

UNITED NATIONS ENVIRONMENT PROGRAMME
(UNEP)

Environment and Economics Unit
(EEU)

THE USE AND APPLICATION OF ECONOMIC INSTRUMENTS
FOR ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE DEVELOPMENT

Report of the Meeting

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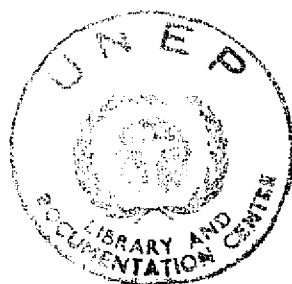
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THE USE AND APPLICATION OF ECONOMIC INSTRUMENTS
FOR ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE DEVELOPMENT

Nairobi, 10-12 August 1994

Report of the Meeting
Hussein Abaza
Meeting Organizer and Rapporteur



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*Ilham
Theodor*

CONTENTS

	Page
INTRODUCTION	1
<i>Session I Economic Instruments for Environmental Management</i>	2
<i>Session II Use and Application of Economic Instruments</i>	4
<i>Session III Financial Resources and Mechanisms for Environmental Management</i>	8
<i>Session IV Conclusions and Recommendations</i>	12

ANNEXES

<i>Annex I Briefing Session with UNEP Permanent Representatives</i>	13
<i>Annex II Annotated Agenda of the Workshop</i>	21
<i>Annex III List of Participants</i>	27
<i>Annex IV Conclusions and Recommendations (Framework of UNEP's Programme on Economic Instruments)</i>	43

Introduction

1. The UNEP Consultative Expert Group Meeting on the Application of Economic Instruments for Environmental Management and Sustainable Development was held at UNEP Headquarters in Nairobi from 10-12 August 1994. It followed the Consultative Expert Group Meeting on Valuation of Environmental and Natural Resources held from 8-10 August 1994. The objective of the meeting was to review the use and practical application of economic instruments for environmental management and sustainable development, their applicability in developing countries and the implications and modalities for their introduction. The meeting also considered financial resources and mechanisms required to fund sustainable development programmes. At the end of the meeting, a panel of 5 experts was selected to brief the UNEP Permanent Representatives of the outcome of the discussions. Attached as Annex I is the briefing session with the Permanent Representatives. The meeting was attended by 55 participants representing developing countries, countries in transition to market economies (CITs), non-governmental organizations (NGOs), universities, research institutions, and other UN agencies. Agenda of the meeting and list of participants are attached as Annex II and III respectively.
2. The meeting was opened by Mr. Hussein Abaza, Chief, Environment and Economics Unit (EEU), UNEP, who welcomed the participants to the meeting. Mr. Abaza gave a brief introduction of the EEU work programme, where he referred to the pilot studies being carried out with the Organization for Economic Co-operation and Development (OECD) and the United Nations Conference on Trade and Development (UNCTAD). This covered work with developing country institutions on internalization of costs with particular focus on certain commodities, and the commitment to training and capacity-building in collaboration with training institutions in developing countries. Mr. Abaza stated that in order to meet the specific challenges expressed in the UNEP Governing Council decisions, and to perform the task of integrating environment and economics in its activities, UNEP had convened a consultative meeting on Environment and Economics in Nairobi in February 1992. The meeting was preceded by a Workshop on Environmental and Natural Resource Accounting organized within the framework of the Committee of International Development Institutions on the Environment (CIDIE). Following the United Nations Conference on Environment and Development (UNCED) recommendations, which were endorsed by the 46 Session of the General Assembly, and recommendations of the consultative expert group meetings, a UNEP Action Programme on Environment and Economics was launched. UNEP's work in environment and economics focused on (a) *Environment and Natural Resource Accounting (ERA)*, (b) *Valuation of Environmental Goods and Services*, (c) *Economic Policy Instruments*, (d) *Environmental Impact Assessment (EIA)*, and (e) *Trade and the Environment*. He maintained that the series of meetings convened by UNEP provided it with a framework for an action programme and priority areas for future work, given its mandate and comparative advantage.

3. Mr. Theodore Panayotou, who was requested to chair the meeting, presented the background paper for the meeting entitled *Economic Instruments for Environmental Management and Sustainable Development*. The paper reviewed the different economic instruments available for environmental management and their application in developing countries and CITs. Mr. Panayotou asked the participants for their comments and views on the paper.

Session I: Economic Instruments for Environmental Management

4. The Chairman pointed out that the field of economic instruments was very broad. Economic instruments were incentive systems that were flexible and provided a better understanding of the significance of people's behaviour and response to different market signals. Economic incentives could be used to influence people's behaviour to achieve social objectives in the most cost-effective manner.
5. There were many traditional communities in developing countries that had established property rights and user rights, and had provided incentives for its people to manage natural resources sustainably. Therefore, many developing countries had the experience and basis that offered significant potential for the creation of incentive-based systems.
6. It was firmly maintained that the experience of developed countries with economic instruments was not readily transferable. Many modifications were necessary to be able to apply economic incentive systems in the developing and transitional country context. In addition, developing countries were not a homogenous group. Some were recently industrializing countries, while some were relatively advanced and others very poor. Therefore incentive systems would vary among developing countries as well. It was necessary to design new composite instruments, by combining different economic incentive systems, because of a great variation in scale of industries, types of ownership, and variations of culture in a developing economy. The design, selection, implementation and enforceability of economic instruments depended on local conditions such as level of economic growth and special conditions of the developing country.
7. Economic instruments provided the means or vehicle for internalization of environmental degradation and resource depletion costs in a flexible and efficient way. Without full internalization of those costs, it would be difficult for a country to achieve sustainable development. It was stated that environmental problems were due to market, institutional, and policy distortions, which resulted in the underpricing of resources, public services, and commodities. However, for the successful application of economic instruments, it was essential to have considered environmental costs properly, taking into account the special conditions of developing countries and carefully implementing it in a manner which avoids disruptive effects and negative distributional impacts.
8. Depletion or user costs were considered in the production of goods, if there were secure property rights and the social discount rate did not deviate too much from the private discount rate. However, with high private discount rates and/or open access resources,

depletion costs were not taken into account unless forced to do so through the use of incentive systems or command and control regulations. In other words, interventions that effectively equalized the private and social discount rates. Unfortunately, the opposite usually occurred where governments provided subsidies to induce higher production levels than was socially optimal, ignoring user and environmental costs.

