

## Economic Instruments for Environmental Protection

Since the Rio Earth Summit, threats to human health and environmental quality have continued to grow steadily. These threats are contributed to by many factors including the changing patterns and scale of industrial production and of the use of natural resources. UNEP's work on economic instruments aims to help society to address these threats and to transition to more sustainable patterns of economic development.

*Economic instruments for environmental protection are policy approaches that encourage behavior through their impact on market signals rather than through explicit directives regarding pollution control levels or methods or resource use (Stavins, 2001).*

### What are economic instruments?

Economic instruments encompass a range of policy tools from pollution taxes and marketable permits to deposit-refund systems and performance bonds. The common element of all economic instruments is that they operate on a decentralized level through their impact on market signals. Economic instruments are often contrasted to "command and control" policy approaches that determine pollution reduction targets and allowable control technologies, by laws or regulations. In reality however, command and control and economic instrument approaches often operate in tandem. For example, governments may set limits on allowable pollution for a region or country. Market-oriented approaches such as tradable permits are then used to allocate the allowable emissions in an efficient manner.

#### Why do we need economic instruments?

Economic activity to generate goods and services incurs costs not only to the private parties involved

in production and consumption (known as "private costs") but also to the public (known as "social costs"). Social costs include costs of pollution, depletion of natural resources or degradation of the environment. As these costs are often not included in prices paid by consumers and producers they are borne by society as a whole. The failure to consider these "external costs" in private decision-making may be corrected through the use of economic instruments, by including them in the prices of goods and services, so as to convey more accurate market signals. Economic instruments are therefore a means of implementing the "Polluter Pays Principle" (see box on the next page).

### Why are economic instruments efficient and effective policy tools?

Economic instruments have a number of advantages. If implemented properly – and often in combination with command and control approaches – they can help to:

- increase prices of environmentally-damaging goods and services, as well as increase the returns to more sustainable approaches leading to more sustainable production and consumption patterns;
- reduce compliance costs by providing flexibility to polluters or users of natural resources to choose the most cost-efficient and environmentally effective measures;
- minimize the overall cost of achieving a given pollution control target;
- create dynamic incentives for investments to innovate and continually improve environmental technology, generating both environmental and financial benefits ("win-win");
- allocate property rights and responsibilities of firms, groups, or individuals so that they have both the incentive and the power to act in a more environmentally-responsible manner; and

- raise revenues that can be used for environmental purposes or for social benefits (e.g. decreasing income taxes).

The practical strengths of economic instruments have been demonstrated in both developed and developing countries, including through a number of UNEP case studies discussed below.

### *The Polluter Pays Principle*

*Principle 16 of the Rio Declaration states “National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution with due regard to public interest and without distorting international trade and investment.”*

### **What is UNEP’s role in promoting the use of Economic Instruments?**

UNEP’s role is to help countries shift towards more sustainable production and consumption patterns. UNEP’s member governments, through its Governing Council, have in recent years specifically requested UNEP to provide assistance to countries, particularly developing countries and countries with economies in transition, in the development and application of economic instruments at the national level.

To implement this mandate, UNEP has developed an integrated range of activities that



advances both the theory and practice of economic instruments. Case studies that developed practical approaches to specific environmental problems at the national level have been complemented by policy work and analysis addressing in particular economic instruments as well as perverse incentive measures, their impacts and reform packages. UNEP established a working group on economic instruments of experts from developing and developed countries ways to guide this work.

### **UNEP Case Studies on Economic Instruments**

UNEP has conducted numerous country studies on economic instruments. These studies are undertaken by policy research institutes familiar with local conditions and priorities involving a broad range of stakeholders, including relevant government ministries. This approach ensures

that results are founded on reliable national data and realistic policy recommendations.

The country study in the Philippines, for instance, studied the use of economic instruments for the Forestry Sector. The Makiling Forest Reserve was used as an illustrative example for developing and implementing a watershed protection and conservation fee. Increasing extractive use and habitation in the forest reserve was posing an increasing threat to the reserve ecosystems and to the long-term health of the watershed. The solution was to grant property rights to existing farmers in order to create an incentive for sustainable behaviour and control additional settlement throughout the reserve. The second part of the strategy involved establishing fees to help protect the reserve, including a watershed pricing mechanism and credits for sustainable farming practices.

A second example is the UNEP study of the automotive industry in India, which developed policy options for reducing vehicular emissions, including an environmental excise duty to encourage production of cleaner vehicles. The amount of duty to pay would vary with emission levels. The excise duty would thus recover from vehicle manufacturers the cost imposed by their product on the environment. This economic



instrument was to be complemented by regulation that would demand existing vehicles to undergo inspection and maintenance programs to reduce emissions.

UNEP is currently finalizing six further country studies on economic instruments (Philippines: forestry sector follow-up; Kenya: waste sector; Chile: mining sector; Uganda, Bangladesh and Mauritania: fisheries sector).

### UNEP's Working Group on Economic Instruments

Responding to its Governing Council mandate, UNEP has established a Working Group on Economic Instruments for environmental protection. The Working Group consists of 20 developed and developing country experts from governments, research institutions and relevant international organizations (including UNCTAD, OECD). The Working Group has met twice. At its June 2001 meeting, the group defined its goals as:

- enhancing awareness of the national and international context in which economic instruments function, especially for developing and EiT countries;
- improving understanding of the reasons why economic instruments are not being more widely used, and ways to make them more acceptable;
- assisting governments in identifying circumstances and opportunities for the use of economic instruments, and making them more acceptable and viable at local, national and international levels;
- assisting governments in making use of economic instruments to achieve national environmental

objectives and to promote mutually supportive trade and environmental policies;

- promoting the use of economic instruments to achieve the objectives of Multilateral Environmental Agreements (MEAs).

