This is crucial in setting international standards; in research work on the implications of changes in the general environment on the working environment; and in the exchange of information and experience on advance warning concerning new hazards.

Tripartite action can only become effective and meaningful if carried out within the spirit of mutual cooperation between the governments and the employers' and workers' organisations. Recent experience in the field has shown that the establishment of tripartite national safety and health and environment associations is both possible and effective in cementing a continuous concerted effort.

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Jessica Mathews

Ecology in the Marketplace

Profits and environmentalism are not opposed objectives.

For 25 years, most environmental progress has been made through legislation and in the courts. Much of great value has been achieved. But from the first day of congressional hearings to the last day of the final legal appeal, the adversarial process forces business and environmentalists to assume the worst about each other. Environmentalists push, unrelentingly, for progress. Business is dragged unwillingly ahead, inch by painful inch, resisting each step out of fear of what may come next. Each side's behavior confirms the other's worst expectations.

There are other costs. The legislation-regulation-litigation sequence is painfully slow. Major new laws may take a decade to write and another to fully implement. When scientific understanding is changing rapidly, that can mean a regulatory system wildly out of step with the state of knowledge.

Regulations are often economically inefficient. Every emitter is told to meet a certain standard, even if one factory or industry could cut twice the pollution at half the cost. They hide costs from consumers. And they are inherently static. Even rules that specify the use of "best available" technologies cramp innovation. Such regulations do spur the use of what is at the cutting edge when they are written, but an entrepreneur with a better product a few years later faces a market wedded to whatever the rule specified.

For all these reasons, environmentalists and industry have recently been looking for alternatives to the adversarial straitjacket. There have been some notable instances of cooperation. Local officials, environmentalists and industry thrashed out a consensus plan to cut air pollution in the Grand Canyon, for example, even while the Quayle Council on Competitiveness was still pushing a one-sided industry plan that would have been immediately challenged in court. McDonald's and the Environmental Defense Fund have been working together to cut the company's massive amount of solid waste. A few of the country's largest businesses have voluntarily gone way beyond what the law

requires in cutting emissions, energy use or waste production.

New approaches, however, ways to make the marketplace reflect environmental costs, have come from environmentalists, academics and government. It is they who have developed emissions trading schemes (a marketplace in rights to pollute), various user fees, deposit-refund plans, and pollution and congestion charges. Industry has sat back and responded—usually negatively. Like

The companies themselves would finally know the environmental costs of their products.

voters who endorse term limits while doggedly reelecting incumbents, businessmen uniformly endorse the use of market signals over command-and-control regulation in theory but resist proposed changes in practice.

In October, one industry leader, Frank Popoff, chairman and CEO of Dow Chemical, crossed the intellectual Rubicon. Arguing that improved environmental performance will be "a matter of economic survival," he called on the chemical industry to abandon "a reluctant compliance orientation—waiting until the last minute" in favor of an approach that would foster innovation and continuous improvement not tied to the pace or content of laws and regulation.

In the long run, he said, full-cost pricing is the means to do this. Full-cost prices, which do not exist except in economic theory, reflect the full environmental and social costs of goods and services. They would include everything from the use of air and water for absorbing emissions and wastes to the national security costs of assuring the flow of oil imports.

None of this is original to Popoff. Where he entered new terri-

tory was in making a concrete proposal—that as a first step, chemical companies should charge for their products according to each one's environmental cost to the company. Firms would have to identify every step in a product's life from raw material to final disposal, including every byproduct and waste. Rather than pool environmental costs as firms now do, treating them as a cost of doing business, these costs would be assigned to each product.

Customers would then know the environmental costs of what they buy. Some prices would rise. Most bankers and industry analysts who have commented on the proposal seem to have thought only this far. The important point is that the companies themselves would finally know the differing environmental costs of their products. The effects on technology choice and new product design would be profound and automatic. Many prices would fall. For the most responsive firms, regulatory compliance costs and those of legal liabilities would plummet. Competitiveness would rise.

Oddly, the media have ignored Popoff's speech. Quite apart from the value of his pricing proposal, it reflects a mind-set that is radically new in American industry. He recognizes that the need to constantly lower environmental impacts is here to stay and that this can either impose a heavy cost or be a means to profit. For those who still believe that "economics and environmentalism are opposing objectives," he has this timely reminder. "Fifteen years ago, the same thing was said about quality and lower costs. The Japanese . . . proved how wrong they were."

Most important, Popoff has laid down a challenge to the chemical industry and any others that may be listening. If you don't like "regs and legs," he is saying, come up with something that makes the market work better, something non-adversarial, something the private sector can do on its own. That too is part of industry's job.

The writer, vice president of World Resources Institute, writes this column independently for The Post.

11/9/92
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REVIEW ITEM D

**Discussion Paper on Research for
Chapter 6**

**COMPETITIVENESS IN ENVIRONMENTAL TECHNOLOGIES, PRODUCTS,
AND SERVICES**

**Office of Technology Assessment
Congress of the United States
Washington, DC**

July 7, 1992

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Rodney Sobin

ENVIRONMENTAL INDUSTRY COMPETITIVENESS

I. OVERVIEW

As the first major country to establish strong environmental regulations, the United States developed a strong environmental goods and services (EGS) industry to meet the Nation's domestic requirements for controlling air and water pollution and for disposing of wastes. As discussed in accompanying papers, the EGS industry is largely driven by regulatory requirements.

Earlier environmental campaigns, like the Pittsburgh anti-smoke effort of the 1940s, and growing needs for sewage treatment for urban areas stimulated demand for equipment and engineering skill to deal with gross forms of pollution that continue to plague much of the world. The National Environmental Policy Act of 1969 and creation of the Environmental Protection Agency were landmarks. The 1970 Clean Air Act and Federal Water Pollution Control Act (Clean Water Act) established what at the time were strong Federal standards and required certain State actions (e.g., State Implementation Plans for air quality and receiving stream classification and standards for water quality) that guaranteed nation-wide markets for various pollution control devices. The Clean Water Act also provided significant Federal funding for construction of publicly owned treatment works (POTWs) in many communities. Automobiles, electric power plants, municipal incinerators, and many other industries and facilities were required to reduce their emissions and

effluents. Usually needed reductions were accomplished by installation of end-of-pipe pollution abatement equipment--e.g., catalytic converters for cars, filters and eletrostatic precipitators for smokestacks, and treatment facilities for industrial effluents. An industry of manufacturers, engineers, / and constructors to make and install these devices arose.

As Federal, State, and local environmental laws continued to be strengthened, greater controls of more categories of activities were required, leading to development of new types of EGS--for instance, contiguous emissions monitoring systems, landfill liners, and ground water modelling software--and better EGS--e.g., three-way catalysts, flue gas desulfurization systems, water treatment chemicals. The Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liabilities Act (CERCLA--Superfund), Toxic Substances Control Act (TSCA), amendments to the Clean Water and Clean Air Acts, and laws on pesticides, drinking water, and occupational safety were among the Federal laws passed in the 1970s and 1980s that significantly propelled U.S. demand for environmental goods and services. A number of environmental laws passed in the United States are termed "technology forcing" because their provisions were not deemed achievable through use of technology available at the time of enactment; 1970 Clean Air Act automotive standards for 1975 model cars are illustrative of this.

At the same time, however, a number of foreign governments, particularly America's major commercial competitors in Europe, Japan, and Canada enacted their own environmental legislation. They set up systems for administration and enforcement of environmental regulations while, in some cases, also helping industry comply through financial and technical assistance, and

through support of research and development (R&D). Their laws may be as strict as or stricter than U.S. law in some areas, although U.S. laws remain most stringent in others. Germany, Japan, the Netherlands, and the Nordic countries have among the toughest requirements. Japan, for instance, adopted in 1972 automotive emissions goals similar to those of the 1970 U.S. Clean Air Act (which is often referred to in Japan as the Muskie Law after the bill's main sponsor, Sen. Edmund Muskie of Maine); and in fact a number of Japanese automobile manufacturers met U.S. 1975 tail-pipe standards more quickly than did U.S. manufacturers.¹ As in the United States, Japanese automotive emission standards have been tightened periodically since that time; Europe has been slower to adopt strong emission control requirements for automobiles. Unlike the United States, Japan and Germany both required essentially all major utility and industrial boilers to install desulfurization and denitrification equipment during the 1980s.²

A result of foreign environmental regulations has been the development of foreign EGS industries. Major manufacturers of air and water pollution control equipment and the largest providers of waste management and environmental consulting services include firms headquartered in Austria, Canada, Finland, France, Germany, Japan, the Netherlands, Sweden, Switzerland, and the United Kingdom, as well as the United States. The Organisation for Economic Co-operation and Development (OECD) believes Germany to be the

¹Ashford and Heaton, citation; Michio Hashimoto, "Economic Development and the Environment: The Japanese Experience," Ministry of Foreign Affairs (Japan), April 1992, pp. 15-16.

²Cite

largest net exporter of environmental products (\$10 billion) in 1990 followed by the United States (\$4 billion), Japan (\$3 billion), the United Kingdom (\$500 million), and France (\$500 million).³ The Netherlands and Sweden are also net environmental goods exporters.

OECD data on export rates and import penetration for environmental products are limited; Germany is said to export 40 percent of its production--about half within Western Europe--and import less than 5 percent of its consumption. The U.S. may export 10 percent of its environmental goods produced but environmental import penetration rates are not known; for industrial air pollution control equipment 16 percent export rate and 26 percent import penetration is claimed. Japan is said to export only 6 percent of environmental goods production and import under 3 percent of its demand.⁴

Sizes of domestic markets not only appear to stimulate domestic EGS business but may have bearing on the interest of firms in exploiting export markets. (Another determinant may be government export and investment promotion activities which are addressed in an accompanying paper.) An impression one gets from speaking with U.S. EGS vendors, consultants, and industry associations is that many U.S. producers of EGS may be satisfied with

³Organisation for Economic Co-operation and Development, The OECD Environment Industry: Situation, Prospects and Government Policies, OCDE/GD (92)1, (Paris: OECD, 1992).

⁴Data from Ibid. however tables (T. 10 and T. 11) on Japanese environmental production, export share, and net trade are arithmetically inconsistent. Another source, Japan Society of Industrial Machinery Manufacturers May 1992 statistics, indicates that environmental control equipment (air and water pollution control, waste treatment, and noise/vibration abatement) have been exported at between four and 11 percent rates during the years FY 1987-91; 4.3 percent in FY 1991.

domestic opportunities and unwilling to invest scarce time, money, and personnel to seriously explore unfamiliar foreign markets. At the same time the large U.S. EGS market is attractive to foreign EGS producers who may already be more adept at international trade. However, there are anecdotal examples of small to medium size U.S. EGS firms that have become successful exporters and there are stories of U.S. companies that have failed abroad but not because of lack of interest and effort. This impression of the relative insularity of U.S. EGS producers remains a hypothesis.

Competitiveness in world EGS markets can be difficult to discern. As noted in the chapter 4 discussion on environmental markets, definitions of the sector are inconsistent and official data on EGS trade are sparse. EGS industrial structure can also stand in the way of competitiveness assessment. Much U.S. EGS production comes from myriad small privately held firms that are not required to disclose information; some are exporters but most are not. And there is growing presence in the industry of large companies better known for their leadership in the chemical, energy, information, construction, and other industries; these companies often do not report environmental business separately from other operations.

Trade in goods is only part of the competitiveness picture. Like other industries, the EGS sector is characterized by transnational operations, mergers and acquisitions, joint ventures and strategic partnerships, and international licensing arrangements. The effect of such relationships on national competitiveness depends on particular circumstances and is non-generalizable. For instance, U.S. subsidiaries of foreign firms are sometimes constrained by their parent companies although sometimes they are not

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IMPORTS

US Companies Seen Losing Edge In Worldwide Environmental Market

By PAULA L. GREEN

Journal of Commerce Staff

NEW YORK — U.S. companies are losing their competitive edge in a worldwide environmental market that could reach \$400 billion by the mid-1990s, industry observers said.

Western European and Japanese companies are ahead in the game, fueled by factors ranging from national regulatory policies to public opinion to energy prices, said several speakers at the Global Environmental Investment Conference here Wednesday.

"The push for cleaner and greener production processes is increasingly coming from leadership outside the U.S.," said Sumner Pingree, vice president of GEF Management Corp., Washington. "Green technology has become the mantra of large European companies."

The company manages the \$36 million Global Environment Fund, a Washington investment partnership created in 1989 to put money into companies producing innovative environmental products or services.

Grant Ferrier, president of Environmental Business Research, San Diego, Calif., said U.S. companies are even losing their edge in air pollution control technology.

U.S. companies were leaders in the sector as they struggled to comply with U.S. regulations instituted several decades ago. But lax enforcement of the Clean Air Act dur-

ing the Reagan and Bush administrations has cut the U.S. companies' lead over Japanese and Western European firms, Mr. Ferrier said.

While U.S. companies still are strong in the waste management sector and consulting services, Mr. Ferrier said he is not optimistic about the industry's overall prospects if "Bush wins and continues to sabotage environmental legislation."

"The U.S. is already far behind. Japan and Germany are much stronger in the help they give (their companies) . . . and the export assistance," he said.

Greater public concern about the environment and higher energy prices also boosted the industry's growth in Western Europe, several speakers said.

The speakers were part of a panel, "Investing in Environmental Technology: New Opportunities & Development Internationally," that opened the second day of the two-day conference. Sponsored by a number of groups, including the United Nations Environment Programme, the Investment Management Institute and the International Finance Corp., an arm of the World Bank, the conference was designed to encourage investment in environmentally sound projects.

The U.S. Congressional Office of Technology Assessment is preparing a study that will look at U.S. indus-

try's competitiveness in the international environmental sector, said Wendell Fletcher, a senior associate at the agency who is project director of the study.

Mr. Fletcher said it is too early to say whether U.S. companies are losing their competitive edge. The study, requested by Congress last year, is titled, "American Industry and the Environment: Implications for Trade and U.S. Competitiveness." It will look at the role that government policy plays in shaping the industry's growth, and should be completed next summer, Mr. Fletcher said.

Figures prepared by the Organization for Economic Cooperation and Development, Paris, show that the worldwide market for environmental equipment and services will reach \$300 billion by the year 2000, up from \$200 billion in 1990, Mr. Fletcher said.

But Mr. Ferrier's San Diego company has data that include a broader array of equipment and services and show the worldwide market will reach \$408 billion by 1996, up 9% from \$270 billion in 1991.

One of the largest markets is the United States, which is expected to spend about \$164 billion in 1996, up from \$120 billion last year, followed by Western Europe, which is expected to spend \$130 billion in 1996, up from \$82 billion, Mr. Ferrier said.

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Thinking Green

In Japan, Environment Means an Opportunity For New Technologies

Firms Offer Grand Schemes To Suck Carbon From Air And Make Deserts Bloom

An Alternative to Sacrifice?

By JACOB M. SCHLESINGER

Staff Reporter of THE WALL STREET JOURNAL
OSAKA, Japan — Cradling a plastic globe marked up like a war map, Yukinori Kuwano explains the latest Japanese plan for world conquest.

Instead of pins or flags, the Sanyo Electric Co. executive labels the strategic points with tiny solar panels. And the connecting lines aren't battle paths but superconducting wires that could zip electricity from Nevada to New York, from Australia home to Japan.

A half-century ago, Mr. Kuwano notes, his country waged a disastrous imperial war partly to lock up fuel supplies. Now he sees Japan helping peacefully supply all the world's energy with something called

The View From Rio

As the Earth Summit convenes, environmental predictions are sure to be abundant and contradictory. History offers little guidance, leaving scientists to rely on mathematical models fed to supercomputers. Stories on Page B1.

Genesis, the Global Energy Network Equipped with Solar Cells and International Superconductor Grids.

"This is a very realistic idea," insists Mr. Kuwano, Sanyo's head of research and development. He figures the solar panels and their surroundings would require "a very, very small area," only about 12% of the world's desert space, by the mid-21st century. The cost of 20 quadrillion yen (\$150 trillion) is hefty, he says, but worth it because there would be no pollution.

So goes environmentalism Japan-style. Here, fear of global warming isn't a crisis, it's an opportunity for the ultimate industrial policy. The Earth Summit opening in Brazil today is expected to bring a fractious debate about ecology vs. economy trade-offs. But Japan sees it as a chance to offer a compromise vision, pushing as a model its own history of combining healthy growth with tough pollution controls — and perhaps promoting Japanese-designed equipment to help other countries do the same.

Japan's distinct green movement is, characteristically, an apolitical, top-down, business-bureaucracy coalition with a faith that technology can solve anything. Nonprofit environmental activism is relatively anemic in Japan, but a number of Japanese corporations have drafted grandiose save-the-Earth plans like Sanyo's. The Ministry of International Trade and Industry (MITI) has crafted a detailed 100-year blueprint on how to eliminate the world's pollutants, and is planning a gleaming new Research Institute of Innovative Technology for the Earth (RITE) near Kyoto.

A RITE brochure boldly proclaims its mission: "While the world's environment has undergone great change during the 200 years since the industrial revolution, Japan intends to restore that environment over the next decades."

Many Americans, frustrated with the emotional debate and paralysis that dogs their own environmental policy, view that confident, long-term consensus approach with marvel. Some fear a Japanese competitive edge in yet another key commercial sector. Take, for example, the idea of "carbon fixation" — actively wiping out excess carbon dioxide in the air rather than simply trying to curb discharges. "In the U.S., it's just the beginning of even talking about that," says Frank Press, president of the National Academy of Sciences, who recently joined RITE's advisory board. "In Japan, they're announcing research programs."

Several such public and private efforts are under way. One RITE approach: breeding a new species of super-algae and bacteria that could "photosynthesize" the carbon emissions into new fuels, as well as proteins, fats, and carbohydrates.

Japan's Record

But critics charge that Japan's eco-tech crusade is the untenable cop-out of a country with little socio-political check on its powerful industries. Japan's much-ballyhooed progress in pollution and energy efficiency ended in the mid-1980s and now appears to be slipping; new technology is the main alternative to corporate sacrifice.

Those techno-fixes can go to extremes. Later this year, for example, Japan will launch the ecological high-wire act of shipping up to 30 metric tons of highly radioactive plutonium thousands of miles from Europe by sea over the next 20 years. That's part of an intricate scheme to replace polluting fossil fuels with a specialized nuclear energy. But plutonium — abandoned by most other countries for non-weapons use as too dangerous — could be far more destructive than the fossil fuels being replaced if it leaked or fell into terrorist hands.

"Japan is weakest on issues that squarely confront value questions" such as giving up some economic benefits to protect endangered species, contends Alan S. Miller, executive director of the University of Maryland's Center for Global Change, who studies Japanese environmental technologies. Many of Japan's projects, such

Please Turn to Page A10, Column 4

Thinking Green: In Japan, Environment Becomes Technological Challenge and Business Opportunity

Continued From First Page

as the carbon-fixation work, are "sure losers," he argues. "This all fits well with the Japanese ideal that if you can find a technical fix and just pay a little more, then nothing would have to change."

Indeed, Japan's postwar environmental record is largely one of unfettered commerce running roughshod over nature, yielding only when creating a serious threat to its people or its economy. Japan's tough pollution clampdown came after some of the world's most notorious industrial-poisoning disasters killed or maimed thousands of Japanese. Its stellar energy efficiency came after the oil shocks threatened to derail the industrial world's most oil-import-dependent economy. Japan is terrible, environmentalists assert, on matters that don't immediately jeopardize its citizens or its companies, such as preserving rain forests. Only international opposition has recently forced some change.

Japan was also late responding to the wave of environmental concern leading to the Brazil summit. The government boasts that a Japanese scientist discovered the hole in the Earth's protective ozone layer, in 1982. Yet Japan initially refused to ratify the 1985 Vienna Convention on global warming and ozone depletion.

Eventually, however, the wheels of Japan Inc. started to turn. MITI in 1990 drew up "New Earth 21," a five-plank program that would lead to "restoration of the green planet" by the year 2100. That, of course, would require new technology. So the ministry created RITE, believed to be the world's first commercial environmental technology institute. MITI has also concluded that, for such fixes to be truly effective, other nations would also have to use that know-how. So the ministry has also set up the International Center for Environmental Technology Transfer.

With a budget of 6.2 billion yen this year and a sprawling research park set to open next year, RITE is modeled after the government-industry consortia that made Japan world-competitive in semiconductors and computers. It is currently targeting seven fields, ranging from the practical, like developing biodegradable plastics and new heat-pump refrigerants, to the pie-in-the-sky, like the carbon-digesting algae or "massive cultivation technologies" for hydrogen-producing microorganisms.

Each project is broken down into sub-projects with targets for progress by 1999. Each has up to 16 companies participating, led by giants such as Hitachi Ltd., Meiji Milk Products Co. and Ishikawajima-Harima Heavy Industries Ltd. The groups are open to foreign participants, but so far only two have joined: a Du Pont-Mitsui joint venture, and Eniricerche S.p.A. of Italy.

Rival Japanese ministries are pushing

their own programs. The Construction Ministry wants to build 20 model "earth friendly homes" over the next two years. The Agriculture Ministry is trying to create plants with less need for chemical fertilizers.

Separately, seven ministries, as well as top executives from Tokyo Electric Power Co., Nissan Motor Co. and Toshiba Corp., announced in 1990 that "we, as the crew of the Spaceship Earth, have established the 'Global Infrastructure Fund Research Foundation Japan' in order to help realize a forthcoming global village and to carry out study projects concerning the improvements of global-scale infrastructures much needed to create a better living environment and sphere." The group last month set up a conference in Turkey that discussed environmental rehabilitation for the Aral Sea region.

Corporate Japan has also acted on its own. Keidanren, Japan's powerful business federation, urged companies last year to incorporate environmental protection into business planning. At a Global Environmental Technology Expo in Yokohama last fall, more than 70 Japanese companies displayed products, ranging from "state-of-the-art refuse technologies" to scooters powered by rechargeable batteries. Sumitomo Metal Industries Ltd. says "thinking green" has helped identify new business opportunities like chemical-free disposable wet towels for diners. Japanese companies already have a lead in innovative energy sources such as fuel cells, which create electricity through chemical reaction instead of combustion.

Another popular theme is use of sewage sludge. The city of Yokohama, working with steelmaker NKK Corp., is working on converting sludge to paper, flower pots and other goods. Mitsubishi Corp. has agreed to help Fujimi Ceramic Co. promote sludge bricks.

Japan's giant builders are among the more creative. Tokyu Construction Co. is developing plans for what it calls HEART (Heritable Ecologic Area and Track Project), a million-resident city in which underground vacuum-pressured tubes would cart garbage from homes to a spaceship-shaped tower. There waste would be sorted, with some of it converted to fertilizer and lifted to a "plant factory" producing fruits and vegetables. Processed water from the sewage would drain underground to a "fish-cultivating facility."

Shimizu Corp., meanwhile, wants to build a waste storage pit in Tokyo Bay in a tent shaped like a whale. Heat from waste incineration would power the accompanying "Aqua Amusement Land." And Japan's lack of deserts hasn't deterred research into how to green up the earth's barren patches; a consortium that includes Obayashi Corp. has built an artificial desert, with heat and humidity controls,

for the study.

The Japanese government says it is also looking beyond technology solutions. The Environment Agency last year called for a change in values and life styles to an "environment-friendly culture." But critics contend that Japan, the world's second-biggest economy and most active overseas investor, is relying on Buck Rodgers schemes for most of its environmental planning.

That could be serious because, as Japan gets more affluent, its environmental record gets worse. It is true, as the Japanese delegation will repeatedly remind delegates at the Earth Summit, that Japan emits less than half the carbon dioxide per capita as the U.S., emits less sulfur oxide and nitrogen oxide than the other industrialized nations and recycles a higher percentage of its paper (as of the late 1980s, the most recent data from the Organization for Economic Cooperation and Development).

But it's also true, according to a new Environment Agency report, that Japan's carbon dioxide emissions have grown about 4% annually since 1987 after holding flat for years before. Greenpeace reported last year that Japan's energy efficiency has stagnated since 1987, after improving drastically in the previous 14 years. Nitrogen oxide pollution, largely from diesel-powered vehicles, has grown sharply in recent years; on some days a thick black cloud hangs over Tokyo. While Japan's factories remain relatively clean and efficient, Japanese families are driving more as auto makers sell them bigger cars.

Curbing those trends would be difficult. Japanese auto makers are discouraging tougher emissions controls. In a Gallup survey of 22 countries released in May, only 31% of Japanese said they would be willing to pay higher prices to protect the environment, compared with 65% in the U.S. MITI is cool to the environmental tax backed by the European Community, arguing that technological innovations are preferable.

Japanese government officials frequently point out that they pledged two years ago to stabilize carbon dioxide emissions over the next decade, something the U.S. refuses to commit to. But Japan's plan relies heavily on some dubious assumptions, such as that Japan can massively boost nuclear energy despite public opposition. Most of the 498.4 billion yen earmarked by the government for "global environmental issues" this year goes to nuclear energy development.

Japan's new environmental consciousness, said Greenpeace official Jeremy Leggett last year, is both good news and bad news: "The good news is they're putting a lot of money into research. The bad news is that they're putting a disproportionate amount into science fiction."

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REVIEW ITEM C

Chapter 4

ENVIRONMENTAL INDUSTRY TRENDS AND CHARACTERISTICS

Office of Technology Assessment
Congress of the United States
Washington, DC

July 7, 1992

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Environmental Industries Trends and Characteristics

I. Overview

The global market for environmental goods and services (EGS) is large and growing fast. The Organisation for Economic Co-operation and Development (OECD) estimates that in 1990 the global EGS market stood at \$200 billion and will grow annually by five to six percent to reach \$300 billion by the year 2000.¹ The International Finance Corporation, the private lending arm of the World Bank, says that the global EGS market is already \$300 billion and will double to \$600 billion by decade's end.² Furthermore, these estimates may not capture business opportunities for preventing pollution through "cleaner production." While calculations of environmental market sizes should be viewed with caution due to varying definitions of the market and inconsistent quality of data, it is clear that the environmental sector of the economy is sizable. For comparison, the aerospace products industry commands a global market of \$180 billion and the chemical products industry stands at \$500 billion.³

¹Organisation for Economic Co-operation and Development, "The OECD Environment Industry: Situation, Prospects and Government Policies," (Paris: OECD, 1992).

²International Finance Corporation, Investing in the Environment: Business Opportunities in Developing Countries, (Washington, DC: The World Bank and The International Finance Corporation, 1992), p. iii.

³OECD 1992, op cit.

Demand for EGS and cleaner production technologies are growing throughout the world although priorities vary by country and region. National environmental markets depend on both perceptions of environmental problems and ability and willingness to address those problems. Economic structure, geography and demography, and natural resource base (including ecological services provided by nature to assimilate pollutants and repair damage) determine the relative benefits and costs of responding to various environmental threats. Financial and technical capabilities as well as past experience in environmental management bear on national ability to enact and enforce environmental regulations. Public perceptions of environmental risk and interests of affected groups influence the will of nations to attack environmental problems. And, although regulation remains the most important driver of EGS markets, corporate interest in appealing to "green" consumers and investors is of growing importance to developers and vendors of EGS and cleaner technologies, particularly in the industrial democracies. Also, a small but growing number of companies perceive competitive advantages accruing to proactive environmental management. (See Ch. ?).

For many less developed nations, acute threats to human health posed by a lack of basic environmental infrastructure such as running water and refuse collection are high priority. Often even the most rudimentary pollution controls or facilities are missing and relatively unsophisticated EGS may effect large reductions in environmental risk. In some developing countries, including the behemoths of China and India, poor rural areas, abysmal environmental infrastructure for most urban dwellers, and rapidly growing

industrial sectors may co-exist presenting a variety of simultaneous environmental challenges ranging from basic sanitation to unchecked vehicle emissions to toxic industrial wastes.