9. In order to internalize social costs, a tax equivalent to the amount of costs ignored could be imposed, and the subsidy removed. That tax could be enforced with command and control measures, fines, and penalties. However, enforcement measures such as fines and penalties that involve litigation could be unsuitable for non-Western cultures. Other measures that might be more suitable included: slow withdrawal of perverse subsidies, introduction of security of ownership, reduction of political and economic uncertainty, regulations, taxes or charges to internalize environmental costs, and the introduction of the requirement of an environmental bond for resource mining and other extractive activities. It was also important to internalize the costs of management, enforcement, and monitoring. It was pointed out that the internalization of environmental externalities reduced distortions in the economy which might provide environmental, economic and fiscal benefits.
10. Governments must make a shift from taxes on value to taxes on vice. It was observed that income, work, savings, values, and profits were often taxed, while consumption, leisure, pollution and resource degradation were often subsidized. In addition, product taxes and input taxes were regressive, and it was important to pay attention to distributional impacts. Often the poor paid proportionately more taxes because they spent more of their income on products, while the wealthy were able to lessen their tax burden through tax shelters.
11. Economic instruments were classified into seven categories: *property rights*, including ownership rights, use rights, and development rights; *market creation*, including tradeable emission permits, tradeable catch quotas, tradeable development quotas, tradeable water shares, tradeable resource shares, tradeable land permits, and tradeable offsets/credits; *fiscal instruments*, including pollution taxes, input taxes, product taxes, export taxes, import tariffs, tax differentiation, royalties and resource taxes, land-use taxes, investment tax credits, accelerated depreciation, and subsidies; *charge systems*, including pollution charges, user charges, betterment charges, impact fees, access fees, road tolls, and administrative charges; *financial instruments*, including financial subsidies, soft loans, grants, location/relocation incentives, subsidized interest, hard currency at below equilibrium exchange rate, revolving funds, sectoral funds, ecofunds/environmental funds, and green funds; *liability instruments*, including legal liability, natural resource damage liability, liability insurance, and enforcement incentives; and *performance bonds and deposit-refund-systems*, including environmental performance bonds, land reclamation bonds, waste delivery bonds, environmental accident bonds, and deposit refund shares.

Session II: Use and Application of Economic Instruments

12. The political acceptability of economic instruments by industry and the public was very important. Part of the marketing of economic instruments was to ensure that industry was fully informed about the changing rules and policies. It was useful to highlight the cost of alternatives, including the cost of inaction, to gain the trust of industry and the public. It was suggested that full cost pricing should be introduced gradually in order to avoid reduced competitiveness of industry/activity involved, and sudden price increases. Recycling of collected funds back into the industry would improve acceptability of the introduced instrument. While many governments may resist the introduction of economic instruments because of the direct price increases that might result, with inaction, future corrective environmental measures would be more expensive.
13. Due to heterogeneity of developing countries in ecological, cultural and political aspects, as well as socioeconomic conditions, it was necessary to consider their special circumstances when designing economic instruments. Included among those special conditions were: *the development priorities of developing countries*, where there was more concern with economic growth and poverty alleviation than environmental protection; *lower willingness to pay for environmental amenities* in developing countries due to lower per capita incomes; *constrained tax revenues* because of a narrow tax base, low incomes, and poorly developed tax collection systems; *legal, institutional and cultural constraints* due to the less developed legal systems in developing countries, the backlogs in the courts, the uncommon use of litigation means, and the existence of many different types of traditional institutions, management systems and customary use rights; *less developed capital markets and high discount rates* were also common in developing countries due to scarcity of capital and low incomes which resulted in very high private discount rates applied to future benefits; and, being in the *formative stages of development*, structural change in developing countries was less complicated. For developing countries, it was preferable to introduce incentives that made capital and energy-intensive heavy industries more costly than labour intensive industries. Pre-announced full cost pricing was also suggested in order to influence the private sector's attitudes and expectations. It was better to avoid frequent changes in policies and provide certainty so that higher discount rates were not used. Those actions enabled governments to direct development in a more environmentally sound way.
14. The Chairman introduced several modalities for the introduction of economic instruments, or criteria for assessment and selection of instruments. Those included environmental effectiveness, flexibility, dynamic efficiency, equity, ease of introduction, ease of monitoring and enforcement, predictability, and acceptability. Effective instruments were those that met the special conditions of developing countries. It was proposed that a window of opportunity for the introduction of economic instruments in a system was during the implementation of fiscal or structural reform. For example, during the implementation of structural adjustment programmes.