The Working Group's second meeting, in January 2002, reviewed the draft UNEP synthesis report entitled *Constraints on the Use of Economic Instruments and Ways to Overcome Them*, and agreed that UNEP should prepare a technical document identifying opportunities to use economic instruments at the national and international level. This document will address the policy context (e.g. legal and fiscal system, ministerial coordination, macroeconomic conditions and industry structure as well as pollution specificities) under which economic instruments can succeed, and is expected to be finalized by the end of this year.

### Economic Instruments in MEAs

A major area identified by UNEP's Working Group for further work is the use of economic instruments to implement MEAs. UNEP is exploring cooperation with a number of MEA secretariats (including the Convention on Biological Diversity (CBD), Convention of International Trade in Endangered Species (CITES) and the Basel Convention) to commence an analysis of existing provisions in their Conventions for the use of economic instruments, their implementation as well as relevant environment and trade implications.

### Addressing Environmentally Harmful Subsidies

UNEP is also exploring the importance of reducing environmentally harmful subsidies. Subsidies provided for natural resource exploitation often create perverse economic incentives, i.e. they can encourage producers to pollute or deplete natural resources and consumers to under-value the resource they use. Such subsidies conflict with both the polluter and user pays principles by sending false price signals. They also inhibit the development of substitutes that are more environmentally friendly, divert scarce financial resources from other social purposes and can distort competition. UNEP is addressing these problems especially in the sectors of energy, fisheries and agriculture. In a recent joint

#### Challenges identified in UNEP/IEA initiative on reforming energy subsidies:

- Once in place, energy subsidies are difficult to remove - lobbying by special interests being a major stumbling block.
- A lack of transparency, lack of understanding on how to define and measure subsidies and their impacts as well as on their perverse consequences hinders development of viable alternatives and implementation of necessary reform.
- There is no all-embracing prescriptive model for countries seeking to reform energy subsidies. Although some essential elements for successful reform can be identified, subsidy reform efforts must be designed on a case-by-case basis.



initiative on energy for example, UNEP and the International Energy Agency (IEA) conducted four regional workshops identifying several challenges policymakers face in reforming energy subsidies while pursuing sustainable development (see box, page 3).

UNEP has recently published an information document on energy subsidies and their reform and is now working on a publication aiming to share knowledge and experience on country-specific reform processes. UNEP is also working on the issue of fisheries subsidies (see separate leaflet) and has recently commenced new studies on the environmental and related social and economic effects of subsidies in the agricultural sector. Work in these areas is coordinated closely with other intergovernmental organizations and is, to the extent possible, brought into the relevant policy-making fora, including the World Trade Organization.

### Challenges ahead

The guidance document on economic instruments, developed by UNEP, will provide a starting point for evaluating better ways to identify and apply economic instruments to environmental problems, especially in the developing world. Additional learning in a number of core areas will be essential to improve the understanding and use of economic instruments. These include more detailed analysis of the ways that economic instruments can support poverty reduction and bridge income disparities, ways to improve implementation, monitoring and enforcement and means to build institutional capacity to design and apply them. UNEP will continue to seek guidance from its Working Group on how to address these issues in its further work programme.

### UNEP/ETB Publications

Economic Instruments for Environmental Management – A Worldwide Compendium of Case Studies, UNEP, 2000

Environmental Valuation - A Worldwide Compendium of Case Studies, UNEP, 2000

Instruments of Change – Motivating and Financing Sustainable Development, Theo Panayotou, UNEP, 1998

Economic Values and the Environment in the Developing World, UNEP, 1997

The Use of Economic Instruments in Carbon Dioxide Mitigation: A Developing Country Perspective, UNEP, 1995

The Use and Application of Economic Instruments for Environmental Management and Sustainable Development, UNEP, 1994

Environmental Impacts of Trade Liberalisation and Policies for Sustainable Management of Natural Resources: A Case Study on India's Automobile Sector, UNEP, 1999

Environmental Impacts of Trade Liberalisation and Policies for Sustainable Management of Natural Resources: A Case Study on Romania's Water Sector, UNEP, 1999

Environmental Impacts of Trade Liberalisation and Policies for Sustainable Management of Natural Resources: A Case Study on The Philippines' Forestry Sector, UNEP, 1999

Energy Subsidy Reform and Sustainable Development: Challenges for Policy Makers, Synthesis Report of the UNEP/IEA initiative, 2001

Reforming Energy Subsidies: An Explanatory Summary of the Issues and Challenges in removing or modifying subsidies the undermine the pursuit of sustainable development, UNEP/IEA, 2002

Fisheries Subsidies and Marine Resource Management: Lessons Learned from Studies in Argentina and Senegal, Fisheries and the Environment, UNEP, 2002

Fisheries Subsidies and Overfishing: Towards a Structured Discussion, Fisheries and the Environment, UNEP, 2002

Confronting Sustainability in the Mining Sector in Chile: A Role for a sustainability fund? UNEP, in press

“Opportunities, Prospects and Challenges for the Use of Economic Instruments in Environmental Policy Making”, Doug Koplow with the Working Group on Economic Instruments, UNEP.

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