On the other end of the spectrum are a handful of affluent countries that have the toughest environmental standards and dominate the current EGS market. They include the United States, Australia, Canada, Japan, New Zealand, and portions of Western Europe--Germany, the Netherlands, and the Scandanavian countries being most notable. Among these countries considerable progress has been made against many traditional "~~soot and sewage~~" problems. Now more subtle (e.g., toxic substances and indoor air pollution), more recalcitrant (e.g., smog and agricultural runoff), and more recently recognized (e.g., global warming and acid precipitation) threats are being attacked. Both new technologies and existing EGS are in high demand. Among these "greenest" countries one cannot identify a country that is "ahead" in terms of environmental regulations or performance because their priorities and environmental histories vary. For instance, in 1987 only 39 percent of Japanese and 50 percent of Austrians were served by centralized sewage treatment plants versus 75 percent in the United States and 88 percent in western Germany.⁴ Also, Western Europeans are just phasing in automotive

⁴Helmut Kaiser Consultancy, "The Market for Environmental Technologies in Western and Eastern Europe Up to the Year 2005," 1990, p. 17. It should also be noted that septic tanks are widely used in the United States so this data does not imply that a quarter of Americans are unserved by effluent treatment. Japanese data from 1990 (Environment and Development: Japan's Experience and Achievement, Japan's National Report to UNCED 1992, December 1991) say that 44 percent of Japanese are connected to sewerage systems. As in the U.S., septic systems are also in extensive use.

~~catalytic converters that Americans and Japanese have used since the mid-~~
1970s.⁵ And many U.S. industrial and utility boilers are only now starting to control sulfur oxides and nitrogen oxides to the extent achieved in Japan and western Germany in the last decade.⁶

In between the two extremes of environmental capability include a growing number of newly industrialized and rapidly industrializing states (e.g., Taiwan, South Korea, and Mexico) that are beginning to pay serious attention to the environmental costs of their development. Also included are the set of formerly centrally planned states of Central and Eastern Europe as well as the Commonwealth of Independent States (CIS) that have inherited severe environmental threats to health and ecology, and dependence on highly polluting and inefficient capital stock that contributes to further damage.

The environmentally lagging countries of the European Community (including Greece, Portugal, Spain, and also Belgium, Britain, and France) are another type of EGS market where upgrading environmental infrastructure and controls to meet tougher EC standards will be a priority.

Some environmental problems are global in scope and have attracted widespread attention; they do not neatly fit into the divisions just described. Rich and poor countries alike have acceded to the Montreal Protocol on Substances that Deplete the Ozone Layer and have pledged themselves to phase-out production and use of ozone-depleting compounds like

⁵Patrick Oster, The Washington Post, "EC Rushing to Clean Up Environment," June 14, 1992, pp. H1, H5. (Find better cite.)

⁶Jeffrey C. Smith, Executive Director, Institute of Clean Air Companies, personal communication 6/16/92; *Find literature cites

chlorofluorocarbons (CFCs) although a more lax phase-out schedule and funding mechanisms were needed to entice some developing country signatories. Widespread concern is also placed on global warming potential. Markets for CFC substitutes and recycling, and for CFC-free processing are already robust. Global warming concerns are likely to offer even greater opportunities for purveyors of EGS and cleaner production technologies, including energy production and use technologies.

Opportunities for US EGS firms exist for controlling, treating, and cleaning-up pollution and environmental damage in all media--air, water, and land--in most if not all regions of the world. There are likely to be even greater opportunities in what might be termed the "invisible" environmental sector; the provision of cleaner production, pollution prevention, and energy efficiency goods and services. Cleaner technologies include combined cycle gas turbine power production, direct reduction of steel, wind power, chromium-free leather tanning, improved metal plating, compact fluorescent lighting, "no-clean" soldering, refinery automation, improved application of paints and coatings, thermostatic controls, and many more in virtually all economic sectors. In the industrialized world stringent standards are becoming more difficult to meet solely through end-of-pipe pollution controls. At the same time developing and restructuring economies might more cost-effectively mesh environmental and developmental aspirations by adoption of cleaner technologies. American firms, however, are facing growing challenges from foreign companies both overseas and in the domestic U.S. market for the provision of both traditional EGS and cleaner technologies.

what does this mean?

Markets for EGS or any other kind of good or service are defined not only by needs but by ability to pay. EGS demand is largest in the industrialized countries of the OECD and they are likely to continue to dominate the EGS market over the decade because of their ability to afford more stringent environmental management. Some rapidly industrializing countries, including South Korea, Taiwan, Mexico, and Singapore, among others, are beginning to expend significant resources into environmental protection, making them significant and self-sustaining EGS markets. However, many countries of the world including the nations of Eastern Europe, the former Soviet Union, and most developing states lack the extensive financial resources and convertible currency needed to achieve anytime soon the level of environmental protection achieved in the United States or other leading industrial democracies. Investors and exporters to these regions may find tall financial hurdles. They may need to be facile at tying into the hard currency provided by development banks and bilateral assistance; or they must be clever and innovative enough to link their operations to export commodities and earnings. Eastern Germany is exceptional because its union with western Germany has given it a stable currency, less risky political and legal environment, and support of one of the richest and productive economies in the world; eastern Germany's eastern neighbors are not as fortunate. However, in the longer term--and perhaps in the not so long term for some countries--even the less affluent states may emerge as alluring EGS markets.

II. Market Drivers

By and large environmental markets are driven by regulations.⁷ This is because markets of buyers and sellers will seldom on their own pick up the costs that pollution and environmental degradation place on third parties and society as a whole. In economic terms, pollution is a "negative externality" and the services nature provides in the form of cycling air and water, maintaining soils and biological diversity, and so forth, are "free goods." The opposite side of the coin is that "positive externalities" or benefits that accrue to third parties and society from the use of environmental technologies are often not adequately captured in the market by technology developers and users. These "market failures" diminish the welfare-maximizing force that free markets can theoretically deliver.⁸

In short, without regulation, people will pollute excessively; there is little incentive for a person or company to routinely pay more for something or exert additional effort to help others or society at large unless there is reasonable assurance that others are forced to pay too. This is why governments levy taxes. This is also why laws are enacted for worker safety, consumer protection, and many other areas. Externalities and public goods as types of "market failures" are classically justified reasons for government regulation.

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⁷Here regulation includes the use of environmental taxes and charges, marketable pollution allowances, and assignment of liability on polluters as well as conventional "command-and-control" approaches that require achievement of performance-based or technology-based environmental standards.

⁸There are other market distortions and failures, including insufficient information, transaction costs, and monopolies, among others.

While the roots of environmental law can be traced back to to early laws on public health and sanitation, and to principles of common law, modern environmental law and regulation came into being at the end of the 1960s and beginning of the 1970s. The United States pioneered environmental regulation with establishment of the Environmental Protection Agency (EPA) and enactment of comprehensive air and water legislation.⁹ These laws mandated technological controls on vehicle, industrial, and municipal emissions and effluents. Later Federal laws also controlled drinking water standards, hazardous waste disposal and remediation, commerce in toxic substances and pesticides, and other areas.¹⁰ Some of the laws, like the 1970 Clean Air Act, were technology forcing; that is, they required performance not technically feasible at the time of the laws' enactment thus stimulating technological innovation. New California regulations requiring sales of ultralow-emitting and zero-emitting vehicles over the coming two decades continue in this tradition.¹¹

Environmental laws create markets for pollution prevention, control and clean-up equipment and supplies; for environmental design, engineering, legal, and management services; for construction and operation of facilities; for analytical equipment and monitoring services; and for alternative or substitute technologies (e.g., "no-clean" soldering, fuel switching, and

⁹*CITE Clean Air Act of 1970, Clean Water Act.

¹⁰*CITE Safe Drinking Water Act, CERCLA (Superfund), RCRA, TSCA, FIFRA as e.g.'s

¹¹Michael Scheible, Deputy Executive Director, California Air Resources Board, at "The Clean Air Marketplace" Conference, Tysons Corner, VA, April 22-23, 1992. Find citation.

alternative fuels). Sometimes environmental laws and regulations force EGS markets ~~directly by mandating~~ industries, vehicles, households, and municipalities to meet certain performance standards, for instance, not exceeding a certain amount of carbon monoxide or soot per mile driven in a car or some amount of sulfur emitted per unit of fuel burnt in industry. In such cases a number of environmental technologies and practices might allow achievement of standards. ~~Technology-based standards~~ that dictate installation of particular environmental devices can stimulate large markets rapidly for designated EGS ~~although longer-term innovation may suffer because competing technologies and approaches are not sanctioned.~~¹²

Indirectly, regulations can promote EGS markets by making pollution and waste too ~~expensive although not illegal~~. For instance, the U.S. Resource Conservation and Recovery Act (RCRA), among other things, places stringent requirements on storage, transport, and treatment of hazardous wastes. This directly stimulates EGS expenditures related to hazardous waste handling and disposal but also stimulates markets for EGS and cleaner technologies to help waste producers offset increased disposal expenses through waste minimization. Similarly, pollution taxes and fees can stimulate EGS and cleaner technologies. Innovative regulatory approaches pioneered in the United States, including marketable emissions allowances for air pollutants and

¹²Robert Repetto, George Heaton, and Rodney Sobin, Transforming Technology: An Agenda for Sustainable Growth in the 21st Century, (Washington, DC: World Resources Institute 1991), p. 23.

Global and OECD Overview

Of the \$200 billion 1990 environmental market reckoned by OECD, \$164 billion (82 percent) occurs within OECD states.²⁷ The remainder is split between "East Europe/Soviet Union" (sic) \$15 billion (7.5 percent) and "Other" \$21 billion (10.5 percent). OECD-Europe accounts for \$54 billion (27 percent) (see Table 2) while OECD-North America accounts for \$84 billion (42 percent); the U.S. share being \$78 billion--by far the largest national market in the world. OECD-Asia/Pacific stands at \$26.2 billion (13 percent) dominated by Japan's \$24 billion market--the second biggest national environmental market.

In OECD's estimation the global EGS market will grow between five and six percent annually to reach \$300 billion by the year 2000 with higher than average growth in Canada (7.9 percent), Japan (6.7 percent), a number of EC states that need substantial effort to meet Community standards (Spain, Portugal, Greece, Italy, Belgium, Britain, and Ireland), and the "other" category which includes the dynamic economies of the Pacific Rim (6.8 percent). Lowest growth rates are anticipated in the Nordic countries, Germany, the Netherlands, Switzerland, and Austria which already possess relatively advanced environmental management capabilities. "East Europe/Soviet Union" is also expected to exhibit lower than global average EGS market growth (only 4 percent).

By environmental sector, OECD EGS industrial output for 1990 was \$48 billion (24 percent) for environmental services, \$60 billion (30 percent) for water and wastewater treatment equipment, \$40 billion (20 percent) for waste

²⁷Data for these several paragraphs are from OECD, op cit.

management equipment, \$30 billion (15 percent) for air quality control equipment, and \$22 billion (11 percent) for "other" which includes contaminated land remediation and noise control. Within OECD, highest predicted growth rate is within the service sector (7.4 percent annually to \$80 billion in 2000) and lowest in water and wastewater treatment (4.0 percent annually to \$83 billion). Waste management equipment output might grow at a 6.4 percent to \$63 billion and air quality control at 4.4 percent to 42 billion. The "other" category is estimated grow at 5.1 percent annually through the decade to \$32 billion reflecting expected strong growth from a currently modest base in remediation markets.

United States

The United States is the world's largest producer and consumer of EGS. This is because of the Nation's large size and its relatively strict environmental regulations. As previously noted, estimates of the U.S. EGS market vary due to different definitions as well as from differences in methodologies and interpretations. The Environmental Business Journal (EBJ) reported that the U.S. EGS industry earned revenues of \$132 billion in 1990 and about \$135 billion in 1991; although mobile source air control revenues--mainly catalytic converters--of about \$8.3 billion in 1990 were not included.²⁸ From an expenditures approach, EPA reported U.S. 1990

²⁸Environmental Business Journal, April 1991 and April 1992; Grant Ferrier, editor-in-chief, Environmental Business Journal, at ETEX '92 Environmental Conference and Exposition, Washington, DC, April 7-9, 1992; U.S. Department of Commerce in ICF Resources and Smith Barney, op cit.

environmental spending to be \$115 billion.²⁹ These estimates are significantly larger than OECD's \$78 billion estimate. EBJ's breakdown of the U.S. industry is presented in table 1.

Table 1. U.S. Environmental Industry Revenue and Growth (Billion \$)

Segment	'88-'89		'89-'90		'90-'91	
	1989	Growth	1990	Growth	1991	Growth
Analyt. Services	1.6	23%	1.7	6%	1.7	1%
Solid Waste Mgmt	23.5	14%	26.1	11%	27.4	5%
Hazardous Waste Mgmt	12.1	22%	13.3	10%	13.7	3%
Asbestos Abatement	3.8	27%	4.0	5%	3.0	-24%
Water Infrastructure	11.7	7%	12.1	3%	12.5	3%
Water Utilities	11.1	6%	11.5	4%	11.8	2%
Engineering/Construct'n	10.2	26%	12.2	20%	13.4	10%
Resource Recovery/Recycl	14.2	23%	17.2	16%	15.8	-8%
Instrument Manuf	1.5	25%	1.7	14%	1.8	4%
Air Pollution Control	5.3	-4%	5.4	2%	5.3	-1%
Waste Mgmt Equipment	9.8	9%	10.4	6%	11.0	6%
Environmental Energy	1.5	25%	1.8	20%	2.0	9%
TOTAL ³⁰	106.9	15%	117.5	10%	119.4	2%

Source: Environmental Business Journal

*decrease in growth is
due to the recession. The
overall industry is not
recovering yet.*

²⁹ICF Resources and Smith Barney, op cit., pp. I-2, I-3, original estimates in A. Carlin and the Environmental Law Institute, Environmental Investments: The Cost of a Clean Environment--A Summary, EPA-230-12-90-084 (Washington, DC: US EPA, December 1990) were expressed in 1986 dollars and were inflated 15 percent to derive 1990 dollars.

³⁰Note: Two additional segments--Diversified Companies (EGS firms with less than 50 percent of business in any other segment) and Conglomerates (large diversified companies with significant EGS business divisions or subsidiaries)--are included in EBJ's 1990 tally (\$11 billion) but not in their 1991 tally, although the editor-in-chief stated at ETEX '92 that they totaled about \$14 billion.

Future EGS growth is expected from a number of directions. For instance, an analysis done for EPA of EGS business opportunities offered by the Clean Air Act Amendments (CAAA) of 1990 estimates that average annual revenue increases (in 1990 dollars) for stationary and mobile source air pollution control equipment manufacturers will be \$2.8-4.0 billion in the years 1992-95 and between \$4.8-6.5 billion in the years 1996-2000.³¹ Engineering, design, and construction firms could experience annual revenue increases of \$400-700 million and \$100-200 million during these periods, respectively. Makers of instruments and monitoring systems might see earnings grow \$200-400 million and \$100-200 million annually over the two periods. This particular analysis also estimates average annual gains to natural gas, low-sulfur coal, and reformulated and oxygenated gasoline producers (\$600-800 million in 1992-95 and \$1.7-2.3 billion during 1996-2000) stimulated by the CAAA.

CAAA stimulates these markets by tightening emissions control requirements for both stationary and mobile sources including, among others, ordering major reductions in sulfur and nitrogen oxides (SO₂ and NO_x respectively) emissions from power plants and other major sources; greatly enhancing controls on 190 toxic air pollutants; tightening tail-pipe and evaporative standards for vehicles and service stations; mandating sale of cleaner and alternative fuels and vehicles; increasing monitoring requirements for power plants; and regulating disposal of CFCs.

³¹ICF Resources and Smith Barney, op cit., p. IV-3

State and local air quality requirements will also greatly stimulate the air quality market for both traditional EGS and cleaner products and processes. The South Coast Air Quality Management District's tough regulations to control smog in southern California and California's laws requiring development and marketing over the next decade of low-, very low-, ultralow-, and zero-emission vehicles over the decade are exemplary; particularly as the "California car" is under consideration for adoption by other states, as New York and Massachusetts have already done.

Similar growth in U.S. EGS demand may occur for other environmental sectors. New drinking water standards and storm sewer management regulations mandated by the Clean Water Act's 1987 amendments are being promulgated. And state and local regulation of wastes and recycling grows. The Congress has been working on reauthorization of the Clean Water Act and the Resource Conservation and Recovery Act--the Federal law that regulates most aspects of hazardous and non-hazardous waste. Without knowing what the reauthorized laws will look like, an analysis of EGS demand like that done for the CAAA of 1990 is not available.

Contamination and waste from decades of U.S. military activity and weapons production during the Cold War are now large environmental issues. Many Defense (DOD) and Energy (DOE) Department facilities are extensively contaminated with various wastes ranging from radioactive byproducts of nuclear weapons production to widespread spills of common fuels and solvents. This hazardous legacy threatens health and the ecology. Also, decontamination of decommissioned military facilities is important if those lands are to be made viable for civilian use and commercial investment. DOE's environmental

restoration and waste management budget was near \$2.7 billion in FY 1991 and some estimates of the costs for clean-up, decontamination, and waste management of the Nation's nuclear weapons complex reach \$75-105 billion through the year 2010.³² DOD's Defense Environmental Restoration Program (DERP) has grown in funding from \$150 million in FY 1984 to over \$1 billion in FY 1991.³³

Western Europe

The European Community (EC) and Western Europe generally can be divided into three major tiers in terms of environmental priorities and capabilities.³⁴ The top tier countries already possess relatively advanced environmental management systems including comprehensive legislation, stringent standards, capable administration, and good infrastructure. Denmark, Germany, and the Netherlands are the EC members that fall in this tier; Finland, Norway, Sweden, Switzerland, and perhaps Austria may also be considered here. Modest EGS growth of under five percent annually is expected in these markets through 2000. The middling tier includes Belgium,

³²U.S. General Accounting Office, Long-Term Plans to Address Problems of the Weapons Complex Are Evolving, GAO/RCED-90-219, September 1990. The GAO also includes \$50 billion for modernization of the Weapons Complex.

³³"Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1990," as cited in Robert P. Morgan and Erik T. Rotto, "Applied R&D and Technology Development for Environmental Restoration in the Department of Defense: A Preliminary Assessment and Comparison with Related Activities in the Department of Energy and the Environmental Protection Agency," Report No. 91-3, Center for Technology Assessment & Policy, Washington University, St. Louis, MO., September 1991.

³⁴Richard Haines, "Pollution Control Market to Flourish in Post-1992 Europe," Pollution Prevention, vol. 1, issue 2, April 1991, pp. 11-20.

France, Ireland, Italy, Luxembourg, and the United Kingdom, which have less rigorous environmental policies in place. Their markets may grow at five to seven percent annual rates through 2000 as they catch up to first tier environmental standards and capabilities. The bottom tier includes Greece, Portugal, and Spain which have not had extensive environmental experience and generally are lacking in adequate physical infrastructure, and technical and administrative capabilities to enforce strong environmental policies. They are challenged with building up environmental management capabilities from a relatively low level in order to meet EC-wide standards. Estimates of their annual growth of EGS demand through 2000 are greater than seven percent; and in the shorter-term, through 1995, over 10 percent.³⁵ Several estimates of Western European environmental markets are presented in table 2.

Table 2. Western European Environmental Markets (\$ billion)

	ECOTEC		ann.	OECD		ann.	Ecofin, Rovid		
	1989	1995	rate	1990	2000	rate	1990	1995	2000
Germany (west)	12.3	15.0	5.2%	17.0	23.0	4.0%			28.1
France	5.8	8.6	6.7%	10.0	15.0	5.5%		14.5	
United Kingdom	5.7	9.4	8.8%	7.0	11.0	6.3%		17.5	
Italy	3.5	5.5	7.5%	5.0	7.7	6.0%		19.7	
Netherlands	2.0	2.5	4.0%	2.7	3.7	4.1%		4.3	
Switzerland				1.9	2.5	3.5%			
Spain	1.3	2.6	11.8%	1.8	3.0	7.4%		3.5	
Sweden				1.5	2.0	3.7%			
Belgium/Lux	1.0	1.5	7.3%	1.4	2.3	6.4%	(Belg only)		

³⁵OECD, op cit.; R. C. Haines, "Market Opportunities for Environmental Protection Technologies in Europe Post 1992," Annex A in "Opportunities for the Environmental Protection and Waste Management Industry in Europe: A Capability Statement," ECOTEC Research and Consulting, Birmingham, UK, June 1990.

Austria				1.3	1.8	4.3%			
Finland				1.0	1.3	3.3%			
Denmark	0.6	0.9	5.2%	1.0	1.2	2.2%			
Norway				0.7	1.0	4.4%			
Portugal	0.3	0.5	13.0%	0.4	0.7	8.3%			
Greece	0.2	0.4	10.4%	0.3	0.5	7.4%			
Ireland	0.2	0.3	6.6%	0.3	0.5	6.5%			
EC Total	33.0	47.3	6.1%				57.5	83.1	171.0
OECD-Eur (w/o Turkey, Iceland)				54.0	78.0	4.9%			

Source: ECOTEC, OECD, Ecofin, Rovid Technology Partners³⁶

Western Europe presents an EGS market where cutting edge new technologies and catch-up with well known approaches are both needed. Even an individual country may present a case where both new and existing technologies are needed. For example, some German air quality standards are more stringent than U.S. requirements with most all western German major sources of SO₂ and NO_x already well controlled, yet many automobiles in Germany still lack catalytic converters which will be needed EC-wide for new vehicles next year. Most other Western European states have not yet reached (western) German levels of stationary source air pollution control or American levels of mobile source controls. Both will be areas of market growth. It is also possible that future EC and national policymakers may look toward California-type air standards as a model. Industrial VOC controls are another area of EGS demand in Western Europe.

³⁶OECD, op cit., T. 7; ECOTEC, op cit., T. 4; Ecofin, Rovid Technology Partners in Patrick Oster, "EC Rushing to Clean Up Environment," The Washington Post, June 14, 1992, pp. H1, H6. Note: ECOTEC's definition includes equipment and chemicals and does not include civil engineering work, waste collection costs, noise abatement, and certain other expenditures that might be included in OECD's estimates. Ecofin and Rovid Technology Partners' definitions not yet obtained. Figures are rounded to nearest \$0.1 billion.

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REVIEW ITEM E

Chapter 5

**INDUSTRIAL ASSISTANCE, ENVIRONMENTAL PERFORMANCE
AND COMPETITIVENESS**

**Office of Technology Assessment
Congress of the United States
Washington, DC**

July 7, 1992

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Rob Atkinson

Chapter 5

Industrial Assistance, Environmental Performance and Competitiveness

This chapter addresses issues related to helping manufacturers comply with regulation in ways that minimize competitive disadvantage. It will first discuss the link between environmental quality and competitive performance and how environmentally-conscious manufacturing can have competitive benefits, particularly in comparison to traditional end-of-pipe approaches. These sections have not yet been written.

The section included here discusses environmental technical assistance to help manufacturers comply with regulation, particularly to implement pollution prevention practices. It is still in early form and will be bolstered later by additional data/citations/examples. Any comments/criticisms are appreciated.

The chapter will also discuss research efforts in clean technologies, as well as regulatory issues in pollution prevention. These sections have not yet been written.

SECTION 4: ENVIRONMENTAL TECHNICAL ASSISTANCE TO MANUFACTURERS

As past OTA reports have documented, the predominant method of environmental compliance for U.S. manufacturers remains treatment, not prevention.¹ Even though pollution prevention is often the superior alternative, both environmentally and economically, few firms have made aggressive sustained efforts to integrate it into their operations. However, the process of pollution prevention is similar to the process of manufacturing modernization and as a result, firms may realize significant economic benefits from the practice of pollution prevention.

Manufacturers can turn to a number of public and private programs for assistance in preventing pollution, but unfortunately these programs are not making the difference necessary to widely diffuse pollution prevention practices. All the programs are small and most could better meet manufacturers' needs. In particular, by considering pollution prevention separately from other manufacturers' needs, particularly for productivity and quality improvements, the programs limit their impact on both pollution prevention and increased manufacturing competitiveness.

¹ U.S. Congress, Office of Technology Assessment, Serious Reduction of Hazardous Waste, OTA-ITE-317 (Washington, DC: U.S. Government Printing Office, September 1986); also OTA From Pollution to Prevention: A Progress Report Waste Reduction, OTA-ITE-347 (Washington, DC: U.S. Government Printing Office, June 1987).

This section discusses the need for pollution prevention, why firms have not adopted it on a widespread basis and what public and private efforts exist to promote it. It then discusses the limitations of the current efforts and presents several possible models that may increase the effectiveness of pollution prevention technical assistance programs.

The Process of Pollution Prevention

The EPA defines pollution prevention as "the use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes at the source. [It] includes practices that reduce the use of hazardous materials, energy, water, or other resources, and practices that protect natural resources through conservation or more efficient use."²

Several factors can make pollution prevention an attractive option for a firm. Often, firms begin the process of pollution prevention because regulatory changes require them to deal with wastes that they had not previously dealt with. At that point many seek help to solve the problem. For example, one Ohio foundry firm found that because of regulatory changes, it could no longer easily dispose of waste water used to heat and cool parts. The firm approached the Environmental Services Program (ESP) of the Cleveland Advanced Manufacturing Program to find out how they could now dispose of these liquid wastes. (see Box 5-b) .ESP found that the firm did not in fact even

² U.S. EPA, Office of Pollution Prevention, Pollution Prevention 1991: Progress on Reducing Industrial Pollutants, (Washington, DC: U.S. EPA), October, 1991.

need to use one of the two processes that generated this waste water.³ The assistance helped the firm begin to look systematically at its entire manufacturing process and reexamine long-held practices it had taken for granted. In continuing to work with firm, ESP encouraged the firm to avoid one-time fixes and instead adopt a process of continuous improvement with a goal of zero discharge.

Firms also focus on pollution prevention in the hope of reducing costs and minimizing regulatory compliance problems. In the short run, the process of pollution prevention involves incremental changes to the production system -- fixing leaking machines, storing chemicals better, possibly buying new equipment. The benefits from these activities are usually tangible and straightforward, resulting in lower costs and better environmental compliance. These costs savings can involve reduced material and energy use, lower treatment and waste disposal fees, reduced liability, and lower insurance rates. In addition, savings can result if changes increase productivity or product quality.

However, achieving more significant reductions from pollution prevention involves more fundamental changes in the production process.⁴ In fully adopting pollution prevention, management needs to move from a focus on

³ In forging metal parts the firm would heat them to around 1500 degrees Fahrenheit, let them cool, and then use this water-based solution to reheat the parts to temperatures high enough to temper them. The parts would then be cooled in water. ESP found that by moving directly from forging to tempering without letting the part cool, the firm not only avoided generating the waste water, but also saved significant amounts of energy.

⁴ OTA, Serious Reduction of Hazardous Waste, 1986.

~~compliance~~ to a strategy of continuous improvement with a goal of zero discharge, where any process that generates waste, whether the waste is regulated or not, is seen as inefficient. For many firms, this entails reevaluation of previously unexamined practices and continually seeking improvement. Changes arising from this process can benefit both the firm's environmental and competitive performance.

The Relation Between Pollution Prevention and Manufacturing Modernization

! This process of pollution prevention can lead firms toward continuous improvement and is quite similar to the process of manufacturing modernization as a whole. In fact, a number of pollution prevention technical assistance programs have realized that pollution prevention is an extension of the work that state and local manufacturing modernization programs were doing with firms, especially in the support of adoption of new production systems. OTA has extensively analyzed organizational and technological changes involved in new production systems.⁵ Various names are used to represent these including continuous improvement, total quality management, computer integrated manufacturing, just-in-time, and lean production. All involve flexible automation, statistical process control, and a whole series of technical and organizational changes. Pollution prevention is consistent with these other

⁵ See OTA, Making Things Better, and Worker Training: Competing in the New International Economy.

approaches.⁶ Some refer to these as Total Quality Management (TQM) which encompasses a set of principles that include a commitment to zero defects, statistical methods to measure success and empowerment of the workers to make improvements.