15. A wide ranging discussion indicated that there was generally a need for more specific information on the design and application of economic incentive systems for integrated environmental management. A number of participants wanted more information on the practical problems encountered in designing and implementing economic instruments. They felt it was important not to oversell economic instruments and to remember that economic approaches might not necessarily capture all the benefits of environmental improvements. Nor might they reflect the other motives people had for using resources in a certain manner.
16. Another concern expressed was regarding the revenue generated from the use of economic instruments. There was a potential conflict between revenue generation and environmental improvement. An environmental tax may be introduced only for the purpose of revenue collection. If the environmental tax was successful, the tax base would shrink, revenue would decline, and less money would be available for other purposes such as education and health. In such cases the government would be tempted to raise taxes to increase revenue. In response, the Chairman indicated that revenue generation should be separate from internalization of environmental costs. Also, if environmental taxes were effective, expenditures might decrease along with revenues as a consequence of change in behaviour, lifestyles, and production and consumption patterns. For example, less funds would be needed to build supply systems because of the increased efficiency of existing ones. If environmental taxes were corrective and reduced distortionary taxes like income and sales taxes, and other market distortions, it would result in a double dividend for the government.
17. It was also considered important to point out that if governments did not use revenue collected from environmental taxes to improve the environment, the credibility of the tax might be reduced. Governments should clearly inform the public as to the purpose of the tax. Evidence suggested that a case-by-case analysis was needed to predict the likely impacts of an environmental tax on revenue and on the environment. There was the possibility of double jeopardy, where industries decreased their pollution by reducing production or implementing better technology, but they still had to pay a user charge. It was preferable for governments to return part of the tax revenue to industry for environmental investments or improvements.
18. The Chairman stated that economists were expected to design the economic instrument based on direct use value, existence value, option value, and indirect use (ecological) value. However, the intrinsic value of a resource was not taken into account unless it was valued through willingness to pay. Some were concerned that ecological factors might not be taken into account in the design of economic instruments probably due to failure to value or even recognize their existence.
19. It was noted that transaction and enforcement costs might be very high. Those were needed to be estimated when considering the introduction of different incentive systems. However, in some cases pollution was caused by only a few industries and less transaction costs were involved. In other cases, while it was theoretically preferable to

tax the externality directly, rather than the product, the collection costs might be very high and it was more practical to tax the product. The relative development of institutional structures was also an important determinant of transaction and enforcement costs. However, there were ways to reduce transaction and enforcement costs - such as giving companies an opportunity to achieve set environmental standards. One way of decreasing transaction costs was to set a standard charge. Industry could challenge the standard but they would have to pay the transaction costs if they underestimated their discharge. If the agency had overestimated the discharge they would pay the transaction costs. It was suggested to allow flexibility and to choose methods for changing times.

20. Marketable trading permits or "trading and offsets" were recommended for cases where there were a few large and many small polluters. Each received credits when they reduced emissions. However, large industries that found it costly to reduce their emissions would be able to buy accumulated credits from small firms who were not obliged to reduce their emissions but found it profitable to do so and sell credits. Those instruments could also work for carbon offsets. If developed countries had to reduce CO₂ emissions within a certain time frame, but found it costly to do so they could assist developing countries to reduce their emissions or increase their CO₂ sinks at a lower cost and receive credit against their own obligations.
21. There was a tendency for conflict between the Finance and Environmental Ministries about how economic instruments and natural resource taxation were applied, and who received the revenue. It was recommended by the Chairman that user charges be paid to utilities and effluent charges paid into environmental funds. Other environmental taxes should go to the Environmental Ministry. However, the Finance Ministry might argue that they were the fiscal arm of the government and should be the ones that received and allocated the revenue. The Finance and Environmental Ministries needed to work more closely together to successfully introduce economic instruments. Some countries created a committee with members from both Ministries. Another suggestion was that environmental taxes would go to the Ministry of Finance, and environmental charges would go to the Ministry of Environment. In addition, the Ministry of Finance needed to be persuaded to consider adopting environmental management policies when economic restructuring was being considered.
22. It was also suggested that there needed to be an internalization of positive externalities. An introduction of corrective subsidies and taxes such as a combination of "green subsidies" and "brown taxes," where the brown tax would be equal to the marginal environmental damage and the green subsidy would be equal to the marginal environmental benefit. For example, taxes could be charged on logging, and the revenue used to fund reforestation. Nevertheless, governments should be careful about subsidies and make sure the investment they were making was efficient.
23. It was maintained by some of the participants that the introduction of full cost pricing might have a negative impact on the competitiveness of many countries in local and international markets. They suggested that some industries should be allowed to

continue production without taking into account social and environmental costs. In response to those concerns, the Chairman stated that although it was possible that in the short-term full cost pricing would have negative effects on competitiveness, those industries that did not pay the full costs of production would be free-riding on those who did; and a sustainable economy was not possible while free-riding was allowed. The Chairman explained that although it was almost impossible to achieve complete full cost pricing, it was recommended to gradually introduce economic instruments by assigning priorities and at least internalize some externalities. Certain political choices would have to be made as some industries would be given comparative advantages over others if they did not have to internalize all costs.

24. International competitiveness was affected when countries unilaterally internalized costs. It was necessary to find cooperative approaches or agreements for multilateral internalization of environmental costs and avoid the free-rider problem in a global context. Another problem was the applicability of economic instruments across ecological zones or ecosystems. From the point of view of ecosystems there were no borders, but from the management point of view, border and sovereignty issues were constraints to the internalization of externalities. Again international and regional agreements were necessary for the implementation of economic instruments (i.e., global taxes) for transboundary resources.
25. The introduction of economic instruments should be gradual to avoid the sudden disruption of markets. The predominant view was that negative impacts on international competitiveness had been minimal in the developed world. Gradual introduction, at the rate at which firms could adapt, would reduce any potential negative impacts on competitiveness. Examples from the Netherlands (water pollution charges), Germany and Japan (high energy prices) were used to show how full cost pricing might improve competitiveness through the more efficient use of resources and technologies. In the Netherlands, where there were high effluent charges, industry was not affected much by those charges, it was only 5% of the product cost in the pulp and paper industry. Germany and Japan had the highest energy costs, and those were two of the most competitive countries in the world. However, others questioned the view that impacts on competitiveness would be marginal. In response, the Chairman indicated that in terms of the overall competitiveness of the economy there would be a minimal impact, but some resource intensive and heavily polluting industries which now had to pay environmental and user costs might suffer a loss of competitiveness. In the long-term, there would be a shift in investments from industries of high environmental cost to industries of lower environmental cost, and those industries which could not pay the full cost of their production would cease to exist. With the gradual introduction of full cost pricing on a pre-announced compliance schedule, industries could be allowed to plan accordingly and introduce the necessary cost-effective measures and appropriate technologies to meet the new policy requirements. In addition, studies had shown that competitiveness is mostly influenced by labour costs, market size, prices of raw materials, and access to capital markets. The main concern industries had was with the unpredictability of the environmental policies of governments.