There are a number of similarities between pollution prevention and TQM/manufacturing modernization.⁷ Managers, particularly of small and medium-sized firms, are usually so busy just getting product out the door that they don't take the time to focus on modernizing the production system. They are also usually busy meeting the current end of pipe regulations and standards, so that they don't have time to focus on pollution prevention. In addition, end-of-pipe approaches, like end-of-line quality inspections, require relatively little management time and commitment compared to pollution prevention and TQM practices which can require significant upfront time commitment to get the systems established..

In pollution prevention and manufacturing modernization firms are encouraged to examine their production process in great detail and to consider changes. For example, North Carolina's pollution prevention program works with firms to gather detailed information on the plant process, including a

⁶ In a study of pollution prevention in a large multinational firm, the units that had strong TQM programs in place undertook more wide ranging and effective pollution prevention efforts than divisions with less commitment to TQM. (Ann Rappaport, Development and Transfer of Pollution Prevention Technology within a Multinational Corporation, Dissertation, Department of Civil Engineering, Tufts University, May 1992.)

⁷ For example, see Alvin Alm, "Pollution Prevention and TQM," Environmental Science and Technology, Vol. 26, No. 3., 1992; also Gene Blake, "TQM and Strategic Environmental Management," Total Quality Environmental Management, Spring, 1992.

plant flow diagram and all inputs and outputs. Manufacturing modernization programs administer similarly comprehensive process assessments related to productivity.

Both practices focus on better cost accounting and measurement. For pollution prevention, firms are encouraged to determine their true cost of pollution (e.g., future liability, materials/energy waste, waste disposal) and to allocate them to particular production processes. Similarly in manufacturing modernization, firms are encouraged to identify all the costs of a current production system (e.g., inventory, physical plant costs, reuse and scrap cost). In both practices, benchmarking progress is encouraged. For example, the environmental waste reduction program of the textile firm Milliken has grown out of its TQM program, which was recognized in 1989 as one of three winners of the Malcolm Baldrige Quality Award. Both programs involve benchmarking and gathering of detailed information to measure results. Milliken has set a goal of reducing their SARA (Superfund Amendments Reauthorization Act of 1986) emissions (both reportable and non-reportable) by 50 percent from 1991.⁸ The firm can measure progress because each facility calculates its purchases and uses of chemicals and reports this to corporate headquarters.⁹

⁸ Under SARA, firms are required to report fugitive air emissions above a certain level for certain toxic or hazardous chemicals.

⁹ Interview with J.E. Silliman, Corporate Environmental Program, Milliken and Company, June 11, 1992.

Both TQM and pollution prevention stress the need for continuous improvement.¹⁰ In TQM firms strive for zero defects, while in the best pollution prevention efforts, firms strive for zero discharges. In both cases firms set goals and follow iterative and continuous procedures that lead them in these directions.

The process of decision making is also similar. In the standard practice, the environmental manager is the one concerned with environment and the quality manager/inspector is the one concerned with quality. Both pollution prevention and TQM practices try to integrate their respective functions to all divisions of the firm. Waste reduction succeeds best when it involves all workers and managers, rather than just a few people with end of pipe responsibilities.¹¹ For example, in pollution prevention, representatives from purchasing, marketing, R&D, production, and design are all encouraged to work together to find ways to prevent pollution. Similarly, manufacturing modernization and pollution prevention often both stress increased work force participation. For example, many programs report that their best suggestions to prevent pollution come from the shop floor employees. One program argues that unless employees buy into pollution prevention and managers listen to their suggestions and give them the tools to do the job that it won't be successful. Similarly, manufacturing modernization efforts succeed best when shop floor employees are involved.

¹⁰ Ann C. Smith, "Continuous Improvement Through Environmental Auditing," Total Quality Environmental Management, Winter, 1991/92.

¹¹ OTA, Serious Reduction of Hazardous Waste, 1986.

In summary, firms that don't do pollution prevention are often firms that pay little attention to modernization and TQM, and their problems are likely to be similar -- little workforce involvement or training, little focus on true-cost accounting, and little focus on continuous improvement. (NOTE TO PANEL -- IS THERE ANY INFORMATION THAT ATTEMPTS TO QUANTIFY HOW MANY FIRMS ACTUALLY HAVE PUT IN PLACE TQM AND POLLUTION PREVENTION PROGRAMS? IN ADDITION, ARE YOU AWARE OF ANY RESEARCH THAT ATTEMPTS TO DOCUMENT THE ECONOMIC BENEFITS OF POLLUTION PREVENTION AND ITS POTENTIAL IN U.S. MANUFACTURING?)

Thus, lack of focus on pollution prevention appears to be a symptom of a broader problem in manufacturing. As a result, getting firms to focus on pollution prevention may also be a vehicle to get firms to focus on the broader task of continuous improvement. Pollution prevention can help focus the manager's attention on materials, energy, and water efficiency in the narrow sense, and overall continuous improvement in the broad sense.

Factors Limiting Adoption of Pollution Prevention Practices

There are a number of reasons why U.S. manufacturing firms have not made greater strides in putting in place cleaner production processes, even though in many cases, preventing pollution is cheaper and more environmentally-benign than end-process treatment.

Manufacturers Association provides technical assistance on waste management to smaller member companies and also sponsors an industry-wide chemical waste exchange.

U.S. trade associations could take a much more active role in providing shared pollution prevention services to their members. They could collect and disseminate information on applied research projects for their industry. For example, EPA has funded a number of innovative approaches to reducing waste in the plating industry. However, none of the project developers have approached the National Association of Metal Finishers to distribute this information. Associations could also put together a data base of waste reduction equipment and processes relevant to their members that includes informal evaluations. More proactively, they could provide technical assistance directly to their members by hiring consultants to work solely with firms in this industry.

Private Consulting Firms-- A number of state programs refer firms to private consultants for more extensive technical assistance. However, many environmental consultants are more oriented toward treatment than prevention. A small number of private consulting firms provide pollution prevention technical assistance to industry, mostly to large firms. Many provide training to help firms decide where they want to go in pollution prevention. They also help firms write pollution prevention plans either required by state law or by citizen suits filed under Section 313 of SARA. However, relative to the overall size of the environmental consulting market, pollution prevention consulting remains small. (data to be added)

Integrate Pollution Prevention Technical Assistance Into Existing Manufacturing Modernization Programs

Other government programs also aim to modernize production processes. In fact, at least three emerged before the interest in pollution prevention. In the 1970's state and federal governments established programs to help manufacturers save energy, including adopting energy-efficient process technologies and modifying existing process and practices to become more energy efficient. In the absence of a visible energy crises, government funding for these programs declined, but funding by utilities has increased. In the mid-1980s, partly in response to the increased competitive threat to U.S. manufacturing, states and the federal government established programs to help manufacturers modernize their production processes. Funding for these programs is increasing. Finally, in the area of worker health and safety, OSHA funds state technical assistance programs to help manufacturers develop safer work practices. Some states also fund part of industry training efforts, including efforts to train workers handling hazardous wastes.

The considerations in providing technical assistance to small manufacturers for energy conservation, boosting productivity, improving safety and health, and reducing waste are nearly identical.³⁷ All four activities focus on the manufacturing process. In all cases, much of the work involves convincing companies of the merit of change. Each area involves an assessment component usually using a standard protocol. The best approaches generate worker input and involvement, provide workforce training, focus on continuous improvement, and address both fundamental and incremental changes.

³⁷ Kitty Weisman, David Harrison, and Alice Shorett, Taming the Toxic Threat: Strategies to Reduce Hazardous Waste Generation in the Northwest, Pacific Northwest Policy Center of the University of Washington, Sept. 1990.

In spite of the considerable similarities in functions, these services are almost always provided by separate programs with little or no coordination. OTA interviewed several state pollution prevention officials who were not aware of manufacturing modernization technical assistance programs in their states, even though there was considerable similarity of function and potential for coordination. While many of the manufacturing modernization officials new of the pollution prevention programs, none of them had contact with the programs. With the exception of a few programs, these functions have proceeded in parallel with little overlap or coordination. These programs remain separate in large part because neither the federal government nor the states think of these programs as comprising a manufacturing strategy. Instead, they see each program as serving a specific government objective -- e.g., energy conservation, environmental protection, or job retention.

Unfortunately, this fragmented approach causes several problems. Separate programs make it hard for industry to turn to one source for technical assistance. Moreover, it becomes more difficult for programs to establish the long-term working relationships so important to instituting both pollution prevention and manufacturing modernization as a continuous process. Marketing each separate program to industry is more difficult.

Separate programs mean that service delivery is less sensitive to all the firm's needs. For example, one state official who formerly worked in a manufacturing modernization program, and who now works in a waste reduction program, reported how she used to routinely overlook pollution prevention opportunities while helping firms with manufacturing technology problems. The

modernization program focused on inventory management in the context of Just-In-Time and Manufacturing Resource Planning (MRP) but did not recognize the implications of purchasing and inventory for pollution prevention. For example, just in time purchasing could mean that fewer chemicals are kept on site, with less potential for spills or for chemicals to be kept after their expiration date. Now with pollution prevention expertise, she sees the opportunities that were missed. However, such cross-cutting perspectives are still the exception, since most technical assistance providers narrowly focus on the one area they address.

Finally, and perhaps most importantly, firms do not usually have problems that are easily separable into distinct categories of energy, environment, health and safety, and productivity. While government departments provide these services through separate programs, firms face these problems together. As a result, by running separate programs, programs sometimes miss valuable synergies in developing solutions that serve more than one need. For example, one environmental technical assistance program helped a plating firm install an on-site waste treatment system; if the advisers had broader expertise in manufacturing issues they might have seen that the firm's process for loading raw stock was very inefficient and could have been significantly improved. Pollution prevention often involves new equipment, yet pollution prevention programs do not always recognize the competitiveness benefits (reduced work in process, less labor time, etc.) from the change. As one state official commented, "if you are going to provide technical assistance to a firm, and are myopically looking at just one aspect of the company, then you aren't really helping them."

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7

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EXPORTS/IMPORTS/FINANCE

Environmental Protection Seen Good Business Practice

By PAULA L. GREEN

Journal of Commerce Staff

NEW YORK — Corporate America is trying to become a little greener — this time in ways that involve more than green dollar bills.

Increasingly, top corporate executives are seeing the public relations and cost benefits of adopting environmentally sound practices after decades of increasing pressure from activists and government regulators, analysts say.

In one of the latest attempts to improve their environmental performance, more than 200 corporate managers gathered in New York Tuesday at an environmental conference sponsored by The Conference Board.

The two-day session — the New York think tank's second on environmental issues in more than 75 years of operation — is a signal, some analysts say, that companies believe protecting the environment makes good business sense.

"To the extent that you can become more efficient and reduce your liability, you can become more profitable," said Rebecca Todd, a business professor at New York University who was scheduled to speak Tuesday. "Waste is costly. It has to be treated, hauled off. . . . You can't dump it over the fence anymore."

Added a conference participant who works for a United Kingdom-based international oil firm: "The

'To the extent that you can become more efficient and reduce your liability, you can become more profitable. Waste is costly. It has to be treated, hauled off. . . . You can't dump it over the fence anymore.'

— Rebecca Todd, Business Professor, New York University

environment is not a green, emotional issue anymore. It's become a not-well-understood economic issue, and people have to understand the implications and opportunities."

The timing of the conference, about two months before an international environmental meeting planned for Brazil, is coincidental, said Salvatore Vitale, the Conference Board's senior vice president of operations.

"But there's no doubt that companies are more concerned about environmental issues," he said.

This year's conference focuses on how companies can measure the performance of their environmental programs and the role technology can play in producing more environmentally sound production methods.

"We have to use technology to clean up dirty processes and develop new processes," said Anthony P. Graffeo, an executive at Arthur D. Little Inc., the Boston-based consulting firm. "Green processes will become less costly as the cost for pollution control goes up."

Mr. Graffeo is vice president and managing director of the firm's environmental, health and safety prac-

tice. The firm helped organize the conference. Mr. Graffeo said the recycling of aluminum is an example of how a clean technology, recycling, can substitute for a dirty technology, the smelting process. Today, nearly 85% of all aluminum is recycled, he added.

Speaking at a Tuesday session, Mr. Graffeo estimated that by the year 2000, companies would spend about \$200 billion a year on pollution control and abatement, up from \$75 billion in 1990.

But Walter Reid, a senior associate at the World Resources Institute in Washington, D.C., said U.S. companies aren't always using government environmental regulations to increase their efficiency and develop new opportunities.

While noting that the conference is an indication of the "remarkably quick change" of corporate attitudes over the past five years, Mr. Reid still has reservations.

"It's a remarkable transformation in attitude but not necessarily action," Mr. Reid said. "U.S. companies see constraints on what they do instead of market opportunities. They're not taking advantage of environmental opportunities."

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Trade Pacts Begin to Reflect Concerns Of Environmentalists, Official Says

By PAULA L. GREEN

Journal of Commerce Staff

NEW YORK — Environmentalists and international traders are finally moving toward the integration of trade pacts that will balance the needs of both groups, according to a top U.S. trade official.

"Throughout the trade and environmental world, there's an effort to balance people's need to work and people's need to save the land," said Carmen Suro Bredie, an Assistant U.S. Trade Representative. "There's been the painful integration to find the middle ground."

Ms. Suro Bredie, responsible for intellectual property, environment and technology, pointed to the recently negotiated North America free-trade agreement as a model for future trade negotiators.

"It's the first greening of a trade agreement," said Ms. Suro Bredie. The pact between the United States, Canada and Mexico was wrapped up by negotiators this August and awaits Congressional approval after the U.S. elections. Many environmental groups in the United States say the agreement doesn't go far enough to safeguard the environment.

Ms. Suro Bredie spoke here at the Global Environmental Investment Conference, sponsored by a number of groups, including the International Finance Corp., an arm of the World Bank; the United Nations Environment Programme; the Investment Management Institute. About 150 people turned out for the first day of the two-day conference, designed to encourage investment in environmentally sound projects.

A top official at the General Agreement on Tariffs and Trade, the Geneva-based organization that sets rules in world trade, said there is no

"Throughout the trade and environmental world, there's an effort to balance people's need to work and people's need to save the land."

— Carmen Suro Bredie
Assistant U.S. Trade Representative

reason why national environmental standards and international trade policies can't be integrated if executives and officials adhere to several specific tenets.

"A happy marriage between trade and environment is possible," said Richard Eglin, GATT's director of the trade and environment division, who along with Ms. Suro Bredie participated in a panel, called the Linkage between Trade and the Environment.

Environmental groups have criticized GATT for not incorporating environmental policies into the current Uruguay Round of trade liberalization talks.

Mr. Eglin said the principles to integrate environment and trade include keeping markets open and competitive, respect that not all nations can adopt the same environmental standards and use multilateral agreements to resolve international environmental disputes.

"The completion of the Uruguay Round would allow the trading system to contribute to environmentally sound standards," Mr. Eglin said. "If we stick to the principals, there's no reason why countries can't integrate environmental standards into trade policies."

Mr. Eglin said one of the biggest

questions facing international businesses is how different environmental standards among countries will be harmonized to prevent the creation of non-tariff trade barriers.

Speakers in the opening panel said the business community and public sector have to form partnerships to continue the momentum towards sustainable development created during the recent Earth Summit.

"With more market-based economies in the world, there's more of a need to engage the markets in the process," said J. Hugh Faulkner, executive director of the Business Council for Sustainable Development. "Prices must reflect all costs, including environmental costs."

The business council, based in Geneva, was formed at the request of Maurice Strong, the UNCED secretary-general, with a mandate to encourage the input of business and industry in the UNCED agenda.

Mr. Faulkner said companies and countries must adopt the practice of "eco-efficiency," in which value is added to products while maximizing resources and minimizing energy and pollution.

"Those countries and companies that adopt eco-efficiency will enjoy enormous competitive advantages," Mr. Faulkner added. "UNCED was unique because of the partnership that evolved. For the first time, business was drawn into the play."

The Earth Summit, sponsored by the United Nations Conference on Environment and Development in June, brought together government, environmental and industry leaders from around the world to set an agenda for environmentally sound growth in the next century.

to set up and operate wholly foreign-owned enterprises" in a special economic zone, the country's official Korean Central News Agency said Tuesday.

Another law allows foreign companies in joint ventures with North Korea to operate in tourism, service and export-oriented sectors.

North Korea will give foreign companies a three-year tax break.

Police Held Target Of Moscow Blast

MOSCOW — A grenade attack that injured eight people lining up outside the Moscow branch of McDonald's restaurant was aimed not at the firm, but at a nearby police station, Yuri Fedoseyev, the head of Moscow police criminal investigations department told reporters Tuesday.

He said one of two suspects detained after the Monday evening blast, which broke windows in the police station in Moscow's central Pushkin Square, had a history of clashes with police.

6 Envoys Visit Miami To Spark Asia Trade

MIAMI — The ambassadors of six Southeast Asian countries visited Miami Monday at the start of a three-city get-acquainted tour to spark interest in investment and trade with the region.

The U.S.-Asean Council, a private Washington-based organization, sponsored the one-day meeting. The council promotes trade and also manages a fund for business development granted by the Agency for International Development.

More than 150 local entrepreneurs and executives had a chance to hold one-on-one meetings with the six ambassadors to the United States from Brunei, Indonesia, Malaysia, the Philippines, Singapore and Thailand.

From Wire and Staff Reports

Trade Policy/Environment
12/21/92

TESTIMONY

of

John J. Sheehan
Legislative Director
and
Assistant to the President

UNITED STEELWORKERS OF AMERICA

Before the

Subcommittee on International Trade
Committee on Finance
United States Senate

on

An Environmental Code for the World Trading System

October 25, 1991
Washington, DC

Testimony of John J. Sheehan
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Since the commencement of the Uruguay Round, international attention has been placed upon the global-nature of industrial development. Trade is not just international in the sense that it reflects the export/import policies of national economies, but is indeed becoming global in the sense of one world market - or at least a few regional markets. The North American Free Trade Agreement is one expression of this trend. National economic policy is no longer the exclusive force in a country's domestic economic activity.

Parallelling globalism in trade relationships, there is also the awareness that environmental policy can no longer be exclusively national in scope. Trans-border emissions are not amenable to national pollution control measures and the linkage to trade flows becomes evident when certain national environmental standards can create an economic burden to the producers subjected to the regulations when other nations choose not to impose comparable requirements.

The linkage to trade policy was explicitly raised with reference to the "fast track" rule which is to be applied to the ratification of the forthcoming Mexican Free Trade Agreement. Previous GATT negotiations tangentially treated the relationship by raising the issue as to whether national environmental standards were in fact nontariff barriers. We are now on the threshold of a more positive definition of the relationship to trade policy not only because of the environmental consequences, but also because of the economic consequences for a failure to do so. An essential characteristic of that linkage are the trade sanctions which can be applied where environmentally unsound products or processes are involved in foreign commerce.

The use of trade embargoes for other national/international objectives has demonstrated that trade restrictions have been successfully implemented as a useful tool to induce compliance with stated diplomatic objectives. The use of trade sanctions, either under a GATT code on environmentalism, or a nation's trade laws, is an appropriate and, increasingly, necessary expansion of the linkage. The Administration's May 1, 1991 response to the

Congress with regard to the issues raised over NAFTA indicated:

"Mexico and the United States are committed to a cooperative program that will encourage sustained economic growth and environmental protection in both countries ... the two are complementary and must be pursued together." (Emphasis added).

An explicit linkage with trade treaties, either GATT or NAFTA, would accelerate the pursuit and ensure complementary progress through a trade-related enforcement mechanism.

Environmental Consequences:

At the outset, it is important to disabuse those trade professionals who may have a tendency to view environmental requirements as obstacles to trade. The recent Mexican dolphin/tuna decision rendered by a GATT dispute settlement panel is a case in point. Furthermore, there have been efforts to harmonize environmental standards at the lowest denomination level and to consider more stringent standards as being trade barriers. Senator Baucus' September 17 floor statement quite rightly indicated that the development of a GATT Environmental Code "is likely to be decades away." Quick fixes at harmonization levels must be avoided as interim measures. Nevertheless, the need to negotiate a GATT environmental code remains paramount, especially where broad ecology damage is caused by multinational sources, as

in the case of CFCs and the warming trend. Recalcitrant nations, through trade sanctions, should be deprived of any economic advantages to be gained by non-compliance with such standards.

Indeed, developing countries, desperate for a source of wealth and job creation, should not be made victims by multinational corporations which push for governmental policies, designed to promote a regulation-free environment as an inducement for their plant location and industrial investments. Where plant relocations are involved, both the economic welfare of the dislocated workers and the environmental health of the new workers are threatened.

There is, moreover, a category of ecological requirements which can be effective only if they are promulgated on an international basis and for which trade sanctions can provide a recognizable and acceptable means of enforcement.

Economic Consequences:

Workers are constantly confronted with the contention that there are adverse economic impacts to environmental regulations. In bolder terms, we face the threat of

environmental blackmail. Workers have attempted to resist the option of "your job or your health" and have maintained:

"In the long run, the real choice is not jobs or environment. It is both or neither. What kind of jobs will be possible in a world of depleted resources, poisoned water and four air, a world where ozone depletion and greenhouse warming make it difficult even to survive?"

USWA Convention, 1990

However, as industrial activity expands beyond national borders and comparative advantage presumably dictates the flow of trade profits, it is too easy for industrial sources to oppose further environmental improvements in the name of competition. As a matter of fact, as the control requirements move beyond being identified with broad environmental goals and are designed to reach specific health-based objectives (e.g. risk-based standards in air toxics), there is legitimacy to the concern about unfair trade competition.

Addressing that potential should be a key focus as we move to more comprehensive levels of environmental awareness. A nation must be able to protect the public health of its citizens. It is not enough merely to neutralize the potential of future GATT settlement panels which might declare certain eco-requirements as trade

barriers. There must also be a response to the potential of unfair competition within our own markets. The scope of U.S. trade laws dealing with unfair trade practices must be expanded to include coverage of unfair environmental competition.

The integration of trade law sanctions has already been established to enforce internationally recognized labor rights. Labor rights provisions have been placed in CBI, GSP, OPIC and Section 301 of the trade law. An integration of environmental means could counteract:

- o unfair competition in our own marketplace,
- o flight of domestic plants to regulation-free environments overseas,
- o environmental blackmail arguments during both the legislative and the rule-making phase in development of environmental standards.

During the debate on the Clean Air Act, Senator Gorton proposed an amendment to allow GATT signatories to impose duties on another country's goods that do not comply with comparable Clean Air standards. Senator Lautenberg proposed to amend Section 301 so as to expand the definition of unreasonable trade practices which burden or restrict U.S. commerce to include "a failure to establish effective

natural resource protection and effective pollution abatement and control standards to protect air, water and land."

A recent report by the Environmental and Energy Study Institute, entitled "Partnership for a Sustainable Development," highlighted the need to make GATT an instrument for a more environmentally sensitive world trade system:

"Governmental institutions responsible for trade negotiations have had neither the mandate nor the expertise needed to address the relationships between trade and sustainable development. Because of GATT's silence regarding environmental objectives, environmental regulations that affect the ability of foreign firms to penetrate domestic markets, as well as national and international policies aimed at conserving natural resources through trade restrictions or tariff surcharges, are vulnerable to challenge and GATT sanctions."

The NAFTA negotiation provides an opportunity to promote the linkage, especially since we are dealing with contiguous nations intent upon a free flow of trade. If the trade negotiations are unable to develop a NAFTA Environmental Code comparable to the suggestion offered by Senator Baucus for a GATT Environmental Code, perhaps the enabling legislation could include a unilateral change in

the countervailing duty section to establish a system of environmental duties.

An October 23, 1991 letter from Majority Leader Gephardt and Congressmen Levin, Moody, Pease and Wyden to Ambassador Hills regarding the NAFTA negotiations states:

"There is a growing understanding that trade and the environment can no longer be treated as separate subjects ... international trade is not just about tariffs and prices anymore and the treaty ...[must address]... in a serious way the environmental and public health issues raised by the increased investment and trade between the countries, not just in the border zones, but within the entire sovereign boundaries."

As the economics of the world are being integrated into one global market place and as the national environmental policies are either proving to be inadequate in terms of coping with global ecological challenges, or being vulnerable to erosion due to economic trade pressures from less environmentally regulated industrial systems, trade treaties and trade laws must incorporate environmental considerations. The so-called level playing field for trade flows will remain uneven unless environmental considerations are an integral part of the trading system. Not only will the trade field be uneven, so also will the environmental regime, national and international. The victims will be the

victims will be the environment and fair trade. The trade obstacle which must be removed is the lack of adequate standards. GATT and NAFTA must initiate the linkage.

Environmental and Labour Standards in Trade

Steve Charnovitz

1. INTRODUCTION

ALTHOUGH neither the environment nor labour is a new issue in international trade, the recently heightened awareness of trade's social dimension presents a new challenge to the GATT system. The stakes are high — for both commerce and the ecosystem. The debate is complex — encompassing not only economic concerns, but scientific and moral ones as well.

In the Uruguay Round, a few environmental issues are already on the table in the agriculture, standards, and subsidy negotiations.¹ Some environmentalists have raised objections to the proposed agreements, and are threatening to oppose the Uruguay Round unless it is broadened to consider GATT's role in the attainment of 'sustainable development'. While that approach is not even being considered by trade negotiators in Geneva, GATT Director-General Arthur Dunkel does agree that the nexus between trade and the environment should be a key concern for the 1990s.

In the North American Free Trade Agreement (NAFTA), the Bush Administration pledged to Congress that it would include the environmental issues 'related to trade' in the agreement with Mexico and would 'maintain the right in the FTA to exclude any products that do not meet [US] health and safety requirements'.² The Congress will likely assess any agreement against those commitments. Even more than in the Uruguay Round, the effects of freer trade on workers and the environment will be central issues in the NAFTA debate. Trade experts are beginning to examine them.³

The eco-politics of trade took a surprising turn in 1991 when a dispute panel ruled that the US Marine Mammal Protection Act was GATT-inconsistent

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¹ See Charnovitz (1992) for an analysis of the environmental aspects of the Uruguay Round.

² US House of Representatives (1991), pp. 20, 80.

³ For example, see Hufbauer and Schott (1992), especially chapters 6, 7, and 16.

because it forbade the importation of tuna from countries with higher dolphin kill-rates than the United States.⁴ Although there are some technical aspects of the law which undoubtedly violate the GATT, the panel went far beyond that point by declaring that a nation could not use import bans to protect the environment outside of its jurisdiction.

This mind-your-own-business attitude of the GATT panel infuriated many in the environmental and 'public interest' communities. Ironically, it also played into the hands of anti-GATT activists who were quick to brand the Tuna-Dolphin decision as a 'GATTastrophe' for the environment.⁵ The panel's decision is viewed by some observers as a threat to decades of progress in international environmental regulation.⁶

Since 1990, a growing band of environmentalists has portrayed the GATT as a mossback, parochial institution threatening the goals of sustainable development and public health.⁷ Defenders of the GATT had dismissed, as misinformed paranoia, the notion that the CONTRACTING PARTIES would ever try to undermine national environmental standards. But with the Tuna-Dolphin decision, the activists now had a 'smoking gun.'⁸ If a 19-year old conservation law (not generally perceived to be protectionist in intent) could be viewed by a GATT panel as a fundamental violation of world trade rules, then it became easy to explain to the public why such rules were in need of reform.⁹ The case for reform was buttressed by the fact that the same logic employed by the panel could be used to challenge bedrock environmental treaties like the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Montreal Protocol on Substances that Deplete the Ozone Layer.