26. Inflationary impacts have not resulted from environmental charges in the developed world. The share in the GNP of environmental expenditure was between 1.5-2% in developed countries. In the long-run, such charges might be deflationary, as they encouraged more efficient resource use, through the taxation of "bads," such as pollution, as opposed to "goods," such as work and savings. Some products might be more expensive because they were more harmful to the environment, but others might be less expensive because distortions such as subsidies had been removed.
27. It was advisable to use a hybrid of economic instruments. Moreover, experience indicated that economic instruments alone were unlikely to be sufficient to achieve desired environmental outcomes. An integrated approach that resulted in the most cost effective combination of command and control and economic instruments was needed. That was largely because market imperfections meant that economic instruments might not achieve their theoretical potential. However, using command and control regulations only was very rigid and bureaucratic, while economic instruments in addition to generating additional funding, provided a flexible and practical tool. It was also important not to introduce radically different systems. An integrated approach was needed to consider the institutional parameters within which environmental management took place. In addition, the integration of institutional reform with the introduction of environmental protection mechanisms was recommended.

Session III: *Financing Resources and mechanisms for Environmental Management*

28. The Chairman presented the second background paper, *Financing Mechanisms for Environmental Investment and Sustainable Development*. He indicated that the purpose of the document was to assess the financial needs, available resources, and the gap in financial resources required for sustainable development, and to identify financial resources and mechanisms to fund sustainable development activities and programmes. In other words, what were the instruments of appropriation of environmental values to finance sustainable development and put the world's economy on a sustainable path. He stated that current development was unsustainable as it has contributed to the coexistence of poverty, environmental degradation and resource depletion.
29. It was estimated by the UNCED Secretariat that financing necessary to implement Agenda 21 from the year 1993 to the year 2000 was approximately US\$500 billion per year from domestic sources in developing countries and US\$125 billion per year from international sources. The Global Environmental Facility (GEF), which was created specifically to finance international environmental concerns, had only been able to raise US\$1 billion per year. Those resources amounted to less than 1% of the financing needs for sustainable development.
30. The Chairman stated that it was not a matter of raising more money without creating new incentive mechanisms. It was necessary to redirect existing resources and find new

resources and mechanisms. A business as usual had perverse incentives to encourage, pay or induce people to practice unsustainable development. It was important to ask what were the causes of environmental degradation and unsustainable development, and to try to address those causes at their roots. Governments needed to set priorities for the use of the limited resources available. It was stressed that governments must begin with projects and policies that gave the highest return on investments.

31. It was preferable to remove subsidies that encouraged environmental degradation, rather than pay for the remedies of the negative impacts of activities later. With the removal of perverse incentives, behaviour might change and the estimated annual financial requirements for the transition to sustainable development might significantly decrease. The needs might further decrease through redeployment of resources. Governments were still using resources to support the legacy of cold war and old priorities. There were many opportunities to cut down on expenditures that were counter to sustainable development. For example, governments could redeploy money that was used for university educations for the elite, and use it instead for primary and secondary education for women, to reduce population, improve health and welfare, reduce child mortality, and create additional income. It was also better to reduce energy and agricultural subsidies and military expenditures, and redirect the funds to women's education, reforestation, and environmental protection.
32. There were two complementary actions which were needed to be taken to augment financial resources. First, an increase in resources from existing channels and mechanisms. Second, establish additional funding mechanisms. For existing mechanisms such as the tax system, it was necessary to implement tax and fiscal reform. Reform measures such as simplification of taxes, reduction of tax evasion, removal of distortionary taxes and their replacement with corrective taxes, the provision of incentives for work and savings, and disincentives for consumption, leisure, and polluting industries were essential. As utilities and public services were sold below cost, it was necessary to introduce full cost pricing for those services through *user fees* to reduce demand and avoid expansion. In the case of *charges and fines*, those were set too low and to mainly generate funds rather than as an incentive tool. In addition, the fines were much lower than the expected return from non-compliance and were not adjusted every year for inflation. The *rents from resource extraction* that were being collected were also inadequate. Indonesia could generate US\$1 billion from the timber industry while reducing deforestation below its current rate, by improving its forest concession and taxation system. In the area of *privatization*, governments were subsidizing parastatals or government enterprises that created huge deficits which in turn were paid by taxpayers through distortionary and regressive taxes. It was suggested that governments should stop subsidizing those institutions and force them to generate profits and pay taxes or close down.
33. Another problem for developing countries was the drain of their *external debt* on the economy. A number of mechanisms including debt-for-nature swaps, rescheduling of debt, debt for equity, debt forgiveness for sustainable development, and debt forgiveness

for policy reform might reduce the outflow of resources from developing countries. *Special environmental funds* or so called "green funds" were created by socially conscious investors in the private sector to finance reforestation and other social and environmental activities.