This article examines the relationship between environmental protection, workplace conditions, and world trade. Section 2 provides an overview of the major issues, emphasising the congruence of the ecological and labour critiques.

⁴ The panel found that the US law violated GATT Article XI, did not qualify as an internal regulation under Article III, and did not qualify for the exceptions in Article XX (b) and (g).

⁵ Slogans abound: The GATT, it is said, stands for 'Guaranteeing A Toxic Tomorrow'. The environmentalists are accused of favouring TREEP — 'Trade Related Environmental Excuses for Protectionism'.

⁶ Dianne Dumanoski, 'Free-trade Agreements Could Undo Pacts on Environment', *The Boston Globe* (7 October, 1991), p. 25.

⁷ For example, see Morris (1990), 'Trading Our Future: Talking Back to GATT'; Schaeffer (1990), 'Trading Away the Planet'; Rauber (1992), 'Trading Away the Environment'; and Shrybman (1992), 'Trading Away the Environment'.

⁸ An examination of the tuna-dolphin decision is beyond the scope of this article. It can be argued that the panel distorted GATT's preparatory history and erred in analysing Articles III and XX. In the author's opinion, the panel report does GATT an injustice by falsely implicating it in an anti-environmental stance that the institution need not and should not have done.

⁹ Last fall, posters appeared along Washington DC streets depicting a monstrous 'GATTzilla' — with a dolphin in one arm and a canister dripping DDT in the other — stomping on the US Capitol. One GATT Secretariat official told a Washington group that the depiction was unfair, but that he welcomed seeing a GATTzilla with teeth.

Section 3 analyses the use of trade controls and Section 4 reflects upon the future of these issues in trade policy and offers some recommendations.

2. OVERVIEW OF ENVIRONMENTAL AND LABOUR ISSUES

The connection between international trade, public health and conservation has long been established.¹⁰ By the early 20th century, the United States and several European nations had begun using treaties to safeguard Nature from Mankind and Labour from Management. These early efforts served as building blocks for the extensive protections erected over the following decades.

a. International Environmental Regulation

One of the first agreements to use import bans for conservation was the Fur Seal treaty of 1911 between Great Britain, Japan, Russia, and the United States.¹¹ This treaty regulated pelagic hunting and prohibited the importation of seals and sea otters caught in unlawful ways. The agreement was needed because the solitary action by one nation to ban sealing would have been unsuccessful. Multilateral cooperation was required. As the US House Foreign Affairs Committee noted at the time, the treaty illustrated 'the feasibility of securing a general international game law for the protection of other mammals of the sea, the preservation of which is of importance to all the nations of the world'.¹²

By 1927, when the League of Nations convened a conference to deal with the growing frictions in world trade, many nations had adopted laws or treaties that banned imports or exports for environmental reasons. While the conference sought to reduce national trade restrictions, the parties agreed to exempt measures taken to preserve animals or plants 'from degeneration or extinction'. The resulting Convention (and Protocol) for the Abolition of Import and Export Prohibitions and Restrictions went into force briefly before being abandoned during the worldwide explosion of protectionism in the early 1930s.

The United Nations Conference on Trade and Employment of 1947-48 endorsed even broader exemptions for health and environmental purposes. GATT Article XX (General Exceptions) permits measures 'necessary to protect human, animal, or plant life or health' or 'relating to the conservation of exhaustible natural resources'. To qualify for these exceptions, a law cannot arbitrarily discriminate between countries where the same conditions prevail or be a 'disguised restriction' on international trade.

¹⁰ Faries (1915), pp. 51-52.

¹¹ For a more detailed historical account of the linkage between environmental protection and trade policy, see Charnovitz (1991), pp. 38-47.

¹² US House of Representatives Report No. 295, 62nd Congress, 2nd Session (1912), pp. 2-3.

Over the next four decades, many environmental treaties utilised border restrictions. The Montreal Protocol (as amended in 1990) broke new ground by *mandating trade discrimination* against countries not signing this treaty. Parties to the Protocol are forbidden from importing chlorofluorocarbons (CFCs) from non-signatories not complying with the requirement to phase out CFCs. In 1993, analogous bans will go into effect for imports of products containing CFCs and for exports of CFCs to non-signatory countries. These trade controls are designed to prevent the transfer of production to nations that might otherwise seek to specialise in environmentally-harmful trade.

In recent years, the United States has enacted several laws that aim trade restrictions at countries with inadequate conservation practices. In 1988, Congress amended the Marine Mammal Protection Act to tighten the embargo on fish caught using methods causing a high rate of dolphin mortality.¹³ Under court order, the Bush Administration banned yellowfin tuna (caught by purse seine nets) from Mexico, Venezuela and Vanuatu. Mexico responded by filing a complaint at the GATT.¹⁴ Although the GATT panel ruled in its favour, Mexico agreed to shelve the report, at least temporarily, in order to defuse environmental opposition to the NAFTA. When this case was discussed at the GATT Council earlier this year, the panel's decision was supported by delegates from 35 nations. No one supported the United States.

Last year, the US Department of State ordered an import ban on all shrimp from Suriname in order to safeguard endangered sea turtles. This ban was lifted several months later after Suriname agreed to require 'turtle excluder devices' in trawling vessels as the United States and most other nations do. The Bush Administration is currently reviewing the conservation commitments made by eleven nations to protect turtles. A decision is due by May 1992 as to whether additional shrimp-harvesting countries will face import bans.

Recognising the potential for conflicts regarding pollution control, the GATT — in 1971 — established a working party on 'Environmental Measures and International Trade'.¹⁵ But this group was not convened. At the GATT Ministerial in December 1990, the members of the European Free Trade Association initiated an effort to revive the working group and broaden its mandate. This step was resisted for months by ASEAN and other developing

¹³ The law permits foreign nations to exceed US kill-rates by up to 25 per cent.

¹⁴ It should be noted that since the mid-1970s, the United States has sought international cooperative agreements to protect marine mammals threatened by commercial fishing. (For example, see Marine Mammal Commission, 1978, pp. 40-41.) Until very recently, Mexico has shown no interest in such agreements. For example, in January 1991, Mexico refused to endorse the intergovernmental La Jolla resolution committing parties to cut dolphin mortalities to one-half the 1989 rate.

¹⁵ See Tumlin (1976), p. 114.

countries. Finally, at the end of 1991, the group (chaired by Japan) held its first meeting.

b. International Labour Standards

Even as the first 'factory acts' to protect workers were being enacted in Europe during the early 19th century, a few visionaries began to recognise that foreign competition made it difficult for nations to regulate alone.¹⁶ Several international meetings were held to deal with this dilemma. But little was achieved until 1905 when Switzerland hosted a conference to propose binding international labour treaties. The most important of these Berné Conventions related to a horrible occupational disease caused by the white and yellow phosphorus used in manufacturing matches. The Convention called on each party to ban the production and *importation* of matches made with these toxic chemicals. It became the first international agreement to use import controls as a means of safeguarding foreign and domestic workplace safety.

For some problems, a unilateral response proved feasible. The United States acted alone to protect American industry against unfair competition from goods made by prison labour. After Congress banned the importation of convict-made goods in 1890, other nations followed.¹⁷ Although the United States proposed an express limitation on 'involuntary' labour at the UN Conference on Trade and Employment, the GATT does not restrain trade in prison-made goods.¹⁸ Instead, GATT Article XX(e) allows governments to impose *unilateral* prohibition, if they want to do so. Although the US Congress in 1988 urged President Ronald Reagan to improve enforcement of the US import ban, little action was taken until 1991 when press accounts made it clear that China was exporting products made in prison camps.¹⁹

The growing interest in raising labour standards was given extensive consideration during the Paris Peace Conference of 1919, at which time an entire section on labour was incorporated into the Treaty of Versailles. To appreciate the significance of labour standards in that era, one has to recall the industrial unrest in Europe and America that had preceded World War I and the desire of governments to forestall renewed class conflict. As President Woodrow Wilson explained during his national speaking tour advocating ratification of the Treaty:

¹⁶ For a detailed account of the linkage between labour standards and trade policy, see Charnovitz (1987).

¹⁷ Great Britain, 1897; Australia, 1901; Canada, 1907; New Zealand, 1908; South Africa, 1913.

¹⁸ See Brown (1950), p. 138.

¹⁹ For example, see 'China's Ugly Export Secret: Prison Labor', *Business Week*, 22 April, 1991, pp. 42-44. In March 1992, President Bush vetoed the United States-China Act which established new conditions for China to meet in order to get its most-favoured nation status renewed in 1992. Among those conditions were that China had to make overall significant progress toward certain human rights objectives, such as preventing the export of products made by prisoners.

'...all through the world the one central question of civilisation is: *What shall be the conditions of labour?*'

The Treaty of Versailles pledged nations to 'endeavour to secure and maintain fair and humane conditions of labour' not only in their own country but 'in all countries in which their commercial and industrial relations extend'.²⁰ To further this goal, the Treaty established an International Labour Organisation (ILO).²¹ As Senator Daniel Patrick Moynihan (D-NY) has pointed out, the ILO was seemingly the least likely institution created by the Treaty to survive. Yet it is the only one that did.

Since 1919, the ILO has adopted 172 Conventions establishing labour standards for virtually every aspect of employment and labour relations.²² The ILO is unique among UN agencies in being a tripartite institution consisting of government, worker, and employer representatives from its 152 member countries. Although it became overly politicised during the 1970s, the ILO has refocused its efforts and regained international respect. Last year, the United States ratified the ILO Convention on the Abolition of Forced Labour. This marks the first time since the Roosevelt Administration that the US Senate has approved a substantive ILO treaty.

At the London Monetary and Economic Conference of 1933, the Subcommittee on Commercial Policy considered a proposal to exempt countries from most-favoured-nation obligations when they undertook treaty commitments to 'maintain a certain standard of living for their population'.²³ The Conference took no final action on this or any other proposal however.

In writing the (Havana) Charter for the International Trade Organisation (ITO), the UN Conference on Trade and Employment agreed to the need for an article on 'fair' labour standards. In a provision initially drafted by Mexico, South Africa, and the United States, the ITO Charter stated that 'Members recognise that unfair labour conditions, particularly in production for export, create difficulties in international trade', and committed nations to eliminate such conditions within their territory.²⁴ If complaints regarding low labour standards were taken to ITO dispute settlement, the Charter called for the International Trade Organisation to cooperate with the ILO.

The ITO never went into operation however. Despite the urging of President Harry S. Truman, the US Congress failed to approve American membership, thus dooming the new organisation. Since it had been assumed at the UN

²⁰ 225 Consolidated Treaty Series 188, 204.

²¹ It is interesting to note that the ILO Constitution refers to the need to promote 'a high and steady volume of international trade', while the GATT's preamble states only the objective of a 'substantial reduction of tariffs and other barriers to trade'.

²² ILO Conventions have always taken into account the special needs of the LDCs.

²³ Monetary and Economic Conference (1934), p. 27.

²⁴ UN Docs. E/CONF.2/C.1/A/W (1947) and E/CONF.2/78, Article 7 (1948).

Conference that the ITO would supersede the GATT, the ITO chapter on employment and labour (among many others), was not included in the GATT.

The United States has sought several times to remedy this omission — so far unsuccessfully. In 1953, the Eisenhower Administration suggested inserting the ITO's labour standards clause into the GATT, but no action was taken.²⁵ In 1979, the Carter Administration proposed a short code of minimum international labour standards, but received support from only a few countries.²⁶ At the GATT Ministerial at Punta del Este in 1986, the Reagan Administration failed to get worker rights added to the Uruguay Round agenda.²⁷

In an effort to meet its statutory mandate, the Bush Administration has pressed for a GATT working party simply to *study* the link between labour rights and trade.²⁸ But even this initiative has been blocked by fierce opposition from LDCs — particularly Mexico and India — who criticise the concern about worker rights as 'protectionism' and point to the ILO, rather than the GATT, as the proper forum.²⁹

In the US Omnibus Trade and Competitiveness Act of 1988, the Congress made clear that the failure to provide certain worker rights could be considered an 'unreasonable' trade practice against which the USTR might retaliate under Section 301 (of the Trade Act of 1974). So far, neither the Trade Representative nor private parties have initiated any complaints under this provision.

c. Fairness



Environmental and labour issues intersect trade policy in two main ways.³⁰ First, there is a concern about the terms of trade — that is, whether disparate environmental and labour standards allow fair competition. Second, there is a concern about the effects of trade — that is, whether trade degrades the environment or injures workers. (The effects of trade will be discussed in the next section.)

The most prominent concern about fairness is the reliance by certain nations upon low standards in order to boost exports — a practice known as 'social

²⁵ US Commission on Foreign Economic Policy (1954), pp. 437-438.

²⁶ The standards suggested were: (1) the establishment of maximum exposure levels for the most toxic substances in the workplace (such as mercury and asbestos) and (2) a prohibition on maintaining lower labour standards in production for export than in domestic production.

²⁷ US House of Representatives Doc. 102-51 (1991), pp. 111-112.

²⁸ GATT Doc. C/M/245, p. 23.

²⁹ The ILO has competence to act on the issue of fair labour standards in trade, but has been willing to yield to the GATT. See ILO (1988), pp. 56-62 and Economic Policy Council (1991), pp. 27-29, 49.

³⁰ A related issue not treated in this article is the impact of trade restrictions and subsidies on the environment.

dumping'.³¹ For instance, if the United States enacts a stringent Clean Air law, then the ensuing higher costs may place some of its industries at a competitive disadvantage vis-a-vis foreign producers who enjoy lower or no standards. Such inter-country differences could, in theory, result in (1) domestic production being displaced by 'dirty' imports, (2) exports being underpriced by unregulated foreign competitors, or (3) new investment being diverted to polluter havens.

But the significance of such effects in practice is uncertain. Several studies, mostly from the 1970s, found little confirmation that differences in pollution control costs have changed international trade patterns.³² On the question of capital flight, however, there is evidence that some 'dirty' industries have shifted their operations to lower-standard countries (e.g., Mexico).³³ But even if the competitive effects were small in the past, factors such as rising compliance costs in industrial countries, increasing globalisation of corporations, and improving investment climates in some LDCs could accelerate trade shifts in the years ahead.

Recognising the inadequacy of current data, the US Congress — as part of the recent Clean Air Act amendments — mandated a study of the impact of foreign air quality standards on American competitiveness.³⁴ The President's report, due in May 1992, must also recommend a strategy for addressing this issue through trade negotiations.

Assuming that the regulatory cost differences between high and low standard countries are significant enough to affect trade, one might then ask whether such differences should be characterised as *unfair*. The orthodox view is that high-standard countries set their standards voluntarily, and thus cannot be victimised by low-standard countries. The liberal rejoinder, enshrined in the Treaty of Versailles, declares that the 'failure of any nation to adopt humane conditions of labour is an obstacle in the way of other nations which desire to improve the conditions in their own countries'.³⁵ Fortunately, the experience of the past seven decades shows that while such obstacles exist, they are not insurmountable. Many countries have raised their labour and environmental standards in spite of non-progress by their trading partners.

³¹ It is unclear when this term originated, but it was common parlance during the World Economic Conference of 1927 (in reference to poor labour conditions).

³² See Dean (1991). There is little literature on the impact of differing labour standards on trade.

³³ For example, see Judy Pasternak, 'Firms Find a Haven From US Environmental Rules' *Los Angeles Times* (19 November, 1991). See also Pearson and Repetto (1991), at Appendix A.

³⁴ Another US law (33 USC 1251 note) mandates an annual analysis by the US Department of Commerce on the effects of pollution abatement on trade. The analysis must also examine whether 'the imposition of a compensating tariff or other equalising measure' would encourage foreign nations to implement pollution control.

³⁵ 225 Consolidated Treaty Series 188, 373.

To deal with these obstacles, it is sometimes suggested that the United States fight back against 'eco-dumping' by levying a countervailing duty on imported products made under lax environmental standards. During its considerations of Clean Air legislation in 1990, the US Senate considered (but did not adopt) an import fee equal to the difference between US and foreign pollution control costs.³⁶

It is easy to find fault with using countervailing duties in this way. From a legal perspective, such levies would violate the GATT. From a welfare perspective, it may be American consumers, rather than foreign polluters, who end up bearing the tax. From a development perspective, the United States may undercut its case to low-standard countries that they should raise standards for their own good when too much emphasis is placed on the burdens of environmental regulation. Nevertheless, the potential danger from unilateral legislation of this type has probably been exaggerated. If the competitive effects of different levels of pollution control are as small as many analysts suggest, then the impact of a corresponding 'social tariff' would be similarly small.³⁷

2 A second fairness-related concern is that a government may assist its exporters by acquiescing in substandard conditions that deviate from customary national law. For example, if a government helps to establish a 'union-free' enclave within a country that generally permits collective bargaining, that action could be characterised as an indirect export-subsidy. A recent analysis by the US Department of Labor found that in five out of eleven nations studied, labour rights in export processing zones were restricted in comparison to rights prevailing outside the zones.³⁸ For example, the government of Malaysia prohibits national unions in the two industries, electronics and textiles, that account for most of its export zone employment.

3 A third concern is that governments may subsidise the pollution control costs of their manufacturers. Unlike the issues above, this problem has received considerable attention at the international level. In 1972, the OECD adopted the 'polluter-pays principle' to discourage such public support. The draft agreement of 1990 prepared for GATT's Brussels Ministerial permitted governments, under certain conditions, to subsidise up to one-fifth of the costs of meeting new environmental regulations. But this 'green light' for green subsidies was inexplicably omitted in the 'Dunkel Text' of 1991.

³⁶ The amendment of Senator Slade Gorton (R-WA) — requesting the House to initiate such a tariff — was tabled (dismissed) by a vote of 52-47. See *Congressional Record*, 101st Congress, 2nd Session (1990), S3000-3025.

³⁷ According to one study, if the United States imposed a 'pollution abatement cost equalization' tax on Mexico, that country at most would suffer around a two per cent loss in export earnings. See Low (1991).

³⁸ US Department of Labor (1990). This is a biennial report required under the Omnibus Trade and Competitiveness Act of 1988.

(4)

A fourth concern is that nations may resort to unreasonably high standards in order to restrain imports.³⁹ A century ago, some of the most serious trade disputes involved sanitary laws for preventing animals and plant diseases. Today, the big controversies relate to human health — particularly food safety.⁴⁰

One of the cardinal principles of the GATT is 'national treatment' which provides that regulations on imports should be no less favourable than for 'like' domestic products. For example, a country may ban the importation of automobiles without catalytic converters if domestic producers are obliged to install such converters too. Food safety rules engender difficult trade disputes not because such rules violate national treatment, but because they *adhere* to it (at least superficially).

When the EC in 1989 banned beef produced using growth hormones, the US government could not complain that the new rules discriminated against American producers since the hormone ban applied to European producers as well.⁴¹ Instead, the Reagan Administration contended that the ban was not justified scientifically and, thus, was an 'unnecessary obstacle' to trade. To underline its objections, the Administration retaliated against the EC by imposing tariff rates of 100 per cent *ad valorem* on foods such as dried tomatoes and fruit juice.⁴² (Whether such tariffs punish domestic gastronomes more than foreign farmers is an open question.) Last year, the EC began admitting some US beef — certified hormone-free by the Community — and the Bush Administration reciprocated by dismantling some of the retaliatory tariffs.

To deal with such disputes, the US government has sought new disciplines in the Uruguay Round. The original proposal announced by President Ronald Reagan was to institute 'uniform food health regulations around the world to prevent non-tariff barriers to agricultural trade'.⁴³ After criticism from public interest groups which reasoned that such a procrustean goal could only imply *lower* food standards for the United States, the Bush Administration revised the US proposal. The Sanitary and Phytosanitary code now being considered (Dunkel Text) calls for a 'harmonization' of food regulations based on standards set by the Codex Alimentarius Commission, a UN subsidiary agency. Countries will be able to maintain health standards higher than Codex only if there is a 'scientific justification' and other procedural requirements are met.

³⁹ Standards that are too low can be an unfair trade incentive. Standards that are too high can be an unfair trade barrier.

⁴⁰ While this issue need not be classified as 'environmental', it is commonly included under that rubric.

⁴¹ See 'Brie and Hormones', *The Economist* (7 January, 1989), p. 21.

⁴² Although the US meat industry was concerned that (excessively) high EC food standards were costing US exports, there was an additional motivation for refusing to adapt to the EC requirements — namely, that American consumers might demand the same standard for domestic production.

⁴³ *Public Papers of the Presidents*, Ronald Wilson Reagan (1987), p. 797.

Although the food safety talks have received little attention in the press, the proposed code is one of the main reasons why many environmental and consumer organisations criticise the GATT. They believe that the new rules would make it more difficult for health-conscious countries to keep out imports produced using dangerous pesticides, antibiotics, or unsafe additives. Not only will experts disagree in quantifying risk but, more importantly, science cannot answer the question of what value the public *should* place on risk reduction.

d. Negative Effects

Another major concern is the physical impact of trade on workers and the environment.⁴⁴ In the language of economists, this issue involves the 'negative externalities' of production, sale, use, or disposal. From a philosophical approach, it reflects a clash between worker rights, species rights, property rights, and the rights of the future generations.

Regardless of the terminology, it is important to note that these concerns (in principle) are wholly independent of the fair-trade perspective. For example, the objection to child labour is not that using young workers provides competitive advantage. It is that using child labour is *wrong* because it endangers children and prevents them from attending school.⁴⁵ Similarly, when the Congress imposed the 'Sullivan Principles' on US companies operating in South Africa, it did not do so in order to equalise South African and American labour costs. It did so to assure that US companies operating there respected minimum labour rights that transcend nationality.

Paralleling the concern for worker rights is a concern for 'species rights'. Since the early 20th century, conservation treaties have recognised the responsibility of *consuming* nations in making wildlife protection effective. But in recent years, a few nations have become increasingly willing to act outside the umbrella of treaties by imposing unilateral restrictions. For example, the EC recently approved a regulation to ban fur imports after 1994 from countries (like the United States) that permit the use of painful 'leghold' traps. In spite of the unilateral American measures to protect porpoises and turtles, the Bush Administration has objected to the proposed EC fur ban as being 'arbitrary'.

The transfer of toxic production and waste from rich to poor nations raises difficult moral as well as health quandaries.⁴⁶ While economists tend to cite different 'endowments of absorptive capacity' for pollution as justification for the shift of dirty industries to LDCs, environmentalists suggest that a more important factor is the willingness of political elites to expose their population

⁴⁴ The labour and environmental concerns overlap in the area of occupational health.

⁴⁵ The ILO approved its first treaty on child labour in 1919.

⁴⁶ See Michael Prowse, 'Save Planet Earth From Economists', *Financial Times* (10 February, 1992), p. 26.

(but usually not themselves personally) to high risks. Some of these issues are addressed in the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.⁴⁷ But its new rules regarding international trade in waste are vulnerable to challenge in the GATT because the treaty requires discrimination aimed at protecting foreign health.

Another source of trade conflict involves recycling and packaging laws. For example, California bans beverage containers with a ceramic bottle stopper because that interferes with recycling. But in Denmark, beer bottles are equipped with a ceramic stopper so they can be sterilised and reused. How should international trade rules deal with disputes stemming from environmentally-friendly policies that are inconsistent across nations? Other emerging issues are product standards based on recycled content and standards that require reuse.⁴⁸ Such laws can accord national treatment but still be *de facto* barriers to importers who may lack a local network.

Finally, there are the global environmental considerations. The conventional approach has been to look to each nation to determine its appropriate level of pollution control. But this passive attitude is now changing. As scientists have learned more about global warming, deforestation, and ozone depletion, there is a growing willingness to enlist trade policies in the fight against irreversible damage to the planet. For example, an international association of legislators called 'GLOBE' has urged its members to seek a ban on log imports from Sarawak, until Malaysia adopts sustainable timber management practices. Environmental protection regimes are no longer viewed simply as matters of national sovereignty.

So far, no disputes regarding the trade controls of the Montreal Protocol have been taken to the GATT. But if the new CFC restrictions pass GATT muster (or perhaps even if they don't), one can anticipate similar trade measures being included in future environmental agreements in order to encourage universal participation. There have also been proposals to use economic sanctions against nations that fail to participate in joint environmental efforts.

e. Objections to Linkage

Several objections are raised against expanding international trade rules to include environmental protection and worker rights. It is often said that every nation has the sovereign right to determine its own social policies.⁴⁹ From this

⁴⁷ See US Senate Treaty Doc. 102-5, Articles 4-11.

⁴⁸ Nine (US) states have enacted recycled content requirements for newsprint, trash bags, glass containers or plastic containers. These provisions apply variously to manufacturers, to sellers, or to business users.

⁴⁹ Wrapping a flag around national social policies is not a convincing defence for countries that do not determine such policies democratically.

point of view, predicated trade on whether other countries follow certain policies is coercive, intrusive, and paternalistic.⁵⁰ But while import standards may be intrusive and paternalistic, they are not coercive.⁵¹ They do not force trading partners to take action. What they do is to set conditions for voluntary exchange.⁵² Furthermore, the sovereignty argument cuts both ways. Environmentalists critical of the Tuna-Dolphin decision contend that it undercuts the right of a society to refuse to *consume* dolphin-unsafe tuna.

A second objection is that many developing countries are too poor to improve their social standards. Increased trade will raise these standards automatically, it is suggested, while government attempts to link trade with standard-setting will be counterproductive. This proposition — a centerpiece of the media blitz last year in favour of the US-Mexico negotiation — is partly true. Trade does enlarge overall economic welfare. But it is a leap of faith to claim that the gains from free trade will *necessarily* be allocated to pollution control or manifested in better working conditions. Recent economic growth in LDCs has often not led to commensurate improvements in child labour practices.⁵³

Although the data are not conclusive, there is evidence suggesting that 'the environment has a tendency to improve with rising levels of economic activity'.⁵⁴ Yet as Stewart Hudson of the National Wildlife Federation has pointed out, some industrial countries are able to maintain the quality of their own environment partly because they can shift pollution-intensive processes (and sometimes hazardous waste) to LDCs. Since every nation cannot shift its dirty production to a poorer one, there may be a limit to how much environmental improvement will be engendered by increased growth in developing countries.

A third objection is that environmental solicitude will open up new avenues for 'ecoprotection'. Certainly, this is a potential danger. Indeed, when one examines the various trade measures used or suggested over the past century to attain sanitary, labour, or conservation goals, it is sometimes difficult to untangle the progressive from the protectionist motivations. The bans on exporting raw logs from several countries (such as Indonesia and the Philippines) are a case in point. While these laws ostensibly promote the preservation of forests, the trade restrictions enable countries to become more competitive in value-added production like plywood.

⁵⁰ See 'Environmental imperialism', *The Economist* (15 February, 1992), p. 78; 'Environmentally Correct?', *The Journal of Commerce* (21 February, 1992), p. 4A; and 'Eco-imperialism', *Financial Times* (26 February, 1992), p. 12.

⁵¹ Of course, as with any law, it may coerce domestically.

⁵² It is sometimes argued that since only some countries have the market power to set such conditions, that all countries should be prohibited from doing so.

⁵³ For example, see Weiner (1991), pp. 4, 113, 156-58.

⁵⁴ Radetzki (1991).

3. APPLYING TRADE CONTROLS

Having discussed *why* nations might want to use trade controls to achieve social goals, we will turn now to the question of *how* such linkage is accomplished. This section will examine four tracks — multilateral, unilateral, bilateral, and regional. The discussion of the regional track will focus on the NAFTA.

a. Multilateral Rules

It has long been recognised that the multilateral trading system (or any market) needs rules to operate effectively. Yet at present, the GATT has no environmental or labour rules for products involved in international commerce. Anything goes.

One need not disagree with the theory of comparative advantage to ask whether certain practices ought to be considered out of bounds. For example, is it legitimate for a society to gain trade from its willingness to turn endangered species into handbags? Should governments be able to specialise in the hardball tactics needed to maintain a union-free workforce? Would the rest of the world have to respect an assertion by one country that it has a high 'absorptive capacity' for ozone-depleting chemicals?