34. Regarding *external development assistance*, there was little hope that it would be increased. In fact, there was a danger that it would continue decreasing and would have a diminishing role in funding sustainable development. *Foreign direct investment*, however, was another financing mechanism which could be used for building transport systems, roads, water supplies or power stations, through foreign investors or international companies. Those investors would operate the project for a specified amount of time and then transfer it to the government. *Fair international trade*, where developed countries removed barriers to free trade, would also guarantee a large amount of funds for developing countries.
35. Increasing resources from existing mechanisms would take time. It was therefore necessary to create new financing mechanisms to fund sustainable development programmes. Some examples of domestic financial mechanisms mentioned were, *environmental taxes*, such as environmental bonds and bank guarantees for compliance with environmental rules; *betterment charges*, which were appropriation mechanisms using valuation methods for taxing those who benefited from public investments; *tradeable emission permits*, *deposit-refund-systems* and *credit systems* which were appropriate for poor countries; and *tradeable development quotas*.
36. In addition, global financing mechanisms could be implemented and some of those mentioned included, *carbon tradeable permits*, where CO₂ emissions were reduced in developing countries at a much lower cost than in developed countries which would pay the cost and all or part of the credit. It was estimated that a transfer of approximately US\$50 billion would flow from developed to developing countries if tradeable permits were introduced within the framework of the Climate Convention. *Carbon offsets* could be used before an international convention was finalized. In that case, bilateral agreements could be made between industries in developed and developing countries, where developing countries would sell their offsets to the highest bidder or embark on a joint venture where they received money and credit for their own future carbon offset needs. With *transferable development rights*, local and international organizations, foundations and corporations, developed country governments, chemical and pharmaceutical companies, scientific societies, and universities and research institutions purchased development rights from developing countries for the conservation of particular habitats.
37. It was important to start making the transition toward sustainable development with the win-win options or where there were double dividends. These included the removal of distortionary subsidies, increase of resource rent capture, implementation of marginal cost pricing without affecting the poor, application of user charges for treatment facilities and highway systems, shift from the more expensive command and control measures to

economic incentive systems or a hybrid of both, and employment of betterment charges. The next step would be the application of self-financing mechanisms, for example, brown taxes and green subsidies, differential taxation, refundable deposits, and environmental bonds. The final step would be the implementation of mechanisms to finance past pollution cleanups, biodiversity conservation, and CO₂ emission reductions.

38. Some participants had concerns that in the transition to sustainable development, the GNP of a country might decrease. This was due to a shift in the production of goods and services (due to cost internalization) that were harmful to the environment, and which were included in GNP calculations to the production of environmental goods and services which were not necessarily included in GNP calculations. Since National Accounts might not measure all the values that contributed towards sustainable development, there was a need to redefine production and consumption so that it was consistent with sustainable development. If that was done, sustainable development would not appear as a decline in GNP. The Chairman pointed out that even without a redefinition of GNP, the correction of policy and market distortions and improvements in efficiency might lead to an increase in GNP.
39. With regards to suggestions for improvement of the background documents of the meeting, some of the participants requested that additional case studies that explored economic instruments and financing be added. Others wanted more analysis on the employment, distributional, efficiency and social impacts of the different financing options. In addition, there might be impacts from some of the mechanisms suggested in the paper, and the potential for such impacts should be further studied. For example, the removal of agricultural subsidies might result in major price increases which in turn might increase the incentives for unsustainable agriculture.
40. Another concern expressed was how private resource users (such as the Masai people in Kenya, for example) were compensated over time for the foregone benefits of not developing prime agricultural land. It was suggested that the document should investigate the possibility of establishing trust funds or giving annuity payments to meet those opportunity costs.
41. It was noted that lending and donor agencies had a significant influence over the selection of projects, especially large scale projects. It was necessary to create agreements or mechanisms to ensure that banks and donor and multilateral agencies evaluated the priorities of a country and utilized incentive systems consistent with sustainable development.
42. Participants expressed their appreciation of the two documents on *Economic Instruments for Environmental Management* and *Financing Mechanisms for Environmental Investments and Sustainable Development*. It was important, however, that assumptions behind the figures included in the documents be made clearer. It was generally suggested that the language used in UNEP documents should minimize the use of economic jargon.

Session IV: Conclusions and Recommendations

43. Attached as Annex IV are the conclusions and recommendations of the meeting.
44. Mr. H. Abaza closed the meeting by thanking the participants for their contributions and active participation in the meeting. He also thanked the panel of experts who participated in the briefing session with UNEP Permanent Representatives, and Mr. T. Panayotou for chairing the meeting.

Annex I
Briefing Session with UNEP Permanent Representatives

**Consultative Expert Group Meeting
on the Use of Economic Instruments
for Environmental Management and Sustainable Development**

**UNEP, Nairobi, Kenya
12 August, 1994**

The session was opened by the Assistant Executive Director to UNEP, who stated that the purpose of the session was to brief the Permanent Representatives of the outcome of the two meetings organized by the Environment and Economics Unit of UNEP on the valuation of environmental and natural resources and the use and application of economic instruments for environmental management and sustainable development. He then asked the Chief of the Environment and Economics Unit to address the meeting.

The Chief of the Unit stated that the main purpose of the meetings were to review the state-of-the-art on these two subject areas, and consider their practical applicability to developing countries and countries in transition to market economies. The meeting also aimed at providing recommendations for work at the international level to advance the effective use of such tools to achieve sustainable development, and identify the role of UNEP in this field. He further stated that the meeting was one in a series of meetings convened by the Environment and Economics Unit to provide advice and assist UNEP in formulating a plan of action and a programme of work in the main five components of the programme. He informed the meeting that four such meetings have already been held since 1992, which resulted in the formulation of programmes of action in the environment and economics programme adopted by the Governing Council at its 17th Session held in 1993. Those covered environmental and natural resource accounting, environmental impact assessment, and environment and trade. The just concluded two meetings have resulted in the identification of priority areas for future work of UNEP. The three background documents on "*Economic Values and the Environment in the Developing World*" prepared by The Centre for Social and Economic Research on the Global Environment (CSERGE) and on "*Economic Instruments for Environmental Management and Sustainable Development*" and "*Financing Mechanisms for Environmental Investments and Sustainable Development*" prepared by Professor Theodore Panayotou, Harvard Institute for International Development (HIID) will be revised to incorporate the views and suggested changes of the group of experts attended the meetings. The meetings were attended by over fifty experts from Africa, Asia, Central and Eastern Europe, Western Europe, Latin America, and North America. Experts from the UN Commission for Africa, Latin America, UN Statistical Division, UN Conference on Trade and Development, International Institute for Applied Systems Analysis, International Union for Conservation of Nature, and other international and national non-governmental organizations also attended the meetings.

The Chairman then asked the panel of experts, which was a representative group of experts from the participants of the meeting to introduce themselves. The panel consisted of Professor David Pearce (British), Director, CSERGE, Professor Theodore Panayotou (Canadian), Director, HIID, Dr. Jyoti Parikh (Indian), Senior Professor, Indira Gandhi Institute of Development Research, Dr. Ronaldo Seroa Da Motta (Brazilian), Senior Economist, Economic Instruments, Instituto de Pesquisas Economicas (IPEA), Ministerio de Planemiento, Dr. Christopher H.D. Magadza

(Zimbabwean), Professor, University of Zimbabwe, Ms. Zsuzsanna Lehotska (Hungarian), Advisor, Ministry of Finance, Local Government and Regional Policy Department, and Professor Johannes (Hans) B. Opschoor (Dutch), Professor of Environmental Economics, Free University.

He then requested Professor David Pearce, to brief the Permanent Representatives of his views and reactions on the first meeting which he chaired. He stated that the meeting revealed that a great deal of work was being done in developing countries and countries in transition to market economies in the field of environmental valuation. Though there had been a great deal of development in the use and application of valuation methodologies, a great deal remained to be done to advance the subject. The meeting underscored the importance of traditional and cultural value systems and incentives in developing countries, which should not be ignored in the valuation of environmental and natural resources. He stated that economic valuations measured preferences individuals attached to a particular good. If the good in question is timber, it is not only the preference for timber as a source of wood or fuel but for the other values associated with that such as watershed, prevention of soil erosion, etc.. There were other values associated with environmental goods than just market values. Environmental economics could provide the tools for developing countries to capture the benefits from environmental and natural resources in their countries. He stated that there was a need to bridge the gap between command and control and other environmental economics tools and instruments. He also pointed out that there was a need to address environmental issues across themes i.e. consumption and production patterns, trade, international policies including structural adjustment programmes, economic failures etc. The importance of addressing these issues will be determined by applying such tools as environmental assessment, social indicators, economic indicators, resource accounting and economic valuation.

The Representative of Romania congratulated the Environment and Economics Unit of UNEP in convening the two meetings as well as for organizing the special panel session for the Permanent Representative of UNEP. He requested that the background papers of the meetings be distributed to the Permanent Representatives. He then stated that economics was one of the damaging factors in the economy and one of the main causes of environmental degradation in the past. He then asked whether economists alone can solve environmental degradation problems facing the world, and suggested that other disciplines should be involved i.e., adopt a multidisciplinary approach. He also emphasized the importance of taking into account ethical and social values and the need to convince political and decision makers of the importance of environmental economics in achieving sound environmental management.

In response, Professor Pearce stated that environmental economists have made little progress so far in implementing their ideas, and requested that they be given the opportunity over the next 10-15 years to do so. He agreed with the Permanent Representative of Romania that there should be a multidisciplinary approach for addressing environmental issues. That was further emphasized by Dr. Parikh, who stated that when their Institute was working on air pollution, physicians had to be consulted in the process. She stated that it was a challenge to bring various disciplines together, but inevitable as it enhanced understanding at various levels, including practitioners and policy and decision makers. Dr. Lehotska also agreed that policy and decision makers should

be involved in the process and that more communication was necessary between practitioners and policy and decision makers.

Professor Panayotou added that bad economics did contribute to existing damage but good economics, which is environmental economics can contribute to sound economic development. He also agreed on the need to adopt a multidisciplinary approach. Professor Magadza in supporting that, stated that one cannot defend the environment on ecological grounds only. Economic rationale had to be brought in to ensure the viability of the action which was needed to be taken. He cited the case where if comparing the cost of water storage to other ecological measures, the latter could be a more cost effective measure than the former. In other words conservation management programmes may not be justified unless some economic rationale was introduced.

The Representative of Kenya first welcomed the panel group and experts attending the meetings. He then stated that in addressing environmental issues, it was only the concerns of the elite which were taken into account and not the poor, who could be in most of the cases the ones providing the answers or the solutions to problems. He further stated that when the World Bank started its reform programmes in developing countries with the introduction of Structural Adjustment Programmes (SAPs), it ignored the social and cultural dimensions. He asked how values could be placed on social and cultural considerations, and how economists intended to break the vicious circle of poverty, environmental degradation, and development. He also asked how the issue of consumption patterns and extravagant lifestyles in the North, on the expense of the South could be adequately addressed.

The Representative of India added that over consumption was one of the main causes of environmental degradation. He further stated that the fast growing nations of developing countries were emulating the consumption patterns and lifestyles of the North. He also pointed out to the importance of the use of environmentally sound technologies, and its transfer to developing countries.

In response, Professor Pearce stated that causes for environmental degradation should include over consumption. He stated that in many instances SAPs were poorly implemented, and pointed out that one of the main issues highlighted during the meetings were the importance of the social and cultural values and the high priority for the integration of environmental economics with social and cultural considerations. Dr. Parikh added that there was a need to enhance the capacity of developing countries in integrating environmental economics with cultural and social aspects. Professor Magadza also pointed out that there was a need to discuss related issues in the same forum and not in different ones, in order to ensure that the right and effective solutions are arrived at. He cited the case where trade issues were being discussed within the framework of GATT and not in other related forum.

Professor Panayotou stated that there was a need to internalize cost through valuation, and pricing through the use of economic instruments. Developing countries should not be asking for charity. They have a lot to sell in terms of biological diversity, forest resources, etc. What is needed is a mechanism or an instrument which could capture the benefits to developing

countries. One such tool could be tradable permits. This would also eventually solve the problem of accessibility to technologies from the North.