That the GATT is the appropriate instrument to separate 'good' trade from 'bad' is doubtful. Although some environmentalists have offered wide-ranging schemes for 'greening' the GATT by adding rules on the content of trade, these proposals tend to gloss over the fact that (contrary to popular perception) *the GATT does not govern trade* — it governs trade restrictions. For instance, GATT Article XX(b) does not forbid trade in products dangerous to human health. It *permits* each nation to restrict such trade.

The Uruguay Round muddles this traditional distinction however. One of the agreements being negotiated, on Trade-Related Intellectual Property, mandates minimum rules for patents, trademarks, and copyrights. The Agreement also requires parties to forbid imports, at the behest of property holders, when certain 'rights' are violated. Once the GATT establishes a code for intellectual property, it will be harder to resist a similar code for the worker rights established in ILO treaties. Yet shouldn't the GATT be as concerned about products of forced labour as it is about counterfeit goods?

Numerous proposals have been made over the years to incorporate a 'social clause' into the GATT.⁵⁵ The most recent plan, put forward by Senator Max

⁵⁵ For example in 1978, US Congressman Henry Reuss (D-WI), then chairman of the House Banking Committee, introduced a bill calling upon the President to negotiate labour and environmental standards as part of the Tokyo Round. See *Congressional Record*, 95th Congress, 2nd Session, pp. 12003-4.

Baucus (D-MT), calls for the negotiation of a GATT Environmental Code. The proposed code would allow an importing country to use tariffs to offset the advantage gained by a foreign country from using less stringent environmental standards.

Although a multilateral approach would be ideal, a new code seems unlikely so long as numerous GATT Contracting Parties continue to maintain that social standards should have no connection to trade policy. Yet unfair labour (and environmental) conditions can 'create difficulties' in international trade. If this point was compelling to the authors of the ITO (who were also the authors of the GATT) in 1947, it can scarcely be less true today in a highly-interconnected global economy. The problem is that it is hard to reach agreement on what constitutes an *unfair* practice in a world of widely differing polities and economies. Even the most minimal standards — say, on forced labour or toxic substances — would go too far for many countries.

There are some ecological (and a few labour) trade rules outside of the GATT framework in treaties *that do govern trade*, such as CITES and the Montreal Protocol.⁵⁶ But the recent Tuna-Dolphin decision calls into question whether actions to implement these treaties are GATT-consistent.⁵⁷ By taking such an extreme position, the panel may force the GATT into judging whether each new (and existing) environmental treaty merits an Article XXV waiver. The GATT is ill-equipped for such a responsibility.

b. Unilateral Action

In the absence of multilateral rules, unilateral action is called upon to fill the vacuum. In some instances, this may produce constructive results. For example, the Marine Mammal Protection Act has helped to save hundreds of thousands of dolphins. The US Pelly amendment — which threatens trade sanctions against countries that diminish the effectiveness of an environmental treaty — has led to a higher degree of protection for whales and sea turtles and has contributed to the growing international consensus on outlawing large-scale driftnets.⁵⁸ If skillfully managed, unilateral action can spur multilateral agreements — just as a multilateral commitment can facilitate politically difficult national reforms.

⁵⁶ The most recent international environmental agreement setting trade rules is the Protocol on Environmental Protection to the Antarctica Treaty signed by 31 nations in October 1991. See US Senate Treaty Doc. 102-22, Annex II (Article 4 and Appendix C) and Annex III (Articles 1 and 7).

⁵⁷ Under international law, conflicts between treaties may be resolved in favour of the more recent treaty. Although most environmental agreements are more recent than the GATT, the Uruguay Round (Draft Final Act) would reset GATT's effective date to 1993.

⁵⁸ Under current law (22 USC 1978), the President has the authority to impose trade embargoes on either fish or wildlife products. The US House of Representatives recently enacted a bill (HR 2152) to strengthen the President's embargo authority by extending it to any product imported from an offending nation.

Of course, the unilateral approach does have dangers. When a unilateral action is based on a domestic goal (e.g., the Marine Mammal Protection Act) rather than an international goal (e.g., the Pelly amendment), there can be suspicion of protectionist motivation. Unilateral action can also undermine respect for GATT disciplines and lead to (GATT-illegal) retaliation.

Since the GATT Council appears unwilling even to talk about labour standards for trade, the next steps are likely to be unilateral. Last fall, Congressman Don Pease (D-OH) proposed legislation (HR 3786) to ban the importation of goods made using child labour (i.e., under the age of 15). While this bill seems unlikely to become law in the near future, action along these lines would not be unprecedented. For example in 1913, the US Senate voted to prohibit manufactured imports from countries lacking child labour laws (but the House refused to go along).⁵⁹

c. Bilateral Conditionality

Another approach to achieving labour and environmental standards is through trade conditionality.⁶⁰ Under the Caribbean Basin Initiative of 1983, the United States sought specific commitments on labour from several countries as a condition for duty-free eligibility. For instance, Haiti (under Duvalier) agreed to make several changes in its labour code to permit the free operation of unions and to guarantee their right to affiliate with international trade union federations.⁶¹

When it extended the Generalized System of Preferences (GSP) in 1984, the US Congress made progress on worker rights a new condition for duty-free treatment. To maintain eligibility, countries had to be taking steps to accord 'internationally recognized worker rights'. These rights were defined to include freedom of association, the right to organise and bargain collectively, a prohibition of forced labour, a minimum age for child labour, and 'acceptable' conditions of work. As a result of this new conditionality, eight countries lost their GSP benefits. Three of them were reinstated in 1991 after taking steps to improve worker rights.⁶²

The American GSP program expires next year. If GSP is renewed, the Congress will likely tighten the eligibility criteria both by adding new conditions

⁵⁹ *Congressional Record*, 63rd Congress, 1st Session (1913), pp. 3955-56.

⁶⁰ Bilateral negotiations can also be used. For example, in the US-Japan Structural Impediments Initiative of 1990, the Japanese government pledged to 'encourage curtailing work hours in the private sector'.

⁶¹ US House of Representatives Doc. 98-159 (1984), pp. 58-60.

⁶² The eight countries were the Central African Republic, Chile, Liberia, Myanmar, Nicaragua, Paraguay, Romania, and the Sudan. The three reinstated in 1991 were the Central African Republic, Chile, and Paraguay.

and by reducing Executive branch discretion.⁶³ Ideally, all 27 nations that offer GSP programs would coordinate their conditions in order to strengthen their influence on developing countries. But since GSP is supposed to be non-reciprocal, such collaboration would probably be opposed by the LDCs.

d. Regional Agreements: The Case of NAFTA

While labour and environmental conditions can be a significant factor in any trade relationship, they take on greater salience as nations move toward economic integration. In other words, even if one doubts that international trade requires social harmonization, one might still propose harmonisation as part of a free trade agreement, particularly when two contiguous countries are as different as the United States and Mexico.⁶⁴

The potential spillovers from a NAFTA are not merely speculative. As Lane Kirkland, the President of the American Federation of Labor-Congress of Industrial Organizations, has pointed out, the current *maquiladora* program can be viewed as a 'miniature version of US-Mexico free trade'. For those concerned about environmental degradation and sweatshop working conditions in Mexico, the 25-year experience with *maquiladora* is not reassuring.⁶⁵ Furthermore, the harmful effects from the Mexican plants do not stop at the border. Indeed, the recent US Clean Air Act had to provide a special exemption for cities like El Paso overwhelmed by 'emissions emanating from outside of the United States'.⁶⁶

Although a broad coalition of environmental groups in Mexico, the United States, and Canada has urged that environmental issues be incorporated into the NAFTA, all three Governments want to keep them unconnected. This is not just a procedural quibble. While the Bush Administration promised to 'design and implement a 10-year border environment plan', no rationale was offered as to why this new plan would be more successful than the last major environmental agreement with Mexico — the nine-year old 'La Paz' accord. One explanation for why the La Paz and earlier agreements achieved so little is that they were not linked to any enforcement mechanism.

Making social issues part of the trade accord can furnish the accountability that has been lacking. Although it is unrealistic to expect the NAFTA to become

⁶³ The AFL-CIO complains that the US Trade Representative has been stalling a worker rights investigation of Syria since 1988. Moreover, despite well-documented allegations, the Reagan and Bush Administrations refused even to consider a petition against Guatemala.

⁶⁴ For a thoughtful analysis, see Jagdish Bhagwati, 'One Track at a Time' (May 1991).

⁶⁵ The main problems include: high levels of air and water pollution, illegal dumping of toxic waste, job health and safety hazards, a heavy reliance on child labour, and government interference with trade unions. See 'Poisoning the border', *US News and World Report* (6 May 1991), p. 33; 'The Free-Trade Dilemma', *Los Angeles Times* (17 November, 1991); and Edward Cody, 'Mexican Ruler Tightens Rein on Labor', *The Washington Post* (28 February, 1992), A28.

⁶⁶ 42 USC 7509a(a).

a palladium of individual rights, dealing with the most important environmental and labour issues within the trilateral agreement would enable disputes to be handled in an effective and predictable manner.⁶⁷ A trade pact needs to be anchored in mutual commitment, not based on romantic illusions about a natural progression to higher living standards.

Another reason for including the social issues is the need to maintain the necessary political coalition. If the trade agreement is not designed to protect the environment and enhance worker rights, then it could fail to achieve these goals, thereby undercutting public support. Fortunately, the potential economic gains from a NAFTA appear to be large. What remains to be seen is whether Mexico (or for that matter the United States) has the political will to channel some of these gains toward social objectives.

4. THE SOCIAL DIMENSION IN THE 1990s

In assessing the future of environmental and labour issues in trade, we must be cognizant of two contradictory trends. On the one hand, several factors — such as a growing national interdependence, lower trade barriers, and a greater economic reliance upon exports — militate against actions that disrupt the free flow of commerce. Moreover, to the extent that multinational corporations move toward common standards in facilities throughout the world, pressure for new international rules may be reduced.

On the other hand, there is a growing recognition that for certain policies, intergovernmental cooperation will be more beneficial than unbridled national competition. Thus, harmonisation is being pursued in many areas including export credits, arms sales, bank secrecy, and monetary policy. Yet for labour harmonisation, far less consensus exists. The European Community's recent difficulty in securing approval for its Protocol on Social Policy shows how contentious these issues can become, even in a longstanding union.⁶⁸ Although a concern for fair competition is one factor spurring the coordination of environmental policies, greater coordination would be desirable even without international trade.

The increasing political strength of environmental movements (especially in richer countries) and a higher degree of ecological sensitivity among consumers seem likely to stimulate more government action to protect the environment. By contrast, the labour movement shows no sign of gaining greater influence. Still, it is too early to conclude that unions are *passé*. The resurgence of capitalism and

⁶⁷ The agreement could also take into account the fact that the United States has, for many years, enforced a ban on certain prison labour imports from Mexico. See 19 CFR 12.42.

⁶⁸ At the 1991 Maastricht Summit, the European Council had to exempt the United Kingdom in order to gain approval for the new Protocol.

democracy will provide fertile ground for union organisers. Indeed, solidarity can emerge at any time and anywhere when working conditions are perceived to be unfair — even in seemingly inhospitable surroundings.⁶⁹ A key factor is the quality of labour leadership.

Just as capital and technology flow easily across borders, so too does information. The world may not yet live in a 'global village', but international television is already transforming the way the public thinks about trade. When television zeros in on factories exploiting prison labour, on the occupational illnesses (induced by pesticides) of workers on flower export farms, or on toxic waste dumped outside Mexican maquiladora, the public will no longer remain ignorant (blissfully or not) about the ways in which production methods can differ. Advising consumers not to think about how sausage is made is going to be harder when they see it on cable before sitting down to dinner.

The prevailing attitude in the GATT Council seems to be that if the issue of labour standards is ignored, it will go away. The Council did agree to convene a working group on the environment, but it remains to be seen what will be discussed beyond *forestalling* the use of trade measures for ecological purposes. At present, the GATT is a long way from even acknowledging a fundamental question: Are international rules needed so that countries will not suffer a comparative disadvantage from protecting the environment and providing basic safeguards for workers?

It is ironic that the disinclination in GATT to address these concerns is matched by the skepticism of outside groups who question how fruitful such consideration would be under GATT's present structure. From an environmental perspective, the lens of the GATT looks distorted. Rather than examining government policies for their contribution to 'sustainable development', the GATT Council seems more interested in the objective of sustainable trade. Environmental standards are viewed as 'non-tariff' barriers to be eliminated if they restrict commerce. Government subsidies to clean up pollution (or plant trees) may be declared GATT-illegal. And as an organisation, the GATT operates with little transparency and no opportunity for 'public' participation.⁷⁰

Despite these quirks, the GATT is not inherently hostile to social concerns. Its authors saw liberal trade as part of the *solution* to low labour conditions. The preamble to the GATT states that trade relations 'should be conducted with a view to raising standards of living . . .' The ITO Conference was about trade *and employment*. But in recent years, a compartmentalised, purist GATT stance has evolved which views greater trade as the goal, rather than a means to an end.

⁶⁹ See Clyde H. Farnsworth, 'World Bank and IMF Hit by Walkout on Pay', *The New York Times* (24 May, 1986), p. 31.

⁷⁰ See the testimony of Ralph Nader in GATT: *Implications on Environmental Laws*, US House Committee on Energy and Commerce, Hearing Serial No. 102-53 (1991), pp. 63-74.

From this perspective, the GATT should have nothing to do with 'non-economic' objectives like worker rights or environmental protection.

By giving little attention (until very recently) to the social dimension of international commerce, GATT's allies do a disservice not only to the cause of environmental quality and worker welfare, but to the cause of free trade. The benefits of commerce may be a timeless truth, but the sirens of protectionism never sleep. Each generation must be convinced of the advantages of open trade in the context of contemporary concerns. When supporters of the trading system defend sweatshops or driftnets as a *legitimate* form of competitive advantage, they diminish the potential political coalition in support of trade liberalisation. As William E. Brock, former US Trade Representative, has explained:

... those countries which are flooding world markets with goods made by children, or by workers who can't form free trade unions or bargain collectively, or who are denied even the most minimum standards of safety and health — those countries are doing more harm to the principle of free and fair trade than any protectionist groups I can think of.⁷¹

As a beginning, the following steps might be taken: First, the top priority of the GATT's new environmental working group should be to reconsider the conclusions reached by the Tuna-Dolphin panel.⁷² The GATT should then work with relevant institutions to develop an environmental code, the violation of which would be actionable by individual nations under Article XX.⁷³ Second, the GATT Council should invite the ILO to develop a voluntary code of fair labour practices for goods in international trade.⁷⁴ Violations of this code would not be actionable, but could be noted by the GATT in its Trade Policy Reviews. Third, the GATT Council should develop procedures for soliciting the input of non-governmental organisations (e.g., business, labour, environmental, etc.) on an ongoing basis. It is interesting to note that the ITO Charter authorised the Organisation to 'make suitable arrangements for consultation and co-operation with non-governmental organisations concerned with matters within the scope of this Charter'.⁷⁵

Although unilateral trade controls for environmental and labour purposes are roundly criticised, not many of the critics support *multilateral* trade controls as

⁷¹ International Labour Conference (1986), at 25/10. Mr. Brock spoke as US Secretary of Labor.

⁷² The United States could help gain a reconsideration of that decision by amending the Marine Mammal Protection Act to reform the dolphin kill-rate calculation procedures that violate due process. This could be done without lowering protection for dolphins.

⁷³ To start with, the code might include the trade rules from environmental treaties (such as the Montreal Protocol) that have been ratified by over one-half of the GATT's Contracting Parties.

⁷⁴ For further discussion, see United Nations Association (1988), pp. 37-40. Countries adhering to the code could be given additional financial aid and technical assistance.

⁷⁵ UN Doc. E/CONF.2/78, Article 87(2). Moreover, groups like the World Federation of Trade Unions were asked to (and did) send representatives to the United Nations Conference on Trade and Employment of 1947-48.

the alternative. Indeed, many of the countries who complain about unilateral US measures are precisely the ones who tried to delay the working group on the environment and who continue to block a GATT group on worker rights. These naysayers are not going to be able to have it both ways. Unilateral action, particularly by the United States, is likely to continue until the GATT (or some other institution) agrees to start considering what international trade rules may be needed to secure social objectives like sustainable development and fair labour standards.

Once the GATT embarks upon this road, its members might draw inspiration from the foundation stone of the old ILO headquarters building in Geneva, which now serves as the home of the GATT. For on it are engraved these words: *Si vas pacem cole justitiam*. If you seek peace, cultivate justice.

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MEMORANDUM

NOV 10 1992

TO: NRDC Board and staff

FROM: John Adams, Justin Ward, Lynn Fischer, Jacob Scherr,
Al Meyerhoff and Mary Nichols

RE: Progress on North American Free Trade Agreement

DATE: November 6, 1992

As most of you know, NRDC has been heavily involved in the North American Free Trade Agreement (NAFTA) negotiations. This memo summarizes our progress and unfinished business in building environmental safeguards into the treaty.

Working closely with the U.S. Trade Representative's office, EPA, and key Congressional allies, we have gained significant improvements in the draft agreement. Several of our recommendations were incorporated, for example, in NAFTA's provisions concerning environmental standards and dispute settlement. In addition, the U.S., Mexico and Canada have begun negotiations to create a North American Commission on the Environment -- a potentially landmark development first proposed by NRDC. Whatever the ultimate fate of the trade agreement, the NAFTA process has given a boost to the environmental movement in Mexico, and has enabled us to form partnerships with leading Mexican advocates.

Notwithstanding the trade agreement's positive features, significant shortcomings remain. Examples include lingering ambiguity in rules governing food safety standards, and the lack of an aggressive strategy to clean up the U.S.-Mexico border region. We have taken the position that these and related problems need to be corrected as a condition of Congressional approval.

We are well-positioned to work with the Clinton Administration and Congress to develop further environmental reforms in NAFTA, and in trade policy more generally. Governor Clinton and Senator Gore support the trade agreement, but have pledged to incorporate stronger environmental measures within the final package.

The first of the attached documents is a "scorecard" of priority issues that we have followed during the negotiations. The second describes the main opportunities for an influential NRDC role in the next phase of the process. These should provide some background for our discussion of Mexico/trade issues at the staff retreat.

Attachments

STATUS OF NAFTA ENVIRONMENTAL ISSUES

**NATURAL RESOURCES DEFENSE COUNCIL
NOVEMBER 1992**

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INTRODUCTION

Negotiators recently initialed a North American Free Trade Agreement (NAFTA) that would further integrate the economies of the United States, Mexico and Canada. The draft agreement has been submitted to the House and Senate for extensive consultations in advance of Presidential signature, and eventual votes for approval or disapproval. This process will be on the agenda of the next Administration and Congress during 1993.

Environmental issues have figured in the NAFTA debate to a far greater degree than past international trade talks. This assessment briefly examines the status of priority environmental safeguards, to provide a snapshot of where progress has been achieved and where stronger measures are needed through the implementing legislation and further trilateral negotiations.

STATUS OF NAFTA ENVIRONMENTAL ISSUES

ISSUE	NRDC POSITION	NAFTA RESPONSE	ANALYSIS
North American Commission on Trade and the Environment	Create a North American Commission on Trade and the Environment, with non-governmental representation, authority to monitor environmental conditions and enforcement practices, issue reports and recommendations to the NAFTA parties, and investigate citizen complaints.	U.S., Mexican and Canadian officials recently announced intentions to form a trinational commission headed by the environment ministers from each country. Negotiations are in progress.	Properly conceived, the North American commission could be a valuable tool to correct disparities in standards and enforcement that pollute the environment and distort trade. The commission could provide the institutional framework for raising environmental standards and enforcement practices to the highest levels within the continent, and to increase public participation opportunities in Mexico. The Commission is an announced priority for President-elect Clinton, who favors an institution with broader powers and responsibilities than have been described by the Bush Administration.

STATUS OF NAFTA ENVIRONMENTAL ISSUES

ISSUE	NRDC POSITION	NAFTA RESPONSE	ANALYSIS
Technical barriers to trade	Opposed early drafts requiring that "technical barriers to trade" -- defined to include many environmental regulations -- "not be more trade restrictive than necessary." (This would have codified a troubling interpretation from recent GATT rulings that a measure is only "necessary" if it constitutes the least trade restrictive way to achieve its defined objectives.) Urged language to prevent standards "harmonization" toward the international lowest common denominator.	"Least trade restrictive/necessary" test eliminated. Under the current draft, a NAFTA party need only show that the purpose of its measure is to achieve a "legitimate objective" (defined broadly to include measures to promote interests of health, safety, consumers, environmental protection, or sustainable development), and that the measure does not operate to exclude goods that comply with that objective. NAFTA also instructs the parties to work toward harmonization of standards toward higher levels of health and environmental protection.	The NAFTA formulation improves significantly on comparable provisions pending in the GATT "Uruguay Round" negotiations, and is preferable in some respects to the existing GATT rules governing technical barriers to trade. The text could benefit from further clarification to reinforce that non-discriminatory national, state and local environmental measures will be fully respected.

STATUS OF NAFTA ENVIRONMENTAL ISSUES

ISSUE	NRDC POSITION	NAFTA RESPONSE	ANALYSIS
Sanitary and Phytosanitary (S & P) Measures	Opposed vague NAFTA proposals that would have required that S & P measures (including food safety requirements) must demonstrate "a scientific justification," and not be "maintained against available scientific evidence." Also opposed requirement that S & P measures be applied "only to the extent necessary" to achieve chosen levels of health protection. Urged language to prevent downward "harmonization."	Language changed to require that S & P measures be based on "scientific principles" and not be maintained where a "scientific basis" no longer exists. The text defines "scientific basis" as "a reason based on data or information derived using scientific methods." "Only to the extent necessary" test retained without interpretive guidance. Text requires that harmonization activities proceed "without reducing the level of safety or protection of . . . health, the environment, or consumers."	The current draft is more deferential than the previous formulations, but still ambiguous. Despite the improvements, further modifications or clarifications are needed to provide fuller assurance that NAFTA will not jeopardize U.S. food safety measures, including "zero tolerance" provisions governing pesticide residues.

STATUS OF NAFTA ENVIRONMENTAL ISSUES

ISSUE	NRDC POSITION	NAFTA RESPONSE	ANALYSIS
International environmental agreements	Provide an explicit guarantee that trade restrictions sanctioned by international environmental agreements will not constitute NAFTA violations.	Current draft preserves the right of NAFTA parties to enforce trade obligations contained in specified international environmental agreements, notably the Montreal Protocol, Basel Convention, and CITES. NAFTA adds the caveat that "where a Party has a choice among equally effective and reasonably available means of complying with [the environmental] obligations, the Party chooses the alternative that is the least inconsistent with the other provisions of [NAFTA]."	The "equally effective and reasonably available" proviso unnecessarily weakens the NAFTA safeguards for international environmental agreements, and should be removed.

STATUS OF NAFTA ENVIRONMENTAL ISSUES

ISSUE	NRDC POSITION	NAFTA RESPONSE	ANALYSIS
General exceptions	NAFTA should broaden the current GATT "Article XX" exceptions for natural resource protection to include specific reference to the environment. NAFTA should also reverse the harmful precedent set by the GATT "dolphin/tuna" decision, which ruled that individual countries cannot invoke trade sanctions to protect resources outside their jurisdictions, and held that domestic measures must be "necessary" (i.e., least trade restrictive) to achieve their conservation objectives.	NAFTA adopts the GATT "Article XX" exceptions by reference, and broadens them specifically to cover "environmental measures" and measures for conservation of "living and non-living" natural resources.	Although it does not fundamentally worsen the <u>status quo</u> , NAFTA fails to reverse the narrow "dolphin/tuna" panel interpretation concerning extra-jurisdictional effects and the "necessary" test. As noted above, the "necessary" test was appropriately omitted in NAFTA's technical barriers to trade chapter.) Corrective measures are needed within NAFTA and, more importantly, OECD and GATT to address the "dolphin/tuna" problem and develop trade rules more sympathetic to environmental concerns.

STATUS OF NAFTA ENVIRONMENTAL ISSUES

ISSUE	NRDC POSITION	NAFTA RESPONSE	ANALYSIS
Protection of the U.S.-Mexico Border	We filed detailed comments with EPA criticizing the draft U.S.-Mexico "integrated border plan" as a vague and highly discretionary instrument with no formal linkage to the NAFTA agreement. Our comments recommended strengthening measures to guarantee a comprehensive, enforceable and fully funded strategy to protect health and environmental quality in the border region.	The final version of the border plan prescribes helpful binational cooperation, but contains few concrete initiatives to clean up and prevent pollution along the border.	A much more ambitious border protection strategy is needed. Priorities include: mechanisms for citizen enforcement to redress injury caused by U.S. corporations doing business in Mexico; a new U.S.-Mexico environmental treaty to strengthen the legal framework for cooperation on trans-boundary pollution; community "right-to-know" requirements to make toxic release data available to citizens of both countries; and a funding strategy grounded in the "polluter pays" principle.

STATUS OF NAFTA ENVIRONMENTAL ISSUES

ISSUE	NRDC POSITION	NAFTA RESPONSE	ANALYSIS
Funding of environmental programs	Establish targeted funding measures (e.g., earmarked tariffs, user fees, green taxes, pollution control bonds) to dedicate a portion of revenues associated with trade to environmental programs in Mexico, and to implement the "polluter pays" principle.	NAFTA omits targeted funding strategies. Proponents of the current draft have argued that the agreement, by raising income levels and overall economic prosperity, will enable increased budgetary allocations for environmental enforcement and infrastructure in Mexico.	It is unrealistic to assume -- as the treaty framers have done -- that economic growth under NAFTA will automatically translate into the substantial boost in environmental funding that is sorely needed in the border region and throughout Mexico. It is critical that targeted funds for the environment be part of the final NAFTA package.
Dispute settlement procedures	Allow NGO and citizen intervention in trade disputes involving environmental issues, as well as NAFTA implementation more generally. Place the burden of proof on challenging parties.	NAFTA places the burden of proof on challenging parties. Responding countries may elect to have disputes involving environmental matters considered by NAFTA panels in cases where the challenging parties have brought the disputes under GATT. Dispute proceedings (as well as overall NAFTA implementation) is generally limited to participation by national governments.	The burden of proof and forum selection provisions are positive. On public participation, however, NAFTA contains insufficient steps to make trade policy and negotiations more transparent.

STATUS OF NAFTA ENVIRONMENTAL ISSUES

ISSUE	NRDC POSITION	NAFTA RESPONSE	ANALYSIS
Pollution havens	Recognize lax environmental standards or enforcement practices resulting in "pollution havens" as an impermissible, trade-distorting subsidy.	NAFTA's investment chapter admonishes that countries should not relax their environmental regulations to entice new investment, and outlines a procedure for consultations among countries to prevent violations of this principle.	The investment chapter language is symbolically helpful, but <u>lacks enforceability</u> . The North American environmental commission, noted above, should take the lead in defining and implementing enforceable new international disciplines to combat pollution havens.
Energy	Nothing in NAFTA should discourage or preclude measures to account for environmental externalities of power generation, provide incentives for energy efficient products and renewable energy resources, or to institute "demand side management" strategies for energy conservation. The trade agreement should also seek to remove harmful subsidies to the fossil fuel, nuclear and hydropower industries.	NAFTA preserves the U.S.-Canada Free Trade Agreement's allowance for "existing or future incentives for oil and gas exploration, development and related activities."	Although it does not directly affect energy policy, the pro-development language is inappropriate and should be removed. NAFTA's energy provisions are complex, and require further analysis to determine their environmental pros and cons.

STATUS OF NAFTA ENVIRONMENTAL ISSUES

ISSUE	NRDC POSITION	NAFTA RESPONSE	ANALYSIS
Environmental impact analysis	The Administration should prepare an Environmental Impact Statement on NAFTA, consistent with NEPA disciplines and procedures.	In lieu of an EIS, the U.S. trade office issued a more limited "environmental review" during NAFTA negotiations. The Administration maintains it has no legal obligation to prepare an EIS, and has so far prevailed in a NEPA lawsuit brought by Public Citizen, Sierra Club and Friends of the Earth.	NRDC's detailed comments on the environmental review (filed jointly with Mexican NGOs) criticized the document's limited and biased analysis, such as its superficial discussions of forestry, biodiversity and sustainable agriculture. Further environmental impact analysis is needed during the next phase of the NAFTA process, irrespective of whether the courts require preparation of an EIS.

**Environmental Safeguards in the NAFTA Process:
Strategies for the Next Phase**

The proposed North American Free Trade Agreement (NAFTA) contains some positive features, but environmental safeguards still need to be addressed more fully and effectively. Priorities include environmental enforcement to combat pollution havens, an effective U.S.-Mexico border protection strategy, funding for environmental programs, public participation in dispute settlement and other trade procedures, and clarification of trade disciplines affecting health and environmental regulations.

Under law, the Administration must consult with Congress formally for at least 90 days before signing the negotiated NAFTA agreement. The consultation process affords important opportunities for Congress and the public to influence the final shape of the NAFTA package. This process is currently underway, and could theoretically be completed in mid-December. But as a practical matter and regardless of the outcome of the November elections, serious consultations will be "on hold" until after the new year. The period from next February through May will probably be critical.

The following is a list of key opportunities for environmental organizations to secure improved environmental safeguards during further deliberations on NAFTA and related issues in the year ahead:

- **North American Commission on the Environment.** In response to NGO recommendations during the NAFTA talks, the environment ministers from the U.S., Mexico and Canada have announced their intent to form a trilateral commission. They have invited suggestions on how to craft this new institution. Properly conceived, the commission could be a valuable tool to correct enforcement lapses that pollute the environment and distort trade. The commission could provide the institutional framework for raising environmental standards and enforcement practices to the highest levels within the continent. A joint effort among U.S., Mexican and Canadian NGOs (already underway) is needed to ensure that the commission has meaningful functions and authorities, rather than just symbolic status with no connection to the trade agreement. There will be considerable activity on this issue during the remainder of 1992 and beyond; another meeting of the environment ministers is scheduled for January.

- **The NAFTA implementing bill, committee reports and related legislative history.** The implementing bill is drafted during the consultation phase and submitted to Congress as the vehicle to approve the signed trade agreement. (Approval requires majority votes in both the House and Senate.) This legislation can go beyond the scope of provisions strictly needed to implement NAFTA to include measures Congress considers desirable. Thus, the bill could include environmental protection or worker adjustment measures (e.g., a border funding strategy) that are not covered in the treaty text. The legislation can also incorporate explicit safeguards to ensure that trade dispute outcomes will not overturn national, state or local environmental regulations. The next Congress and Administration will draft the implementing bill in 1993. A major opportunity for NGOs is to work with relevant Congressional committees -- notably House Ways and Means and Senate Finance -- to develop proposals and model language for environmental safeguards.

- **The "Statement of Administrative Action."** Described as "one of the most flexible and powerful tools of the implementation process," this statement specifies how the executive branch will implement portions of NAFTA by regulation under existing statutes. This is another potentially important vehicle for environmental safeguards, including language to reinforce the Administration's repeated assurances that stringent environmental standards in the United States will be fully respected under NAFTA. Members of Congress can influence the Statement of Administrative Action, which is developed concurrently with and ratified by the implementing bill.

- **Renegotiation of NAFTA provisions.** Notwithstanding attempts to portray NAFTA as a "done deal," Congressional pressure during the consultation period can force the negotiators to change or clarify portions of the agreement. This can be accomplished through revisions to the text, or interpretive protocols issued by the three countries. An influential role for environmental NGOs will be to identify specific problems in the text, such as in the standards and dispute settlement chapters, and to suggest practical solutions to Congress and the negotiators. Failing remedial measures through the consultation process, Congress could modify its fast track procedures to allow floor amendments on environmental issues.



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**Environmental Enforcement:
Unfinished Business in North American Trade**

Testimony of the Natural Resources Defense Council

Before the

**Subcommittee on International Trade,
Committee on Finance,
U.S. Senate**

by

**Justin Ward
Senior Resource Specialist**

September 16, 1992

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The Natural Resources Defense Council (NRDC) appreciates the opportunity to testify on the North American Free Trade Agreement (NAFTA).¹ Our organization has participated extensively throughout the negotiations. NRDC's involvement has included testimony before USTR's staff policy committee and Congressional oversight hearings, detailed comments on the U.S.-Mexico border plan and environmental review documents, frequent discussions with the negotiators, and service on USTR's private sector advisory system.

During the process, we have worked closely with other environmental groups in all three countries to offer specific recommendations to the trade negotiators. We believe the proposed NAFTA contains some positive features, but that Congress should insist upon stronger environmental safeguards as a condition of final approval. Strengthening measures are particularly essential in the area of environmental enforcement, which is the focus of our testimony today.²

Enforcement Problems Throughout the Free Trade Region

Lax enforcement practices compromise the effectiveness of sound environmental laws. For example, administrative delay and deregulatory policies hamper implementation of U.S. statutes for clean air, clean water and other environmental purposes. Poor enforcement can exacerbate competitive imbalances within the U.S.-Mexico-Canada trading relationship, as firms gain economic subsidies by exploiting pollution havens.³

We know that Mexico has made important strides in development of strong environmental laws and regulations. Having met with several Mexican government officials and leading private environmentalists, we are impressed by their rapid progress in crafting a legal and institutional framework for pollution control and natural resource protection.

¹ NRDC is a national, non-profit environmental organization with more than 165,000 members, dedicated to the protection of natural resources, public health and environmental quality in the United States and worldwide. For over 15 years, NRDC has had an active interest in the environmental impacts of U.S. foreign aid, trade policy and investment.

² We have a number of other continuing concerns, including issues surrounding preemption of health and environmental standards, public participation in dispute settlement procedures, and energy policy.

³ See Office of Technology Assessment, Trade and Environment: Conflicts and Opportunities, pp. 64-68 (OTA-BP-ITE-94, May 1992).

Monumental problems remain, however. Examples include the air pollution emergency this winter in Mexico City, as well as the catastrophic gas leak explosion in April that left more than 200 people dead in Guadalajara. Certain environmental pressures could intensify under NAFTA. Under one trade and investment liberalization scenario, for example, toxic releases from manufacturing enterprises in Mexico will increase by nearly 10.5 million pounds.⁴

Documented enforcement lapses continue to plague Mexico's environmental programs. A recent General Accounting Office (GAO) study found that none of six U.S. majority-owned maquiladoras sampled had prepared an environmental impact assessment (EIA) for new plants established in Mexico, as required under Mexico's 1988 General Ecology Law.⁵

The GAO findings are consistent with the observations of Mexican environmentalists who have described chronic and widespread violations of Mexico's EIA requirements. Implementation of those requirements has routinely neglected timely disclosure of assessment documents, as well as full notice and comment procedures that are essential to informed public participation.⁶ This poor enforcement record casts doubt on the Administration's characterization of the Mexican statute's EIA provisions as "more inclusive" than comparable requirements under the U.S. National Environmental Policy Act (NEPA).⁷

Low funding hampers environmental law enforcement in Mexico. The 1990 federal budget for pollution control activities throughout all of Mexico equalled just six percent of the water pollution and hazardous waste budget for the state of Texas

⁴ G. Grossman and A. Krueger, "Environmental Impacts of a North American Free Trade Agreement," pp. 33-34, Table 7 (National Bureau of Economic Research, Working Paper No. 3914, November 1991).

⁵ U.S. General Accounting Office, "U.S.-Mexico Trade: Assessment of Mexico's Environmental Controls for New Companies," p. 13 (GAO/GGD-92-113, August 1992).

⁶ Human Rights Watch and NRDC, Defending the Earth: Abuses of Human Rights and the Environment, pp. 69-70 (June 1992).

⁷ The Administration notes specifically that the Mexican statute requires that EIAs be conducted for most private as well as public development projects, whereas the scope of NEPA is limited to "major federal actions" with significant environmental impacts.

alone.⁸ Although Mexico has raised its pollution control budget nearly threefold since 1990, as part of recent significant increases in overall environmental protection spending, the current levels continue to fall short of actual needs.

The Limited Response Under NAFTA

The proposed NAFTA admonishes that countries should not relax their environmental regulations to entice new investment, but otherwise does very little to recognize pollution "dumping" as an unfair trade practice. The agreement unfortunately contains no specific provisions to ensure better enforcement of environmental laws throughout North America.

The Administration contends that trade-induced growth under NAFTA will bolster environmental enforcement. According to one EPA official:

The fundamental premise of the NAFTA is: the economic prosperity Mexico should experience under a free trade agreement will enable Mexico to strengthen its existing environmental programs to achieve the rising levels of environmental quality it needs. [Trade = prosperity = enhanced environmental protections = further prosperity = environmental quality.]¹⁰

This theme runs throughout the environmental review the Administration prepared in connection with NAFTA.¹¹

We strongly favor steps, including expanded trade, to promote greater economic prosperity in Mexico. But Congress should not accept, as an article of faith, that liberalized trade and investment will automatically produce positive environmental results. As discussed below, much stronger enforcement

⁸ Texas Center for Policy Studies, "A Response to the Bush Administration's Environmental Action Plan for Free Trade Negotiations With Mexico," p. 9 (May 1991).

⁹ U.S. GAO, supra note 5, p. 20. Funding administered by Mexico's environmental protection agency in 1992 is approximately \$67 million, more than 15 times 1989 levels.

¹⁰ Speech by John Wise, Deputy Regional Administrator, EPA Region 9, before the American Bar Association's First Annual Conference on North American Energy, Trade, and Environmental Policy, 1991.

¹¹ See USTR Interagency Task Force, "Review of U.S.-Mexico Environmental Issues," pp. 222-224 (February 1992).

initiatives are needed to make the "trade = prosperity = environmental improvement" doctrine a reality.

Within the environmental review document, the Administration projects long-term benefits for the U.S.-Mexico border region, attributable to greater geographic dispersion of growth and development.¹² The "Integrated Environmental Plan for the Mexico-U.S. Border Area" constitutes the Administration's main response to the serious pollution and public health threats facing the 2000-mile frontier.

Although it represents helpful progress in binational cooperation and in construction of some needed public works projects, the border plan is a vague and highly discretionary instrument with no formal linkage to NAFTA. Unlike the trade agreement, the plan lacks the status of an international treaty that would place obligations on current and future governments in both countries.¹³

Moreover, the plan omits a comprehensive, long-term strategy to fund environmental monitoring, enforcement and infrastructure. According to an analysis by the U.S.-Mexican Policy Studies Program at the University of Texas:

[T]he plan . . . relies heavily on border state financing at a time when all U.S. states are undergoing cutbacks in federal funding that are, at least in the case of southern border states, drawing down funds available for border assistance projects. Too little emphasis is given to the contributions that industry could make to environmental programs. The plan makes no attempt to even discuss the possibility of user fees for border industry or other revenue-raising mechanisms.¹⁴

¹² We have criticized the environmental review's limited attention to environmental impacts outside the border area. Comments of NRDC, Instituto Autonomo de Investigaciones Ecologicas and Grupo de los Cien on the Draft Review of U.S.-Mexico Environmental Issues, pp. 3-5 (December 1991).

¹³ See Comments of NRDC on the Draft Integrated Environmental Plan for the Mexico-U.S. Border Area (September 30, 1991).

¹⁴ J. Rich, "Planning the Border's Future: The Mexican-U.S. Integrated Border Environmental Plan," p. 45 (LBJ School of Public Affairs, University of Texas at Austin, March 1992). This important critique assesses how the final plan incorporated comments raised by border area residents at hearings on the draft version last summer.

The border plan is long on general statements of good intentions, but short on concrete initiatives to clean up and prevent pollution.¹⁵

The Need for Stronger Measures

The environmental experts comprising a recent "New World Dialogue" have stated:

We . . . welcome current initiatives to liberalize trade and to revive growth in [the Western Hemisphere] and more broadly. But . . . unless major complementary initiatives are undertaken to bring environmental, economic, and social objectives together in the new synthesis called 'sustainable development,' liberalizing trade and reviving growth could lead to short-term gains and long-term disaster.¹⁶

This is sound advice to guide Congressional consultation on NAFTA.

Several steps will be essential to an effective enforcement strategy that protects the environment and levels the economic playing field. First, NAFTA should explicitly affirm that lax environmental regulations or enforcement practices constitute unfair trade practices. As noted above, the agreement's response on this issue is limited to discretionary language to discourage countries from relaxing standards to entice new investment. Without enforcement triggers, this provision will have limited effect in practice.

Second, the NAFTA parties should create a new North American environmental commission to ensure that further economic integration protects and improves natural resources, human health and environmental quality regionwide. Key features and functions of this commission would include: independent, non-governmental representation from each NAFTA country; open, transparent

¹⁵ See Texas Center for Policy Studies, "A Response to the EPA/SEDUE Integrated Border Environment Plan" (March 1, 1992, Austin, Texas). This analysis found that of the 87 identifiable commitments in the border plan for 1992, more than three-fourths fell into the categories of information exchange, meetings, training, promises to enforce existing laws, further plans, or studies. Only six percent of the commitments, by the Texas Center's reckoning, were aimed directly at fixing a problem.

¹⁶ The New World Dialogue on Environment and Development in the Western Hemisphere, Compact for a New World, p. 1 (World Resources Institute, October 1991).

procedures; annual reports on environmental enforcement practices in the U.S., Mexico and Canada; and the ability to investigate citizen complaints of lax enforcement, and to recommend remedial actions.

A leading goal of the commission's efforts would be to raise environmental standards and enforcement practices to the highest levels within the free trade area. This new trilateral body would in no way supersede the work of EPA or its counterpart agencies in Mexico and Canada, and would complement additional legal and institutional reforms needed to deal with transboundary environmental problems in the U.S.-Mexico and U.S.-Canada border regions. A description of the possible structure and workings of a new trilateral commission is attached as an appendix to this testimony.

We understand that a U.S.-Mexico joint committee on the environment will soon be announced. Although few details are available, we urge Congress to evaluate this new entity in light of the basic criteria outlined above. One puzzling issue is that the committee will apparently exclude Canadian representation; such representation is essential to deal with the full range of environmental challenges throughout the continent.

Third, Congress and the Administration should institute a much more ambitious border protection strategy, specifically to include proposals from a new report by the Texas Center for Policy Studies.¹⁷ Examples of the report's major recommendations include: mechanisms for citizen enforcement to redress injury caused by U.S. corporations doing business in Mexico; a new U.S.-Mexico environmental treaty to strengthen the legal framework for cooperation on trans-boundary pollution; and community "right-to-know" requirements to make information on toxic emissions and other environmental impacts of U.S. companies operating in Mexico readily available to citizens of both countries.

Fourth, the NAFTA parties must ensure a substantial and enduring boost in environmental funding in Mexico and throughout North America. A significant portion of the needed funding must be obtained through recapture of a fraction of new revenues associated with trade. This has not occurred historically; for example, preferential tax treatment has enabled maquiladora

¹⁷ Texas Center for Policy Studies, NAFTA and the U.S./Mexico Border Environment: Options for Congressional Action (September 1992).

industries in Mexico to avoid contributing significant financial support for local infrastructure in the border region.¹⁸

It is unrealistic to assume that general treasury revenues will provide adequate budgets for environmental programs. General treasury outlays are a necessary part of the funding mix, but such outlays should not come at the expense of existing environmental programs.

One sensible suggestion offered by some members of Congress would create an environmental trust fund from a portion of tariff revenues on traded goods during the NAFTA phase-out period.¹⁹ Congress should elaborate and adopt these and other innovative funding proposals during the next stage of the NAFTA process.

Conclusion

Former Arizona Governor and leading conservationist Bruce Babbitt has called the NAFTA negotiations one of "the most important international events in the history of the environmental movement," because of the opportunity it presents to link environmental conditions to regional economic integration. Governor Babbitt's observations reinforce NAFTA's importance for North America, and as precedent for future trade reform in the Western Hemisphere and worldwide.

We hope that bipartisan efforts between Congress and the Administration will produce progressive environmental reforms during NAFTA consultations, and as the implementing legislation takes shape. An ambitious commitment to environmental enforcement must be central to this effort.

¹⁸ J. Gilbreath, "Financing Environmental and Infrastructure Needs on the Texas-Mexico Border: Will the Mexican-U.S. Integrated Border Plan Help?" 1 Journal of Environment and Development, p.20 (1992).

¹⁹ See, e.g., Policy address by Senator Max Baucus before the National Association of Manufacturers Special Forum on Trade and the Environment, August 12, 1992.

APPENDIX

Article 1
North American Commission on Trade and the Environment

1. The Parties hereby establish the North American Commission on Trade and the Environment (the Commission) to ensure that trade and economic integration arising from this agreement throughout the region protects natural resources, and improves environmental quality as well as the health and safety of citizens in all three countries.
2. The Commission shall be composed of four representatives from each of the three Parties, including multiple representatives from national and local non-governmental organizations dedicated to environmental protection. Commission members shall have demonstrated expertise in environmental science and policy, and shall not have a vested economic interest in trade and investment arising under this agreement. Commission members from the United States shall be appointed by the President, subject to the advice and consent of the Senate. (with comparable appointment and confirmation procedures in Mexico and Canada)
3. The Commission shall convene at least quarterly in regular session. Regular sessions of the Commission shall rotate among the three countries.
4. The Commission shall establish its rules and procedures, including provision that all meetings of the Commission and all records of its actions, shall be open to the public.
5. The Parties agree to provide the Commission with an adequate budget to carry out its functions under this agreement, including employment of professional staff.
6. The parties shall foster the development in each country of local citizen committees to oversee, implement and make recommendations on local environmental issues, including collection and dissemination of data and other concerns of the Commission, and act as liaisons between the Commission and local communities affected by trade and economic integration arising from this agreement.

Article 2
Reports on Enforcement of Environmental Laws

1. Within one year after this agreement enters into force, and at least annually thereafter, the Commission shall issue reports on the Parties' adoption and enforcement of, and industries' compliance with, domestic laws, regulations and norms for protection of health, natural resources and the environment. The reports shall also evaluate the effects of standards harmonization activities under this agreement, and shall assess the Parties' participation in, and adherence to, international treaties and agreements concerning

environmental protection. The reports shall be issued in draft form subject to public notice and comment in all three countries, and in particular after notice in the Federal Register in the United States. The Commission shall conduct public hearings in all three countries to collect testimony on the draft reports and related matters.

2. For all three countries, the reports shall assess the status of legislative actions, administrative regulations and procedures, and technical norms, and shall describe instances of regulatory delay. The reports shall assess changes in the administrative structure and functions of environmental and natural resource agencies within each country, and shall assess progress toward the Parties' commitment to fund environmental protection programs fully (see section IV below).
3. The reports shall provide detailed discussion of administrative and judicial enforcement, including citizen actions, of environmental laws and regulations in each country.
4. The reports shall recommend areas in which the Parties need to strengthen requirements to ensure that increased trade and economic integration under this agreement does not result in environmental degradation, and that no Party gains an unfair competitive advantage through relatively weak standards or enforcement.
5. The reports shall include steps taken by and options available to parties to implement enforceable pollution prevention programs to reduce the use of hazardous and toxic materials. The Commission shall verify that host country infrastructure is capable of managing toxic and hazardous materials, including hazardous waste, to the highest standard within the free trade area. In the absence of such capability, the Commission shall verify that the materials are denied entry to the host country or, in the case of hazardous waste, are repatriated to the NAFTA country of origin where proper management shall be ensured.

(Note: Mexico's hazardous waste treatment and disposal capabilities are currently inadequate to handle the quantity and type of waste produced by foreign and domestic industries. This creates serious environmental and public health risks. Increased investment in Mexico under NAFTA will create further disposal and treatment problems without adequate pollution prevention measures and hazardous waste management infrastructure in Mexico. Currently, maquiladora industries are required under the La Paz Agreement annex III and Mexican national law to return their hazardous waste to the United States; loopholes have hampered the effectiveness of these requirements. It is anticipated that NAFTA will phase out the hazardous waste repatriation requirements along with the maquiladora designation, potentially creating additional waste problems in the border region and throughout Mexico. The trade agreement must contain specific safeguards to preserve and extend the repatriation requirement beyond the border until

...Mexico has instituted hazardous waste management capabilities equivalent to the highest standards within the free trade area at the time NAFTA goes into effect.)

6. The Parties shall supply the Commission with all documents and information necessary to complete the reports.

7. For all three countries, the reports shall incorporate detailed information on toxic releases such as the reports required under the U.S. Emergency Planning and Community Right-to-Know Act and the Pollution Prevention Act.

8. The reports shall address illegal trade in wild fauna and flora, as well as poaching, and shall assess Parties' actions to correct these practices.

9. With the cooperation of the local committees described in Article 1, paragraph 6, the Commission shall disseminate the reports to the public in all three countries.

Article 3 Environmental Compliance Investigations

1. The Commission shall receive complaints from governments, non-governmental organizations, and citizens concerning the failure of any Party to enforce environmental laws or to abide by international environmental agreements. The identity of complainants shall be confidential at their request. The Parties agree to take no retaliatory action whatever against complainants.

2. The Commission shall investigate the factual and legal bases for complaints received. Parties shall supply the Commission with all documents and information necessary to complete the investigations. The Commission shall conduct independent monitoring and inspections.

3. When investigations reveal violations of domestic or international requirements, the Commission shall file a formal notice with the affected Party. The notice shall specify the nature of the violation and necessary remedial actions.

4. No later than 60 days after receipt of a formal notice, the Party shall inform the Commission of the steps taken to correct the identified enforcement lapses. Failures to take corrective actions shall be described fully in the annual reports required under Article 2 above.

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A strategy for
energy efficiency
in the United States

Getting Down to Business

Energy efficiency does not inhibit economic growth; it promotes it.

Energy efficiency is one key to making industry more competitive in world markets.

The United States has made great progress in this area during the past two decades; we have kept energy use nearly constant while GNP has continued to grow. There is still room for improved efficiency, however. Our economy could be even stronger today had a fraction of the \$500 billion spent on imported oil over the past ten years been invested in education, infrastructure, crime prevention, and health care.

Energy efficiency is a promising market in itself. Providing the new products and services needed to improve energy efficiency in our own country can become a major growth industry, and servicing the needs of other industrialized and developing countries can provide important new export markets.

Energy and environmental problems are linked; so are their potential solutions.

Widespread awareness of acid rain, deforestation, the greenhouse effect, and other regional and global environmental issues is relatively recent. A great deal of scientific debate still surrounds these issues, as researchers attempt to understand long-term trends and options. There is no disputing, however, that improving energy efficiency offers an immediate "no regrets" way to minimize the negative effects of these phenomena, whatever the ultimate scientific assessment may be.

In line with this view, a 1991 Congressional Office of Technology Assessment (OTA) study on global climate change examined a number of technical and policy options for reducing United States greenhouse gas emissions. The report found that improving energy efficiency was the dominant strategy, both in terms of impact and cost effectiveness.⁷

Environmental and other external costs of energy production and use are substantial.

Today's market prices for energy often do not reflect the full replacement cost of new supplies. In addition, most rate-setting and economic planning practices fail to account for the long-term costs (admittedly difficult to assess) of environmental degradation and/or environmental clean-up, as well as the health risks associated with energy production and consumption.

The same is true of the national security costs of dependence on foreign oil. At present, the federal government finances the strategic petroleum reserve indirectly through general tax revenues. Nations like Japan, however, levy a direct tax on gasoline to maintain their strategic reserves. Taxes of this type can have the added benefit of reducing gasoline consumption and thus decreasing dependence on foreign oil.

Utilities can be effective deliverers of energy efficiency goods and services.

As noted above, state regulatory practices that reward utilities for successful energy efficiency investments strengthen their commitment to demand-side resources. Utility spending on customer energy efficiency programs is increasing and now exceeds \$2 billion per year. The overall level and permanence of energy savings utilities have achieved is an even more impressive indicator. In 1990, there were more than 1,300 utility demand-side management (DSM) programs with 13 million customers participating, saving 1.3 percent of the country's electricity. Experts project that, by 2010, this level of saving could increase to 20 percent, cutting the nation's electric bills by \$61 billion a year.⁸ Continuing state and federal efforts can help ensure high-quality programs, monitor actual results, and disseminate lessons already learned by the most progressive states and utilities.

Many states have been more innovative
in promoting energy efficiency than the federal government.

Much of the true innovation in energy policies and programs has come from individual states and communities and the private sector. Recent federal energy management efforts contain many elements of successful state programs, but lag well behind the best of these programs. The federal government could learn from state examples and encourage further innovation by restoring prior funding levels, distributing funds in ways that allow flexibility and reward initiative and results, and helping state and local governments to share their most effective solutions with one another.

Energy efficiency benefits national economies
and the global economy and environment.

Energy efficiency conserves scarce economic resources and reduces the need to trade environmental quality against economic growth, both in developing and industrial economies. It also makes oil-importing nations less vulnerable to fluctuations in world oil prices. Developing countries, in particular Eastern Europe and the Soviet Republics, can benefit from energy efficiency because it reduces demand for capital investments in energy supply, thus freeing scarce capital to be spent on other critical infrastructure and development needs. Aggressive energy efficiency investments, many with a payback of two years or less, could allow developing countries and Eastern Europe to reduce their energy use by 25 percent by 2025.⁹ This would mean that capital requirements for new energy supplies in developing countries and Eastern Europe would be almost halved, and fossil fuel CO₂ emissions would drop by 25 percent.

★★★ Make energy efficiency an engine for economic growth

"Energy efficiency needs to build a reputation as an economically aggressive and competitive strategy — in much the same way that manufacturers instinctively understand that high labor productivity is good."²⁰

The Energy Foundation

Energy efficiency is a key component of economic efficiency and, ultimately, global competitiveness. To maintain a competitive edge, the United States cannot miss any opportunity to improve productivity — particularly when these improvements are as easily achievable as they are in energy efficiency.

Government and industry should recognize energy efficiency as an important new area of business opportunity.

Energy-efficient products and services are becoming a major world market that United States firms cannot afford to ignore. Over the next 20 years, the potential worldwide market for energy efficiency equipment and services is estimated at \$252 billion — approximately \$8.4 billion annually for the period 1990 to 2000 and double that figure for the period 2000 to 2010. Of this demand, approximately half is from the developing countries and Eastern Europe, where energy use is growing at a faster rate than in the developed countries.²²

One utility-sponsored energy management program that has been in effect in Osage, Iowa, (population 3,439) since 1974, injects an estimated \$1,200,000 a year into the local economy.²¹

Once they are assured that the public sector and utilities have made a genuine, long-term commitment to investing in improved efficiency, companies will be more willing to expand their products and services in the domestic energy-efficiency market. Since some potential entrants are still unaware of new market opportunities, aggressive promotional efforts by leading utilities and corporations could expand the market. Government can also play a role by providing special assistance to start-up firms with innovative ideas for new energy efficiency products and services.

A robust domestic energy efficiency market will give the United States a solid basis to expand into exports, thus creating additional jobs and reducing the trade deficit. Since industrialized countries tend to satisfy energy conservation needs domestically rather than through imports, the greater opportunity for United States exports lies in developing countries. For the United States to capitalize on this market, however, will require an unprecedented level of commitment and cooperation from government and private organizations to resolve both long-term and short-term impediments to export efforts (e.g., lack of timely market intelligence).

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ADDRESS OF GEORGE BECKER
GREAT LAKES AIR TOXICS CONFERENCE
MAY 18, 1991

At the outset let me express to the program planners the Steelworker's appreciation in being a formal participant in these proceedings. This seminar, which is one designed not only to disseminate information with regard to the multifaceted environmental assaults to which the Great Lakes Basin is exposed, but also to lay the ground work for an intergroup network of local activists, is occurring at an appropriate time.