In giving his reactions to the second meeting on the use and application of economic instruments for environmental management and sustainable development, which he chaired, Professor Panayotou stated that there were two main objectives of economic instruments. The first was internalization of environmental costs for decision and policy makers, industries, etc., and the second was the financing and fund generating effect. There were many considerations to be taken into account when introducing economic instruments, those included competitiveness, distributional impacts, equity considerations and their use in a regressive manner. He also underscored the importance of convincing policy makers as to the effectiveness of using such tools. He stated that there was a general consensus that economic instruments, if properly designed and implemented taking into account local conditions, can supplement existing communal, traditional and tribal systems, and can yield positive results and hopefully generate income. He pointed out, however, that economic instruments should be used as one tool among a set of tools to address environmental considerations. He stated that since social, communal and tribal systems were not studied by economists, the meeting recommended that UNEP could undertake a study on the interaction and linkages between economic instruments and such systems. One of the meeting recommendations was also to undertake country studies in this area. Professor Opschoor finally added that economic instruments needed to be introduced within a legal context.

The three background documents presented at the meetings will be revised and submitted to UNEP late October for publishing.

Briefing of Permanent Representatives
12 August 1994

	<u>Name</u>	<u>Mission</u>
1.	Mr. C.G. Rao	Focal Point Permanent Mission of India
2.	Mr. Timothy U.K. M'mella	Focal Point Permanent Mission of Kenya
3.	Mr. S.K. Ogeri	Permanent Representative Permanent Mission of Kenya
4.	Mr. C.C. Kim	Focal Point Permanent Mission of Korea
5.	Mr. F.F. Ogola	Focal Point Permanent Mission of Nigeria
6.	Mr. Nestor N. Padalhin	Deputy Permanent Representative Permanent Mission of Philippines
7.	Mr. Pavel Suian	Permanent Representative Permanent Mission of Romania
8.	Mr. John J. Ng'ongolo	Permanent Mission of Tanzania
9.	Mr. Brian Nyirenda	Focal Point Zambian High Commission

Annex II
Annotated Agenda of the Meeting

**Annotated Agenda
Consultative Expert Group Meeting on
The Application of Economic Instruments
for Environmental Management and
Sustainable Development**

UNEP Headquarters, Nairobi, 10-12 August, 1994

Wednesday, 10, August, 1994

15:00 *Session I: Economic Instruments for Environmental Management*

(i) Scope and Role

Economic instruments and tools (subsidies, taxes, charges, deposit-refund systems, tradeable permits etc., for environmental management and sustainable development; impact of current practices and of economic tools on the environment and sustainable development; the role of property rights in a market system; market and government failures; environmental externalities; role of economic instruments in internalizing environmental costs, and in influencing attitudes, lifestyles and consumption and production patterns, and in integrating environment and development; the border effects of the use of economic instruments etc.,.

16:00 *Break*

16:15 *Continuation*

17:30 *Closure of Session*

Thursday, 11 August, 1994

9:00 *Session II: Use and Application of Economic Instruments*

Experience in developed countries and its relevance to developing countries and countries in transition to market economies (CIT) experience in developing countries; modalities for introducing economic instruments in developing countries and CIT; human and financial resource requirements; integration of economic instruments with regulatory and voluntary instruments; etc.

10:45

Break

11:00

(i) Terrestrial and Ocean and Marine Ecosystem

Use of economic instruments for integrating environmental considerations in terrestrial ecosystem management (wildlife, forests, biodiversity, and soils) as well as management of ocean and marine ecosystem and marine biodiversity; impact of agricultural subsidies and subsidies of fertilizers and pesticides on the environment; policy reforms required for introducing economic instruments; modalities for their practical introduction and application; etc.

(ii) Fresh Water

Role of different legal regimes in water management; main principles of water pricing; advantages of different pricing systems; average cost pricing; the extent and impact of subsidizing water services; comparative advantages of different charging practices for effluent discharge; costing of irrigation projects; etc.

13:00

Lunch

15:00

(iii) Desertification Control

Impact of agricultural subsidies on desertification; the use of market-based incentives to promote environmentally-sound agricultural activities, and promote afforestation activities, the impact of cost internalization on commodity pricing and competitiveness in international markets; etc.

(iv) Waste Management and Pollution Control

User charges for ensuring the proper collection, treatment and disposal of wastes; restoration of hazardous waste sites; incentives for minimizing waste in production and consumption; discouraging production and consumption of waste-intensive products; promoting environmentally friendly substitutes and recycling; rationale for setting emission and air pollution charges, tariffs, license fees, tradeable permits and for setting taxes, pricing principles and methods used in calculating charges, fines and taxes; advantages of various schemes; transboundary air pollution aspects and international agreements; etc.

16:00

Break

16:15 *Continuation*

17:30 *Closure of Session*

Friday, 12 August 1994

9:00 *Session III: Financial Resources and Mechanisms for Environmental Management*

Economic instruments as a means to generate financial resources; the use and management of funds generated; funding requirements and mechanisms to support environmental management programmes; etc.

10:45 *Break*

11:00 *Session IV: Conclusions and Recommendations*

Main conclusions of the meeting; recommendations for future action and identification and outline of future work programme on economic policy instruments, with particular reference to applications in developing countries and CIT; role of UNEP vis-s-vis the World Bank, UNDP and other UN organizations, international research institutions.

13:00 *Lunch*

15:00 *Continuation*

17:30 *Closure of Meeting*

18:00 *Reception*

Annex III
List of Participants

***Consultative Expert Group Meetings on
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10 - 12 August 1994 Nairobi, Kenya
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Annex IV
Conclusions and Recommendations
(Framework of UNEP's Programme on Economic Instruments)

Conclusions and Recommendations **(Framework of UNEP's Programme in Economic Instruments)**

Agenda 21 Recommendations: Improve and/or reorient governmental policies (8.34) (a) & (b), and create an inventory of effective uses of economic instruments and market mechanisms (8.35), and increase understanding of their role (8.36) (a) to (c).