I realize that perhaps the immediate stimulant for this meeting is the recently passed Clean Air Act which identified the Great Lakes Basin as a particularly sensitive area due to its unique geographical configuration, industrial complex and urban concentration. But there is another factor which should not be ignored. Recently we have been witnessing an emphasis upon the global or transnational aspects of environmental concerns. Focus has been placed on intergovernmental treaties and the linkage of environmental standards with trade policies. These are important and significant relationships, which, if ignored, could vitiate national and local achievements.

However, the shift to international forums cannot be a substitute for continued concentration with localized emissions and effluents. The recognition of a Basin initiative in the Clean Air Act dramatizes the need for this degree of alertness. Furthermore, it is a forum which is uniquely grassroots oriented. Your organizations and mine - the labor movement in general - are essentially membership intensive in their functions. Without membership involvement they can atrophy. So, you can understand how pleased I am that I have been invited to speak tonight.

This seminar is an opportunity - a challenge - for all of our groups to seek the way in which we can coalesce in a common objective, namely the betterment - or maybe, at this stage of our activity, the preservation - of the environment. The network which we seek is, to use an academic term, interdisciplinary. While each of us independently might work to protect the environment, the sources of pollution, the health and environmental impairments and the application of corrective measures cut across the lives and livelihood of so many of us that those

who would resist abatement could so easily drive wedges between us and inhibit abatement.

We are one of the largest industrial unions in North America. Our membership is particularly strong in the Great Lakes Basin - the industrial heartland of both the United States and Canada.

For the over 50 years that this union has existed, our members hard work, ingenuity and solidarity have been essential to the economic health of that heartland. Through hard-won collective bargaining agreements we now represent workers in basic steel, all aspects of steel processing, smelters and other metalworks, the chemical industry, the mines and mills of the Mesabi, and many smaller and service industries. In our lifetime, we have participated in unparalleled industrial strength and productivity in these manufacturing areas.

In the eighties, however, we saw the foolish and wasteful decline of the U.S. and Canadian industrial base. We've had to speak up, as never before, for our members and their families, for our retirees and our communities along the St. Lawrence and into the Great Lake Basin Region. We've had to fight against economic, trade and labor policies and practices which locked workers out of their jobs, replaced strikers with scabs, suppressed wages for corporate profits. The United Steelworkers and the labor movement, in general, will continue its role to make the economy a healthy one and the industrial heartland as strong as it can be in the global economy.

But we have another role.

Our children grow up in the Heartland. Our families live in the neighborhoods, paddle in the Boundary Waters and eat the fish. Our retirees enjoy the sunset on Lake Michigan. We all drink the water and breathe the air. Through these activities, we are, if I may excerpt a quote from your Sierra Club Founder, John Muir, "hitched to everything else in the universe."

The United Steelworkers Task Force on the Environment, which I chaired, reported this same notion in other words to our Constitutional Convention last August. The Report noted that with "Problems of acid rain, global warming, ozone depletion, oceanic pollution and world poverty...we can no longer think of ourselves as citizens of the U.S. or Canada,

or even as North Americans. The potential catastrophe is global. Environment must be a global issue."

"But", the report then asks "is it a union issue? Should we work to protect the environment merely as good citizens, or is there a special role for our union to play? I want to quote at some length from the Report's reply to this question --- and that reply is now an official benchmark on future directions of the Union.

However, before I present the Task Force's response to that question, I wish to relate another piece of Steelworkers' history which I think is most appropriate to the issues of this conference and even more appropriate to this particular region. Many years ago Carl Sandburg, the poet, remarked: "The Indiana Dunes constitute a signature of time and eternity." But he did not realize how persistent some forces could become in their efforts to erase that signature. Major portions of the sand dunes were leveled to provide space for industrial development, including the location of major steel mills. Thousands of tons of former virgin dune sands had been transported across the lake by barges to restore beaches along the lake shore north of Chicago. Additional tonnage was diverted for other purposes including the construction of the interstate highway system in Indiana. In 1966 the USWA district representing some 37,000 steelworkers residing in Lake County adopted a resolution seeking to preserve the Dunes. Congressman Annunzio, on October 10, 1966 placed the Resolution in the Congressional Record with these words:

"These are the people who have been forced to live in heavily industrialized areas where the air has become foul and the water polluted. These are the people who are asking for the preservation of what is left of our natural recreational areas."

I mention this event because a labor-environmental coalition was ultimately successful in preserving a significant portion of the Dunes. The 1966 USWA Resolution sounds, even today, most relevant:

"...such location permits industry to take full advantage of water transportation and the use of millions and millions of gallons of what was fresh, pure Lake Michigan water without cost to them ... and was not returned as it was found but polluted water was returned and foul air laden with dust and gas returned to the atmosphere ... there

are those who seek to build for the sake of building and who value things above people, who are contributing to the efforts of profiteers and misguided politicians." It took a coalition to save the Dunes and it will take a coalition to save the Basin.

I referred earlier to a special USWA Task Force which attempted to define the role of our Union - of any union - in the organized effort to combat those sources which would destroy the environment. That report indicated that the environment is an essential union issue and must be part of the mission at every level of the union. The reasons are several.

(1) First, we must protect our children's world.

Steelworkers have always fought for a better life for their children. Most of us are the descendants of immigrants who came to the United States or Canada seeking a better future, not just for themselves, but for later generations as well.

Today, the greatest threat to our children's future may be the destruction of their environment. Some of the worst consequences of environmental damage, such as global warming and the death of the oceans, will not occur in our lifetime. But they could devastate the world of our children.

Some people believe that we can leave the problem to future generations. That is a delusion.

(2) Second, protecting the environment ultimately protects our jobs.

At first glance, this seems to run counter to everything we have heard about environmental issues. The common assumption seems to be that protecting the environment will destroy the jobs of thousands - maybe millions - of workers in our basic, smokestack industries. Which view is correct?

In a technological sense, the solutions to environmental problems are within our grasp some may require continued research while we take the first steps, but none are beyond our technical capacity.

None of this, however, will be easy or cheap. The real problems are not technical -they are economic and political.

Our society will change enormously, either through our efforts to save our environment, or because environmental destruction finally overwhelms us. As a union, we cannot stand aside from these issues. Difficult choices will have to be made. The only question is who will make those choices, and how? Will working people be the victims of change, or will we help control that change to the benefit of ourselves and our children?

Steelworkers have heard the jobs argument before. For many years companies have tried to use economic and environmental blackmail on the union and its members. In every fight for a new health and safety regulation, or better wages, or improved pensions, there is a corporate economist to tell us that if we persist, the company or the industry will fold, with hundreds or thousands of lost jobs. It rarely turns out to be true, and for good reason. Someone has to design the cleaner process or equipment. Someone has to build it. Someone has to install it. Someone has to operate it. Someone has to maintain it.

In the long run, the real choice is not jobs or environment. It's both or neither. What kind of jobs will be possible in a world of depleted resources, poisoned water and foul air, a world where ozone depletion and greenhouse warming make it difficult even to survive?

At the same time, we must recognize that some plants will close no matter what we do. It does not help these workers to argue that other jobs will be created somewhere else in some other industry. Protecting the environment may create jobs on the average, but displaced workers need jobs themselves, not the knowledge that some other worker is benefiting from their sacrifice.

The only answer is to link environmental issues with economic justice. In particular, income protection and job retraining should be automatic for workers who are displaced because of new environmental regulations, or the failure of their employers to adapt. For example, the USWA and other unions are lobbying intensively to add an Environmental Adjustment Assistance provision to the Clean Air Act.

We cannot serve our members by ignoring environmental issues. We cannot protect them by pretending to resist change. Our mission is to adapt to change and to channel it for the long-term benefit of our members and all working people.

(3) Third, environmental issues are linked to all other issues confronting us.

Economic forces are the key to almost every union issue. Environmental issues are no different.

Companies usually try to "externalize" their costs - to make someone else pay part of the real cost of production, for example when workers are asked to pick up part of the cost of their health insurance.

Sometimes those costs are hidden. Bad working conditions lead to an increase in occupational accidents and illness. Some of that cost is paid by the workers' compensation system; most of it, however, is absorbed by the victims themselves in disability and lost income, and by all the rest of us, in higher overall medical and insurance bills.

Environmental economics work the same. Some companies try to maximize their profits by ignoring the cost to the environment. Pollution is pumped into the air and water, toxic chemicals are allowed to escape, greenhouse and ozone-depleting gases are generated because the cost to the environment never appears in the company's balance sheet.

But the cost is real. And while the cost of environmental damage may be external to the company, the Earth itself is a closed system. Considering the Earth as a whole, there is no such thing as an external cost.

A healthy economy is essential to a healthy environment. Protecting the environment ultimately means more efficient production, with less drain on the Earth's resources, and less waste.

For these compelling reasons, then, the United Steelworkers is increasingly taking action, increasingly becoming engaged in environmental work. As always, the most important actions are taking place at the local union level. We are recommending that environmental committees be formed, and become informed about environmental issues. There are some achievements. In Montreal, for instance, Local Union 6887 helped the Noranda copper refinery negotiate a water pollution variance, but, at the same time, secured from the company, commitment for long-term state-of-the-art-compliance. At the Gary USX works, not far from here, Local

Union 1066 forced a waste handling company to reduce its inventory of chlorine and worked with USX on an emergency response plan. Such examples point the way to pollution prevention and to zero discharge, the goal of the Great Lakes Water Quality Agreement between the U.S. and Canada.

This is the direction of the future: prevent pollution; reduce the use of toxics; minimize or eliminate exposure for both workers and the community. Our workers and our communities will not accept palliative, will not take pollution with a dose of good medicine. The medicine is not always good. When I was a staff representative in the St. Louis area there were a number of lead battery plants whose workers I represented. Instead of cleaning up the atmosphere of the workplace, it was the Company's policy to clean up the blood lead levels of the workers through the use of chelating agents. It was unbelievable.

One of the members who testified in Congress for an OSHA lead standard died shortly thereafter. The reason I mention this episode is to emphasize that there is no difference between pollution inside the plant and outside. In other words, we must be engaged on both fronts: EPA and OSHA.

This union will also address environmental issues at the national policy level. In the arena of airborne toxics levels, the United Steelworkers will work for the strongest possible Maximum Available Control Technology to contain emissions from coke oven batteries under the new Clean Air Act. You probably know, that once coke oven batteries comply with these technology-based rules by 1995 they will be exempt from risk-based regulations until 2020. We did not support this exemption. However, the union will be involved in EPA rule-making on this and other sources of air toxics -- chemical plants, mills, smelters and the like -- where our members work and live. We'll be involved in generic issues like permits and voluntary reductions. We'll watch the development of the displaced worker provisions of the Act.

There is one further point which I would like to make. While it is fashionable to talk about the most cost effective measures for controlling pollution, we must never forget that social responsibility and environmental responsibility should be compatible. That is why we would advocate that any recommendations coming out of this conference include a strong legislative and regulatory

regime for controlling and cleaning up the pollution in the Great Lakes. We should not cast too much reliance on market mechanisms which might bring about the necessary abatement but at the same time, would be unmindful of the social costs.

The United Steelworkers will be on Capitol Hill, lobbying for more resources for research and enforcement of environmental laws. We will be in statehouses, working on pollution prevention, right to know and other issues. We will be educating our members, as we've done since the late sixties, through our newly renamed Department of Safety, Health and Environment and with other programs.

Obviously, those of you in this room will be doing the same thing. Indeed, the only workable strategy for Great Lakes clean air and water is to form a network for action. The United Steelworkers of America is receptive to this approach. Call us. We want to be cooperative with those seeking less poison in the sky and water. We are ready to discuss with your allies the needs of working people for decent, safe jobs, and for healthy environments. We are ready to listen, coalesce and take the mutual action that will clean the air, waterways and toxic dumps.

We are increasingly becoming equipped with the means to control our destiny. Expansion of regulatory intervention, further tightening of emission standards and disclosures under right to know laws enhance our ability to cope with our mission. Recently, key Senators announced their intention to seek a sweeping expansion of the Right-to-Know laws, especially the Toxic Release Inventory program.

The public has the right to know more; we must cross the threshold of abatement activities into the arena of prevention. Sustainable development may be a catch phrase, but it is also an objective.

For us in the labor movement, we realize that safe jobs are also secure jobs, that modernization of our industrial processes, along the lines of sustainability which puts industry on the cutting edge of technology, also advances our competitive position in the global marketplace.

I said earlier that the spirit and strength of the workers in the Heartland are essential to the economic health of the Heartland. Likewise, the environmental health of this glorious Great Lakes ecosystem, from pristine Lake

Superior to the murky Cuyahoga river, is essential to the spirit and strength of working people in the Basin. When we all begin to act together on this premise, then we will be protecting the world that we are borrowing from our children.

LABOR & ENVIRONMENT

1. No inconsistency between the objectives of the labor movement and environmental protection.

- o At a broader policy level "sustainable development" and "sustainable livelihood" promote one another.

Rationale: Poverty is a major factor in ecological catastrophes. Employment alleviates poverty. According to the ILO "in the process, the concept of 'sustainable livelihoods' is forged. The labor market is boosted by the introduction of sound pollution abatement techniques and cleaner process techniques. It follows that the prevention of environmental degradation is conducive to the promotion and safeguarding of employment (Tab 1)

- o Environmental health and occupational health both relate to the same industrial process which must be controlled.

Rationale: The 1970 OSHA legislation was enacted only after the years of development of the public's awareness of environmental hazards. The various Clean Air Act measures preceded OSHA and provide the statutory precedents for a workplace environmental standard.

- o Both environmental protection and occupational health confront the same opposition: environmental blackmail.

Rationale: Workers and environmentalists need to be in coalition to advance their objectives against the charge that jobs and economic growth are destroyed because of regulatory intervention.

2. Environmental advancement has meant job security and job creation.

- o Where companies have met environmental obligations, there is an indication that they are also on the forefront of modernizing their facilities. Plants that are polluting are plants where the corporate owners may already be disengaging. This is an early warning sign of shutdown.

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o A strong environmental goods and service (EGS) industry has been created to meet domestic requirements for controlling air and water pollution and for disposing of wastes. Superfund activities and environmental restoration, together with related technologies, is providing a growing base for a new jobs market: (Tab 2)

- 70,000 business
- \$130 million income
- 1 million workers
- \$270 billion sales
- \$76 billion in tax revenues.

o EGS industry is also a growing global market. Labor's interests (jobs) are advanced if we can remain in the forefront of commitment to environmental controls. Otherwise our trading partners will occupy the environmental goods markets through their exports, resulting in a loss of U.S. jobs: (Tab 3)

Germany exports	\$10 billion
U.S.A.	4 billion
Japan	3 billion
U.K.	500 million

o While relaxation of or resistance to environmental regulations might mask the decline of a particular plant, it might also signal the loss of U.S. opportunities in the global market. (Tab 4) Environmental markets are driven by regulations. Because of recent Republican Administration opposition to regulations, American firms have been facing challenges from foreign companies, both overseas and in the domestic U.S. market for the provision of environmental technologies:

- OECD calculates a \$200 billion market in 1990
- OECD projects a \$300 billion market in 2000, growing at a rate of 5 to 6 percent per year.
- EGS market growth rates:

Japan	6.2%
U.S.A.	5.0%
E.C.	4.9%

Future job markets are at stake. (Tab 5)

3. Pollution prevention rather than pollution abatement is a new trend. While regulatory intervention should not be replaced, the new trend does allow market forces to play a role. Pollution prevention has an economic value for the company: it makes the company cost-competitive and more productive. Pollution is waste and thereby is costly both in terms of abatement and loss of a resource.

o This trend is also advantageous to environmentalists and workers. It can maintain environmental advances while at the same time it pushes modernization, the investment in which provides greater job protection.

o There is a direct relation between pollution prevention and manufacturing modernization, involving continuous improvement. This approach is sometimes referred to as Total Quality Management (TQM) and encompasses worker empowerment to make improvement. The recent coke oven emission regulation includes a section on worker participation. Again, these trends signal greater job security. (Tab 6)

o Industries which maintain good environmental records are the ones that are more consistent with job security.

o Industries which adopt a pollution prevention approach switch to new more efficient processes. The environment becomes not a green, emotional issue: it's an economic issue with cost benefits. Additionally, this shift to environmental prevention process means a shift to a more occupationally safer process. Again, workers benefit. (Tab 7)

o Energy efficiency alone could save some of the \$500 billion spent on imported oil over the last 10 years, thereby releasing funds for education, infrastructure, health care, modernization, etc. (Tab 9)

4. Labor and environmental groups have cooperated on many levels. Environmental activists are primarily local-based groups who have been most willing to support labor's corporate strategy campaigns e.g. Ravenswood, Phelps Dodge, etc.

o Legislatively the Union has been a strong promoter of environmental laws: air, water, waste, conservation.

USWA is a founding member of the National Clean Air Coalition.

- o Administratively, the Union through its Safety, Health and Environment Department has engaged in the implementation of various environmental programs.

- o 1990 USWA International Convention in Toronto focused on these issues through a series of panels, videos, and floor debates. Our Children's World was a report which we released.

- o Our staff hold policy positions on a number of environmental organizations: Natural Resources Defense Council, World Resources Institute, Energy & Environmental Study Institute, National Wildlife Federation.

- o Unions and environmentalists are also deeply concerned with the NAFTA provisions which could work to the detriment of labor and environmental standards on both sides of the border. Our joint effort has certainly produced attention and results.

- The Union has supported the position that trade considerations should not be used to weaken domestic laws.

- We have also urged that the lack of environmental standards should constitute an unfair trade practice against which countervailing duties could be applied.

- USWA has advocated a linkage between trade and the environment so that trade sanctions could be applied where standards are avoided. It is the same approach which we take with regard to violations of internationally recognized labor rights. (Tab 8)

5. Labor and environmental groups have also joined in promoting a readjustment program for workers and communities affected by environmental considerations. It is sometimes known as a Superfund For Workers. Basically the idea tracks the Trade Readjustment Assistance program. One of the main problems facing our timber workers on the West Coast is not just the

protection of the owl, but actually the depletion of a natural resource, i.e. virgin timber. However, there are not long-term reconversion measures to assist those workers and their communities.

public contract law, is necessary for implementation of successful energy savings performance contracts.”

(b) **DEFINITION.**—Section 804 of such Act (42 U.S.C. 8287c) is amended—

(1) in the material preceding paragraph (1), by striking “title—” and inserting “title, the following definitions apply:”;

(2) in paragraph (1), by striking “the” and inserting “The” and by striking “, and” and inserting a period;

(3) in paragraph (2), by striking “the term” and inserting “The term”; and

(4) by adding at the end the following:

“(3) The terms ‘energy savings contract’ and ‘energy savings performance contract’ mean a contract which provides for the performance of services for the design, acquisition, installation, testing, operation, and, where appropriate, maintenance and repair, of an identified energy conservation measure or series of measures at one or more locations. Such contracts—

“(A) may provide for appropriate software licensing agreements; and

“(B) shall, with respect to an agency facility that is a public building as such term is defined in section 13(1) of the Public Buildings Act of 1959 (40 U.S.C. 612(1)), be in compliance with the prospectus requirements and procedures of section 7 of the Public Buildings Act of 1959 (40 U.S.C. 606).

“(4) The term ‘energy conservation measures’ has the meaning given such term in section 551(4).”

(c) **TECHNICAL AND CONFORMING AMENDMENTS.**—(1) The title heading for title VIII of such Act is amended to read as follows:

“TITLE VIII—ENERGY SAVINGS PERFORMANCE CONTRACTS”.

(2) The table of contents of such Act is amended by striking the item relating to title VIII and inserting the following: “ENERGY SAVINGS PERFORMANCE CONTRACTS”.

SEC. 156. INTERGOVERNMENTAL ENERGY MANAGEMENT PLANNING AND COORDINATION.

(a) **CONFERENCE WORKSHOPS.**—The Administrator of General Services, in consultation with the Secretary and the Task Force, shall hold regular, biennial conference workshops in each of the 10 standard Federal regions on energy management, conservation, efficiency, and planning strategy. The Administrator shall work and consult with the Department of Energy and other Federal agencies to plan for particular regional conferences. The Administrator shall invite Department of Energy, State, local, tribal, and county public officials who have responsibilities for energy management or may have an interest in such conferences and shall seek the input of, and be responsive to, the views of such officials in the planning and organization of such workshops.

(b) **FOCUS OF WORKSHOPS.**—Such workshops and conferences shall focus on the following (but may include other topics):

(1) Developing strategies among Federal, State, tribal, and local governments to coordinate energy management policies and to maximize available intergovernmental energy management resources within the region regarding the use of governmental facilities and buildings.

(2) The design, construction, maintenance, and retrofitting of governmental facilities to incorporate energy efficient techniques.

(3) Procurement and use of energy efficient products.

(4) Dissemination of energy information on innovative programs, technologies, and methods which have proven successful in government.

(5) Technical assistance to design and incorporate effective energy management strategies.

(c) **ESTABLISHMENT OF WORKSHOP TIMETABLE.**—As a part of the first report to be submitted pursuant to section 154, the Administrator shall set forth the schedule for the regional energy management workshops to be conducted under this section. Not less than five such workshops shall be held by September 30, 1993, and at least one such workshop shall be held in each of the 10 Federal regions every two years beginning on September 30, 1993.

SEC. 157. FEDERAL AGENCY ENERGY MANAGEMENT TRAINING.

(a) **ENERGY MANAGEMENT TRAINING.**—(1) Each executive department described under section 101 of title 5, United States Code, the Environmental Protection Agency, the National Aeronautics and Space Administration, the General Services Administration, and the United States Postal Service shall establish and maintain a program to ensure that facility energy managers are trained energy managers. Such programs shall be managed—

(A) by the department or agency representative on the Task Force; or

(B) if a department or agency is not represented on the Task Force, by the designee of the head of such department or agency.

(2) Departments and agencies described in paragraph (1) shall encourage appropriate employees to participate in energy manager training courses. Employees may enroll in courses of study in the areas described in section 151(3) including, but not limited to, courses offered by—

(A) private or public educational institutions;

(B) Federal agencies; or

(C) professional associations.

(b) **REPORT TO TASK FORCE.**—(1) Each department and agency described in subsection (a)(1) shall, not later than 60 days following the date of the enactment of this Act, report to the Task Force the following information:

(A) Those individuals employed by such department or agency on the date of the enactment of this Act who qualify as trained energy managers.

(B) The General Schedule (GS) or grade level at which each of the individuals described in subparagraph (A) is employed.

(C) The facility or facilities for which such individuals are responsible or otherwise stationed.

DRAFT

TECHNOLOGY/ECONOMIC GROWTH AND ENVIRONMENT
Little Rock Summit

LYNN R. WILLIAMS
International President
UNITED STEELWORKERS OF AMERICA

December 15, 1992

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It is a truism that oil and water don't mix. In that same vein, there has been the constant refrain that environmental protection and industrial production don't mix, and by extrapolation, jobs and the environment are in conflict with one another. Such assumptions have indeed been the basis for the years of environmental blackmail to which workers, their communities and their legislators have been subjected. Fortunately today at this summit session, after twenty-two (22) years of experience under the Clean Air Act and other environmental and occupational safety and health acts, we are able to refute that claim. Between 1973 and 1986 we have reduced pollution, decreased CO₂ emissions, and expanded the economy by almost 40 percent while at the same time maintaining the same level of energy consumption.

1. That observation leads me to the first comment which I would like to make. Environmental attentiveness is not a job loser. It is a job creator. While I am not advocating the promotion of pollution abatement and/or prevention solely because of its positive impact upon the

job market, that aspect of our environmental laws has only recently emerged. It is, nevertheless, a definitive response to environmental blackmail. At a time in which we are keenly sensitive to the need for developing and expanding new job opportunities, especially when restructuring pressures are depressing many existing job bases (e.g. in the defense industry), environment-oriented jobs are a positive contribution and can be part of an economic stimulation program. Clean-up of Superfund sites, construction of sewage treatment facilities, and clean water rehabilitation efforts are labor intensive activities that also have a social objective.

The environmental goods and services industry has been a fast growing one, albeit stimulated by environmental regulations. By some calculations the abatement and prevention industry comprises 70,000 businesses employing over 1 million workers with a 1991 income level of \$130 billion. According to an article by Senator Wirth "...using a standard multiplier effect to gauge the full impact of the sector in our economy, economists suggest that there is a 3.5 million jobs flow."

2. A second point relates to the trade aspect of this growing market. The OECD projects that the global market is expanding at the rate of five to six percent per year and will reach over \$300 billion in seven years. The International Finance Corporation projects an even larger market by the year 2000, namely \$600 billion. These figures indicate a global market greater than the aerospace and chemical industry. Labor's interests (i.e. jobs) are advanced if we can remain in the forefront of a commitment to environmental controls. Otherwise our trading partners will seize the environmental goods and services markets through exports, resulting in a loss of U.S. jobs and future job opportunities. Actually, this disadvantageous trend is already underway. U.S. firms have lost the edge to Western Europe and Japan in air pollution control technology due to the lax enforcement of our environmental laws during the Reagan and Bush years.

3. Thirdly, environmental advancement has meant not only job creation but job security. When companies have met environmental obligations, there is an indication that they are also on the forefront of modernizing their facilities. Plants that are polluting are plants where corporate owners

may already be disengaging. It may be an early warning signal of an impending shutdown. An investment in pollution abatement can be an early downpayment in a modernization program. This is a labor issue because it is a job security issue. Perhaps many more of our jobs could have been protected against imports if firms had early on committed themselves to environmental investments which could have put them on a course of modernization and cost efficiency.

4. End-of-the-pipeline pollution abatement investments have been resisted by many corporations. Now, however, environmental awareness has taken on a new characteristic, namely pollution prevention, the resistance to which could spell further deterioration of our job security. Pollution prevention has an economic value for the company; it makes the company cost-competitive and more productive precisely because pollution is, in reality, waste both in terms of loss of a resource (new material) and in terms of abatement. There is a direct relationship between pollution prevention and manufacturing modernization which focuses on continuous improvement to eliminate waste as inefficient. Some of our companies are now engaged in a review of their production processes. Such a review, stimulated through environmental

intervention to prevent pollution rather than treat it, can put firms on the cutting edge of technology. This review is sometimes referred to as total quality management (TQM) and encompasses worker empowerment to make improvements. Again the drive for technological advancement is an important aspect of environmental achievement on sustainable development and a key factor in job security, especially in global market competition.

5. Jobs and the environment have a dual linkage. Not only are jobs enhanced by environmental measures, but environmental objectives are achieved through a healthy economy. As we all know, poverty is a major factor in ecological catastrophes. According to a recent ILO report:

"Employment alleviates poverty. In the process, the concept of 'sustainable livelihoods' is forged. The labor market is boosted by the introduction of social pollution abatement techniques and cleaner process techniques. It follows that the prevention of environmental degradation is conducive to the promotion and safeguarding of employment."

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In other words, "sustainable development" and "sustainable livelihood" promote one another.

6. Furthermore there is an inherent linkage between occupational health and environmental health. The advancement of the quality of a worker's life on the job has had an immediate connection with the rising awareness of the environmental quality of community life. Environmental health and occupational health both relate to the same industrial processes which must be controlled. The 1970 OSHA legislation was enacted only after the years of development of the public's awareness of environmental hazards and was preceded by the passage of the Clean Air Act which provided the statutory precedents for a workforce environmental regime. Throughout the history of

implementation of both Acts, environmental protection and occupational safety and health have been confronted by the same opposition: environmental blackmail. In addition, we had to insist that a systematic policy of deregulation of environmental laws or safety laws did not in any way substitute for an aggressive macro-economic policy.

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While the plant gates may divide the regulatory responsibility over environmental health hazards, it is the emissions from the same industrial processes for which abatement or prevention measures are required. Community health and worker health are linked in a continuum and ultimately both are advanced together. For that reason, workers and environmentalists need to be in coalition to promote their objectives against the charge that jobs and economic growth are impaired because of regulatory intervention. Incidentally, with the new Administration we would urge that there be a closer coordination between OSHA and EPA.

7. I have made frequent reference to the favorable impact that environmental measures can have in stimulating a technological response to global competition. However, in a perverse way, our trade treaties can be used to inhibit strong environmental standards. Exporters, under the guise of free trade, are inclined to declare such standards as non-tariff barriers and subject to a GATT challenge. Secondly, inferior standards or lax enforcement could create unfair competitive advantages. Where such practices can cause injury we would suggest that they be amenable to

~ Al - they have agreed to take this out. K.

unfair trade petitions by domestic producers in the importing country. In effect, there needs to be a greater integration of green and trade policies.

While oil and water don't mix, economic progress increasingly is becoming dependent upon environmental protection. Environmental technologies, while directed at pollution abatement and prevention, also drive production competitiveness and efficiency required for survival in a global economy. For the labor movement this translates into more secure jobs and equally important, more safe and healthy jobs. As we state in our Steelworker Convention Report Our Children's World: "In the long run, the real choice is not jobs or environment. It's both or neither."

QUESTIONS BASED ON THE PRESENTATION OF JOHN E. BRYSON, Chairman and Chief Executive Officer of Southern California Edison Corporation

1. Question to Richard Clark, Chairman and C.E.O. of Pacific Gas & Electric:

Southern California Edison's experience indicates that there is significant potential for simultaneous economic and environmental gains through greater use of energy efficiency and renewable energy supplies.

***** Does Pacific Gas and Electric's recent experience indicate similar potential for economic and environmental gains?

Note: Pacific Gas and Electric plans to meet 75 percent of electric load growth for the 1990s with customer energy efficiency. Their energy efficiency programs in the 1990s are expected to cost their residential and industrial customers \$2.4 billion less than if customer needs were met by building new generating capacity.

2. Question to William R. Wiley, Directory of the Pacific Northwest Division and Senior Vice-President of the Battelle Memorial Institute.

Southern California Edison has been engaged in numerous creative partnerships with firms exploring renewable technologies (such as Texas Instruments and photovoltaics) and consortiums such as CALSTART, which is working on development of an electric vehicle industry in California.

***** What is your view of the potential for government/industry partnerships in developing technologies that are cost-effective and environmentally sound? Is this potential being little utilized now (indicating the possibility of large gains through better institutional cooperation)?

Note: William Wiley's programs at Battelle include operation of the Department of Energy's Pacific Northwest Laboratory, developing and deploying technology in support of DOE's missions in energy, environment and national defense. The Laboratory is establishing cutting-edge programs in basic science and applied technology and recent initiatives include high-performance computing and energy efficiency projects to meet the challenges of the 21st Century.

3. Question to Dennis Bakke, Co-Founder and C.E.O. of The AES Corporation (Energy/Cogeneration). [This question is better addressed to someone involved in manufacturing extension, but there may not be anyone on the Panel that fits that description.]

Southern California Edison has numerous innovative extension programs which provide information on the latest energy efficient technologies to residential, commercial, and industrial customers. [Examples of such programs are their Customer Technology Application Center and their Business Retention Program].

***** What is your view of the importance of such extension programs in assuring the implementation of cost-effective and environmentally sound technologies?

4. Question to Carol Browner, Florida's Secretary of Environmental Regulation:

Southern California Edison's experience indicates the potential for 'win-win' energy strategies which save money and enhance environmental quality.

***** Based on your experience in Florida, what general type of regulatory regime is best for promoting strategies that provide simultaneous economic and environmental gains?

QUESTIONS BASED ON THE PRESENTATION OF LYNN R. WILLIAMS,
International President of the United Steelworkers of America

1. Question to Pam Noyes Linton, President and C.E.O. of Pollution Solutions of Vermont, Inc., and Pollution Solutions of Canada, Inc. or Ed Romero, Founder, Chairman and C.E.O. of Advanced Sciences, Inc. (environmental services, engineering, waste management) or Maria Elena Torano, President and Chief Executive Officer, META, Inc. (small business/environmental services).

The United Steelworkers believe that labor gains from progressive environmental programs through the development of new jobs in the environmental goods and services market.

***** Based on your company's experience as well as others in your field, what is your perception of the job growth prospects in the market for environmental goods and services?

XX 2. Question to Frank P. Popoff, Chairman, President and C.E.O. of the Dow Chemical Company

The United Steelworkers believe that job security (as opposed to just job creation) is greater in firms with proactive environmental policies because such firms are more likely to be using innovative practice such as total quality management, which increase long run competitiveness. [Pollution prevention efforts are often modeled on 'traditional' total quality management programs.]

***** Based on your experience at Dow, what is your view of the linkage between job security and proactive environmental management?

Note: Frank Popoff has compared the false choice between economic competitiveness and the environment to the earlier false choice between product quality and costs. "Some will still say economic efficiency and environmentalism are opposing objectives. But 15 years ago, the same thing was said about quality and lower costs being opposing objectives....U.S. and Japanese firms have proven otherwise."

DOW has examples of proactive environmental policies which saved money and thus enhanced job security. In 1988-89, DOW's Louisiana division invested more than \$12 million in 47 waste reduction projects with an average payback time of 10 months.

XXA- W. Edwards Deming stuff . . .

3. Question to Paul O'Neill, Chairman of Aluminum Company of America (ALCOA)..

The United Steelworkers (and presumably other labor groups) support the adoption of progressive environmental policies by business and government.

***** What has been the reaction of workers at ALCOA to the implementation of proactive environmental policies which attempt to minimize wastes and prevent pollution?

Note: According to a recent ALCOA newsletter, its workers are actively involved in environmental efforts in plants and in the surrounding communities. "Good corporate stewardship ranges from wildlife preservation to land reclamation to office paper and aluminum can recycling....The involvement of Alcoa plants and people covers the spectrum. From building nesting boxes to providing environmental education for local communities, Alcoans worldwide are demonstrating a commitment to corporate stewardship."

Steelworkers

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To <i>GEORGE FOX</i>	From <i>TACK SHULLEN</i>	
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Fax # <i>221-5568</i>	Fax #	

July 1, 1992

BUSH ADMINISTRATION
DE-ENFORCES
CLEAN AIR ACT

As a union representative and participating member of the National Clean Air Coalition, I should like to make ~~three brief comments about the unfolding and evolving deregulation of the Clean Air Act of 1990 under the guise that its implementation will seriously erode the nation's economy.~~

1. A 13 Year Debate:

The political and legislative decision to further enhance and protect the environmental health was made in 1990 after years of discussion and evaluation of the economic impact which might result from needed improvements in the regulatory measures to abate dirty and hazardous air. ~~The lengthy decision-making period provided a sufficient amount of time for the economy in general and industry in particular to discount any adverse impacts.~~ As a matter of fact, some of the new provision do not lock in until after the year 2000 - even as late as 2020. The gestation period should be over. We believe that there is no conflict ~~between the economy and environmental health protection.~~ In August 1990 USWA convention made a declaration which is broadly representative of the general public: "In the long run, the real choice is not jobs or environment. It is both or neither." The President and the Quayle council should let the enforcement period begin.

2. Environment and Global Competition:

The real protection for jobs lies in the ability of our firms to be competitive. ~~But it must be a competitive strategy based upon innovative technology - not the avoidance of investments or a degradation of a standard of living.~~ Environmental regulations have stimulated new technology to that extent they have improved the competitive

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status of the firms that come into compliance and created jobs for the ~~abatement~~ industry. Furthermore, the new environmental markets overseas are being aggressively pursued by our trading partners. U.S. industry must seize the initiative and the Administration should not aid and abet resistance to the challenge by its fostering of an atmosphere of neglect. Actually further uncertainty and delays about enforcement will adversely affect investment decisions and jeopardize construction projects. That will have a real impact on jobs.

3. Stimulative Economy:

It is absolutely important to denounce any slowdown in Clean Air Act enforcement as being done for the benefit of economy. ~~Tinkering with regulations may provide some short-term advantages to some firms, but in no way can a systematic policy of deregulation of environmental laws be considered as a substitute for an aggressive macro-economic policy.~~ It reminds one of a balloonist who off-loads the weights in order to stay afloat but refuses to reignite the burners. Under this approach we lose both ways: environmental health is impaired and the economy remains in danger.

President Bush says he wants to be the environmental President. We join with those who urge him to be one.

The Energy Cycle

ALCOA
info

Since lighter cars use less fuel, lightweight aluminum parts are energy savers. For example, an average 3,000-pound midsize sedan could lose 25% of its weight by adding 850 pounds of aluminum to replace heavier materials.

For the car owner, this would not necessarily mean a smaller car—just a lighter one—and it would cost less to operate. Apply comparable weight savings to all U.S. cars, and gasoline consumption would decline by 16%.

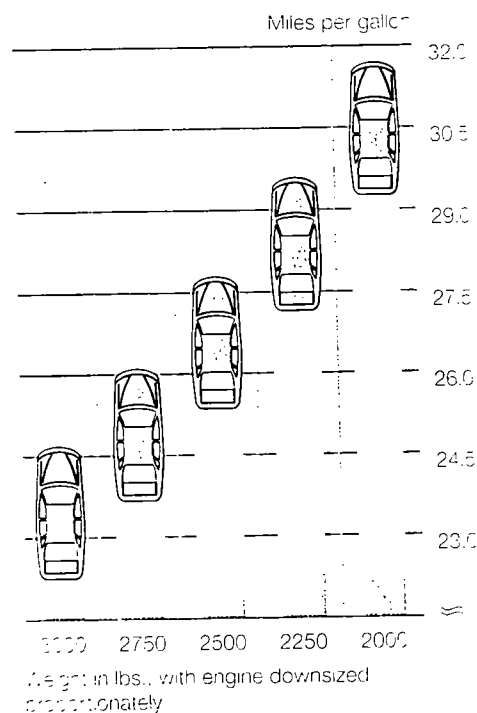
Where aluminum uses energy is in the original refining of bauxite and smelting of alumina. But 95% of this energy can be saved by using recycled aluminum.



How far can you get on a tank of gas? Yesterday's answer is not tomorrow's answer. With increasing use of aluminum, large cars won't have to weigh much more than small cars used to—and won't consume anywhere near the fuel that large cars once needed.

For the owner, a car's cost is not just the purchase price but rather the life-cycle cost of owning and operating the vehicle—including fuel. (See chart.) Lightweighting the car saves on fuel throughout the life cycle, so the owner gets the equivalent of hundreds of dollars in continuing rebates.

Lower Weight = Higher MPG

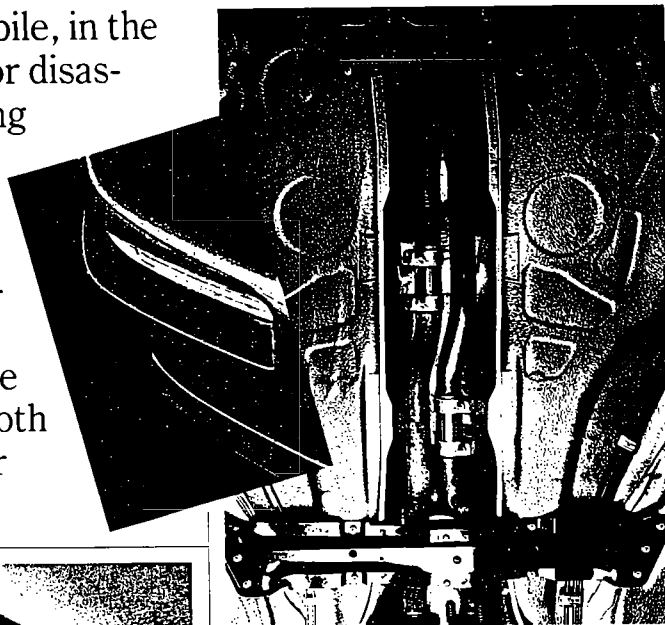


When Recycling Pays for Itself

The trend to recycling has reached the automobile, in the U.S. and abroad. Future cars will be designed for disassembly, using materials suitable for reprocessing into new parts for cars or for other products.

Recycling conserves resources, saves energy and reduces pressures on landfill disposal—as shown by the highly successful recycling of aluminum beverage cans.

This system works because aluminum's value provides a powerful incentive for recycling—both for cans and for cars. The more aluminum a car contains, the more recyclable the car.



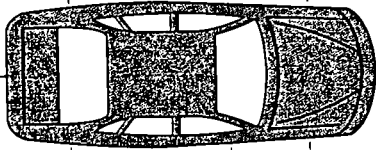
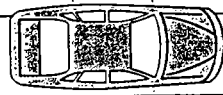
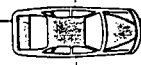
Future cars will have to be designed for easy disassembly and made of materials that can be recovered, resold, reprocessed and reused. Aluminum is not only recyclable, it pays its own way through the recycling loop. (See chart.)



At the end of its useful life, the Acura NSX will still have value for its last owner. Its high aluminum content will offer an extra incentive to recyclers of \$500 to \$1,100 worth of aluminum, based on the metal's historical price range.

Value of Recyclable Materials

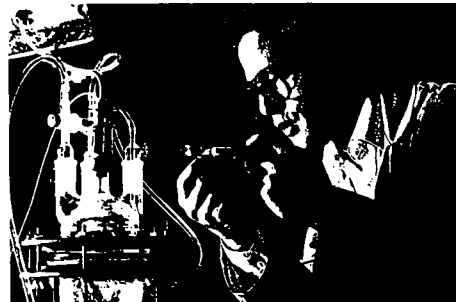
Automotive scrap

		
Aluminum: \$700 per ton		
		
Rubber: \$260 per ton		
		
Steel: \$100 per ton		
Glass: no market		
Plastic: no market		

■ Electricity averages about 30% of the total cost to make aluminum. Most of Alcoa's contracts for purchased power call for prices tied to aluminum prices or to various indices. Alcoa generates roughly 40% of its own power.



■ One objective of Alcoa's research and development efforts is to anticipate and address environmental impacts of new products and processes while they are still under development.



Total income, payroll, property and other taxes accrued by Alcoa were \$448 in 1991, \$681 in 1990 and \$1,077 in 1989.

> **Foreign Currency**—Effective January 1, 1991 the Australian dollar became the functional currency for translating financial statements of AofA. Economic factors and circumstances related to AofA's financial operations have changed significantly since the U.S. dollar was first designated as the functional currency. Under accounting rules, these new facts required the change.

Gains or losses from translating AofA's financial statements to U.S. dollars now are reflected in a shareholders' equity account on the balance sheet rather than in the income statement.

The change is expected to reduce the effect that exchange rate fluctuations have on AofA's earnings and give a truer picture of its operating performance.

As a result of the change, at January 1, 1991, Alcoa's Shareholders' Equity and Minority Interests accounts were reduced by \$133 and \$128, respectively. These amounts were offset principally by a reduction in fixed assets.

Environmental Matters

Alcoa continues to participate in environmental assessments and cleanups at a number of locations, including operating facilities and their adjoining property; at previously owned or operated facilities; and at superfund and other waste sites. Alcoa records a liability for environmental remediation costs and/or damages when a cleanup program becomes probable and the costs/damages can be reasonably estimated.

As assessments and cleanups proceed, these liabilities are adjusted based on progress in determining the timing and extent of remedial actions and the related costs and damages. The extent and amounts of the liabilities can change substantially due to factors such as the nature or extent of contamination, changes in remedial requirements and technological improvements.

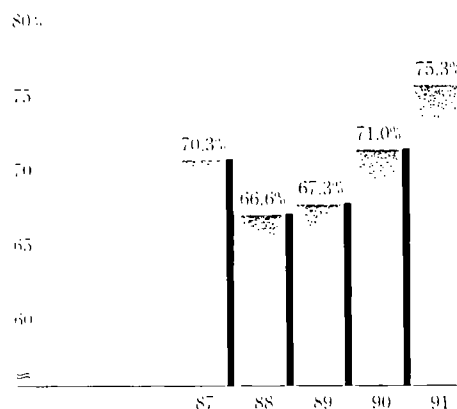
Further evaluations were completed in late 1991 and resulted in an increase in the reserve for environmental issues by a pretax amount of \$258. This provision, plus prior accruals, brought the total environmental reserve to \$521 as of December 31, 1991. This reflects Alcoa's most probable cost to remediate identified environmental conditions for which costs can be reasonably estimated. The expenditures will be made over the next ten years.

Liquidity and Capital Resources

Alcoa continued to strengthen its financial position, in part by improving its already low debt to equity ratio. The company has the financial flexibility to meet both short- and long-term needs or opportunities. Among the financial resources available to Alcoa are: a \$753 multiple-option loan facility that matures in 1993; a shelf registration with the Securities and Exchange Commission for up to \$300; and commercial paper arrangements rated A1/P1. Only the commercial paper program has been used, and the balance outstanding at December 31, 1991 was \$25.

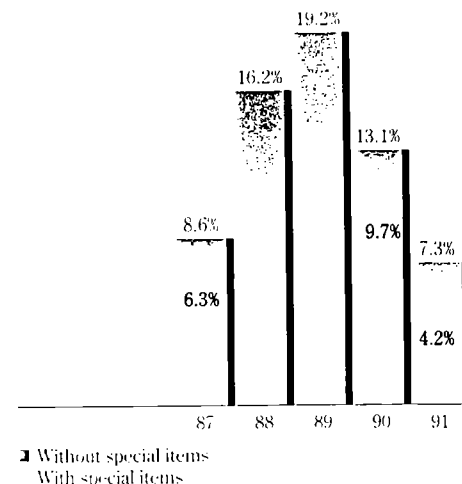
Cost of Goods Sold as a Percent of Sales

Cost reductions were not enough to offset lower revenues caused by low aluminum prices. This resulted in a 4.3 point rise in this ratio from 1990.



Return on Invested Capital

To improve returns, Alcoa is focusing on customer needs, controlling costs, and improving recovery rates and manufacturing flexibility.

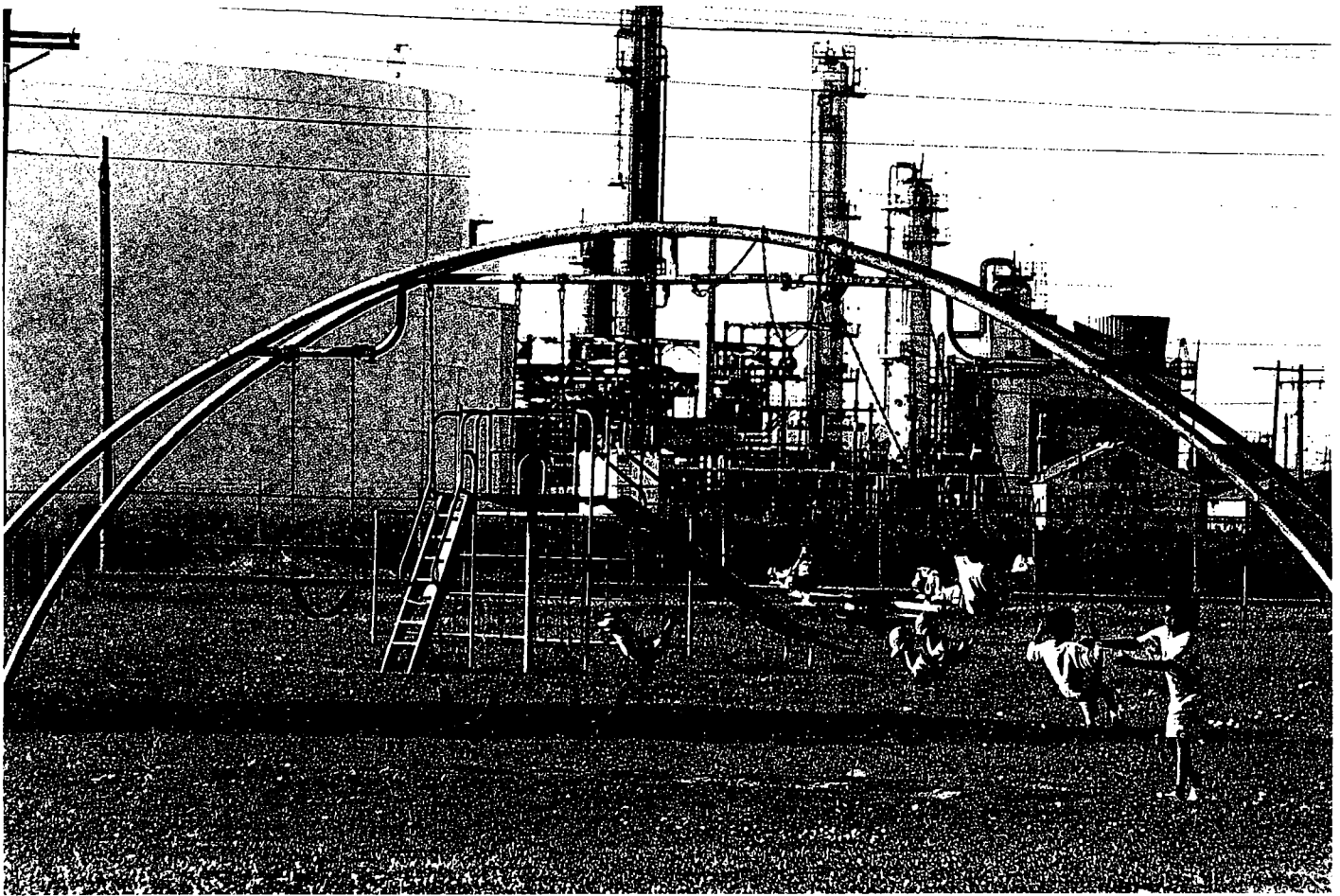


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OUR CHILDREN'S WORLD

STEELWORKERS AND THE ENVIRONMENT



*Report of the USWA Task Force on Environment
with
The Environmental Keynote Address
at the 25th Constitutional Convention*

August 1990

TESTIMONY OF JOHN C. FOX
MANAGER, ENERGY EFFICIENCY SERVICES
PACIFIC GAS AND ELECTRIC COMPANY

BEFORE
THE JOINT ECONOMIC COMMITTEE
UNITED STATES CONGRESS

REGARDING THE ECONOMIC AND ENVIRONMENTAL
BENEFITS OF ENERGY EFFICIENCY

TUESDAY, APRIL 28, 1992

Mr. Chairman and members of the Committee, I am John Fox, and I am the manager of the Energy Efficiency Services Department at the Pacific Gas and Electric Company in San Francisco. I am pleased and honored to testify today on the economic and environmental benefits of PG&E's energy efficiency programs. I have attached to my statement the previous testimony submitted by PG&E to both the House and Senate during the 102nd Congress, which relates to the topic before you today.

PG&E is the nation's largest investor-owned gas and electric utility, serving 11 million Californians from the Oregon border south to Santa Barbara. We have over 100 years of experience in the energy arena and a reputation as an industry innovator.

For us, energy efficiency is understood from a system perspective. We have provided energy efficiency services to our customers for more than two decades. But we also pursue supply efficiencies, including renewable energy and high-efficiency gas conversion technologies, as well as efficiencies in transmission and distribution. Especially over the last ten years, we have demonstrated beyond a reasonable doubt that energy efficiency (broadly defined) and renewable technologies can be the foundation of electric supply strategies for California and, to a large extent, for the United States as a whole.

PG&E plans to meet 75% of electric load growth projected for the 90's with customer energy efficiency. These programs will save the equivalent of 2,500

MW of power generation. The remaining load growth will be met with renewable generation sources and more efficient use of existing facilities and of the distribution grid. We are encouraged that in the past two years, we have exceeded our annual energy savings goals.

Our confidence in relying so heavily on energy efficiency is based on our belief that the market potential for cost-effective energy efficiency is large. Our own very conservative studies suggest that in excess of 25% of current electric use can be saved. Later studies by the Electric Power Research Institute suggest a range of 22-44%, while Rocky Mountain Institute claims that up to 75% of current use can be saved.

Our ability to capture these potential savings offers us and our customers the opportunity to reduce costs and increase productivity and competitiveness, while significantly reducing the adverse environmental impacts associated with energy production and use.

We support the theory that the marketplace should determine the amount and type of each energy option used. However, it is our sad experience that the marketplace for energy efficiency technologies contains significant and pervasive barriers which preclude widespread adoption of even the most cost-effective efficiency measures. A detailed description of these barriers is contained in the earlier PG&E testimony I have provided. These barriers range from the lack of consumer information to the lack of qualified technicians, the separation of buyers of equipment from the users of equipment, and the regulatory systems that encourage supply side investments over demand-side investments.

We believe that a coordinated effort by utilities, customers, regulators and state and federal governments is necessary to overcome these barriers.

California and an increasing number of states have reformed regulatory processes to remove disincentives to pursuing energy efficiency and have in some cases rewarded utilities for successful energy efficiency programs.

In this environment PG&E has increased its energy efficiency efforts. We now plan to spend well over \$2 billion in this decade on more than 40 programs that provide cost-effective efficiency opportunities to all customers. It has been our experience that every customer, even those with relatively aggressive efficiency programs, have significant untapped opportunities for cost-effective investments in energy efficiency. Also included in our earlier testimony is a general description of our programs.

Market research tells us that our customers place a high value on these programs. For our commercial and industrial customers, these efficiency improvements increase productivity and reduce costs, both of which lead to higher profits and enhanced competitiveness in national and world markets. For residential customers, our assistance to help control energy costs is a key determinant of customer satisfaction and increased disposable income.

Average customer bills are lower because of our programs. Put another way, these cost-effective efficiency investments result in society paying less for energy than it would if we constructed more power plants. In the case of PG&E, we estimate that, net of program costs, we will collect \$2.4 billion less from our customers in this decade than we would if we met customer needs by building generating capacity. This is \$2.4 billion that is available for other purchases or investments that stimulate the economy and create new or additional jobs.

Our experience also shows that substantial air emission reductions are possible commensurate with net savings to the U.S. economy. Due to PG&E's energy efficiency efforts, air emissions in this decade will be reduced by 20 million tons of carbon dioxide, 27,000 tons of nitrogen oxides, and over 5,000 tons of sulphur dioxide. An equivalent efficiency program in many other parts of the country would have even greater environmental benefits, since PG&E's reliance on fossil generation is below the national average, and is limited almost exclusively to natural gas.

I would like to conclude by returning briefly to the barriers to adoption of energy efficiency, and the possible roles for state and federal governments. Energy legislation now pending before Congress will be very helpful. In the

energy efficiency area, we are particularly pleased with the new labelling and standard-setting activities for motors, office equipment, and heating and cooling equipment, and with steps to encourage states to reform utility regulation. We hope that the Congress will also take steps this year to eliminate the taxation of utility rebates as income, which could prove to be a significant impediment to the marketing of efficiency programs.

Carrying out the legislative intent will require vision and initiative of both Federal and state governments. PG&E is pleased with the regulatory support in California, but there is an opportunity to improve support in other parts of the country. In many states, significant changes in regulatory policy will be needed to give electric utilities a balanced choice between efficiency and supply alternatives. Leadership and funding from the Federal government will also be important to speed these changes.

The President and the Congress both have recognized the example that Federal agencies can set in using energy efficiency criteria in their own purchasing practices. In addition, goals for improving the energy efficiency of Federal facilities will not only set an example and save substantial energy and money, they also provide an important stimulus to the service and manufacturing industries that provide energy efficient products.

PG&E has embarked on a long-term strategy of reliance on energy efficiency and renewable energy as its primary sources of new electricity supply. No single program or strategy will work for all American utilities. But we believe providing them with incentives for efficiency investments will further the nation's drive for sustained economic growth and improvement to the environment.

Mr. Chairman, I would be happy to answer any questions the Committee may have.