A. Background

1. Regulation and legislation are necessary but not sufficient tools to bring about better environmental management and sustainable development. Often excessive reliance on them can be wasteful and inefficient in achieving the set environmental objectives. Economic instruments can supplement regulations.
2. Economic policies include the application of the polluter pays principle and charging for the use of environmental goods and services, particularly those currently considered as free goods. They also include taxes, subsidies, user fees, charges, tradeable permits, deposit-refund systems, performance bonds, rebates, etc. They serve in part as incentives to private enterprises and households to take the right action for environmental management.
3. Economic tools can be used also as a means to raise funds for government coffers which can be spent on environmental management programmes.
4. Fiscal policies, prices, and the functioning of the markets mechanisms have an important role in influencing attitudes towards the environment. Within an appropriate legislative context, economic and market-based approaches can be used to provide cost-effective solutions, encourage the introduction of environmentally sound technologies, and apply integrated pollution prevention control measures. Economic instruments can be used as tools to integrate the social and environmental costs into economic activities thus reflecting the true value of natural resources and the cost of development programmes.

B. Objective

Promote the assessment and applicability, particularly in developing countries and countries in transition to market economies, of economic instruments to complement command-and-control regulations in reducing pollution and promoting sound environmental management; support empirical research and the elaboration of practical guidelines on the use of economic instruments, (i.e. taxes, charges, tradeable permits, deposit-refund systems) for environmental management and as a source of funding environmental management programmes.

C. Strategy

Review and analyze the experience of countries which have applied economic instruments in various aspects of environmental management with a view to making this experience available to the developing countries and to the countries in transition to market economies; examine the status of current research, existing and potential application of economic instruments; identify

gaps in application and research, particularly with regard to appropriateness and applicability and their implications, including their distributional effects and equity and efficiency questions.

D. Activities

1. Training and Education

- (1.1) Promote the notion of environmental adjustment (or ecological restructuring) as an integrative process of social and economic considerations.
- (1.2) Assist developing countries and countries in transition to prepare educational and training materials on the use of economic instruments for environmental management taking into account social, traditional, and cultural considerations and the practicality and effectiveness of the use of such tools in these countries.

2. Workshops

- (2.1) Organize, convene and sponsor national and regional seminars and workshops on the use of economic instruments for environmental management. Workshops could also be used to promote communication between finance and environmental ministries, and encourage the involvement of NGOs, particularly on the use of environmental economic valuation and the introduction of economic instruments; and bring together economists and ecologists to further the use of economic tools and instruments in other disciplines.

3. Research and Development

- (3.1) Review the performance of economic instruments in terms of distribution, effectiveness, and efficiency, and identify the links between them. Consideration should be given to the introduction of economic instruments as one tool among a package of tools including command and controls well as local and traditional systems.
- (3.2) Undertake analysis on how economic instruments can be introduced in a dynamic and macroeconomic setting. Considerations to be taken into account are the various impacts resulting from the introduction of economic instruments in various sectors and the economy as a whole.
- (3.3) Undertake a review and an analysis of the political economy of introducing economic instruments for the management of natural resources in developing countries and countries in transition. UNEP should also examine the environmental impacts of structural adjustment programmes in collaboration with the World Bank.

- (3.4) Facilitate the development of institutions that issue instruments such as tax-free municipal bonds, in order to build income for the financing of environmental activities.
- (3.5) Develop methodologies and approaches for the harmonization of the different environmental economic management instruments and policies introduced in developing countries and countries in transition as tools to aid the decision-making process.
- (3.6) Develop an environmental code of ethics for application to economic activities such as development planning, trade, and international agreements.

4. *Economic Instruments Manual*

- (4.1) Develop a manual on strategy and techniques for the introduction of economic instruments for environmental management, include a study of the relationship between legal systems and economic instruments, and a glossary of terminologies for economic analytical tools and policy instruments.

5. *Case Study Analysis and Surveys*

- (5.1) Undertake case studies and analyses on the use, application, and practical introduction of economic instruments for environmental management in developing countries and countries in transition. Examine cases where they have been used, including e.g. transaction cost, multiple objectives, etc., and the results of simulation attempts. Particular emphasis should be given to case studies on:
 - (a) integrated approaches for incorporating economic instruments into a policy analysis framework;
 - (b) the potential use of tradeable permits and other instruments for transboundary externalities;
 - (c) the flow of funds (private, public sector) in the context of their generation, use and distributional benefits;
 - (d) the experience of developing countries in the area of rural development for collection of useful data to aid the design of economic instruments for future work;
 - (e) the impact of economic instruments on the relative competitiveness of countries in international markets;
 - (f) the impact of the use of economic instruments for environmental management on economic development;
 - (g) the potential use of economic instruments in managing ecological systems that cut across national boundaries;
 - (h) the use of economic instruments for environmental management in the context of incentive and disincentive systems.

- (i) the implications of agricultural subsidies and other economic policy measures on agricultural development, natural resources management and desertification;
 - (j) the socioeconomic driving forces behind land degradation, with emphasis on market and policy failures; and,
 - (k) the use and application of economic policy measures for the abatement of greenhouse gas emissions including barriers to the introduction of such policies and options for overcoming them.
- (5.2) UNEP's work should focus especially on the introduction of economic instruments to economies undergoing transition and structural adjustment programmes that are taking place in Central and Eastern Europe or in developing countries.

6. Networking

- (6.1) Create a network of experts and institutions from developed, developing countries, and countries in transition in the field of economic instruments for environmental management.

7 Database

- (7.1) Undertake an assessment of data and other information requirements for the introduction of various economic instruments, including needs that arise during the implementation and monitoring stages.

8. Library

- (8.1) Establish a library at UNEP with country case studies on the use and application of economic instruments for environmental management in developing countries and in countries in transition to market economies. UNEP will analyze and update these studies and develop lessons learned and guidelines for future studies.
- (8.2) Translation and dissemination of documents on economic instruments for environmental management and other relevant materials into other languages for use throughout the UN Member States.
- (8.3) Gathering, disseminating, and networking of information in the field of economic instruments is an important role for UNEP to increase awareness about the existence of these tools and support education in developing countries and countries in transition.