Economic Instruments for Environmental and Natural Resources Management

Training Course

Impact Assessment and Livelihood Analysis in Systems Research

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Economic Instruments: Definition

This lecture has been prepared using different documents and sources. But the main sources are:

- Panayotou, T. (1998) Instruments of change — Motivating and financing sustainable development. Earthscan, London.
- Anderson, R., Morris, G. and Colby, M. (2001) The Nature And Role of Economic Instruments in Environmental Management. PSU DRAFT Technical Paper for USAID Project No. 263-0255, implemented by International Resources Group.

Economic Instruments: Criteria for selection

- Cost effectiveness and administrative feasibility;
- Consistency with other development objectives;
- Equity, flexibility and transparency

Economic Instruments: Clustering

1. **Property-rights based instruments;**

2. **Price based instruments;**

3. **Legal, voluntary and information based instruments.**

EI I: Property-Rights Based Instruments

Category	Instrument	Example
Property Rights Definition: Rights based approaches aim to establish or strengthen a clear sense of ownership to reinforce private incentives for conservation and to underpin other market-based conservation tools. Exclusive and secure property rights make resource depletion internal to the owners/users. The consequence of this internalization is that the owner/s will not engage in resource extraction unless the price of the resource commodity covers not only the extraction cost but also the depletion or user cost, which is the foregone future benefit as a result of present use.	**Strengthening ownership rights** Instruments that define, adjust or create property rights to ameliorate environmental damage. They define the basic enforceable law for ownership and use of both tangible e.g. land and intangible permits such as property. This category largely applies to customary communal land rights systems, where land and resources are owned and managed communally	• Awarding / strengthening land titles • Conservation easements
	Securing use rights This category largely applies to open access resources to common property resources under public or communal ownership.	• Awarding / strengthening resource use rights (e.g. licensing water, timber rights)

EI II: Price Based Instruments

Category	Instrument	Example
Market creation Definition: Instruments to strengthen the role of the market in guiding the allocation and use of resources, and providing economic incentives for conservation. Market creation uses economic instruments to nurture demand for, and provision of, new types of environmental goods and services or create new market value for existing goods and services	**Tradable permits, quotas and shares** Marketable/tradable permit systems enable a government to issue a fixed number of permits or "rights" equal to the permissible or sustainable use levels, and distribute them among resource users. A market for permits is established and the permits are traded among users. Users requiring levels below their allotted permit can sell or lease their surplus allotments to other users.	• Catch/harvest quotas • Water shares (water, timber) • Resource shares (livestock and harvesting etc.) • Tradable discharge permits • Development quotas • Emissions trading / permits
Fiscal instruments Definition: Instruments used to discourage unsustainable production and consumption practices and raise public revenues. Fiscal instruments can be used to bridge the gap between private and social costs/benefits.	**Tax differentiation** Tax differentiation includes land and property taxes, where tax rates may differentiate between property classes with variable tax rates or tax relief provided for classes such as conservation. It can also relate to variations in indirect taxes, such as excise duties, sales taxes, or value added taxes for environmental ends. Goods and services that are associated with environmental impact or damage in production and consumption may be taxed more heavily.	• Differential property rates
	Input and output taxes Taxes on products related to the environmental impact of securing the raw material or the end product	
	Pollution taxes Tax producers of on discharges or effluent to discourage indiscriminate pollution (i.e. encourage minimization of pollution)	

EI II: Price Based Instruments..Cont…

Category	Instrument	Example
Charge systems Definition: Payments for use of resources, infrastructure, and services and are similar to market prices for private goods. For example charges can be seen as "prices" for public goods or publicly provided private goods. They differ from market prices for private goods because they are not market determined but are administratively set by a government agency, a public utility, or other types of regulated natural monopoly. This contrasts them with taxes which are not payments for "services" but a means for raising fiscal revenue. Charge instruments are therefore used to align private and social incentives, promote environmentally sound behaviour, and raise funds for conservation efforts. Note: The difference between taxes (section above) and charge systems can be defined as: (a)environmental taxes are designed to change prices and thus the behaviour of producers and consumers, while also raising revenue (b) environmental charges are designed to partly of fully cover the costs of services and abatement measures such as water treatment or waste disposal	**User charges / fees** This is a charge/fee levied on the user of an environmental resource based on the costs of mitigating the impact (or treating emissions) that affect the resource.	Water use charges used to improve water resource management e.g. catchment management activities such as alien plant clearing, water resource monitoring etc.
	Pollution charges These are usually effluent or emissions charges and are based on the actual amount of the pollutant discharged	• Water effluent charges • Waste charges • Air pollution charges • Noise charges
	Product charges or levies This is a mark-up on the price of a pollution generating product that is based on the amount responsible for pollution. An example of a product charge is a carbon (fuel) tax.	
	Betterment charges This is a fee levied for private properties benefiting from public projects.	
	Impact fees A charge to help reduce the economic burden on local jurisdictions that are trying to deal with growth within the area	
	Access fees Access fees for rights of access to an environment or a resource	
	Administrative systems Service fee for implementing or monitoring regulation for the sustainable management of a resource	

EI II: Price Based Instruments..Cont…

Category	Instrument	Example
Financial instrument Definition: Instruments designed to induce resource users to reduce or mitigate negative impacts to the environment by making control measures more affordable. Financial instruments are distinguished from fiscal instruments because they are often extra-budgetary and financed from foreign aid, external borrowing, debt for nature swaps, and the like. Often the motivation behind the creation of special funds for environmental protection or resource conservation is to avoid the scrutiny of the budgetary process.	**Financial subsidies** Incentives created through subsidies for example by offering grants, tax incentives, low interest loans, etc. Conversely, existing subsidies may offer perverse incentives resulting in environmental degradation (e.g. subsidizing irrigation water could result in waste or water or salination of soils from waterlogging). The removal of such subsidies could be an effective instrument for improved resource management.	• Soft loans • Grants • Location/relocation incentives • Revolving funds
	Payment for Ecosystem Services Payment for environmental service is a voluntary transaction in which a well-defined environmental service, or land use likely to secure that service, is being “bought” by a minimum of one service buyer who in return compensates a minimum of one service provider, if and only if the environmental service provider secures the quality and quantity of that environmental service. State schemes (where the Sate acts on behalf of the buyer) are technically not always true PES schemes as the ‘payment’ by the buyers may not be voluntary and may be raised by the State as a tax or levy.	• Agro-environment schemes • Watershed protection • Carbon sequestration • Voluntary offsets for habitat/wildlife conservation • Bio-prospecting

EI II: Price Based Instruments..Cont…

Category	Instrument	Example
Environmental bonds and deposit refund systems Definition: Instruments that aim to shift responsibility for controlling environmental impacts, monitoring, and enforcement to individual producers and consumers who are charged in advance for the potential damage	**Environmental performance** Payments made to regulatory authorities before a potentially environmentally damaging activity is undertaken, and then returned when the environmental performance is proven to be acceptable.	• Performance bonds
	Land reclamation bonds Payments made prior to an environmentally damaging activity to secure resources for post operation rehabilitation.	
	Environmental accident bonds Deposits paid at the start of an environmentally high risk activity which could experience an event resulting in environmental damage, to ensure the resources are available for the necessary restoration operations.	

EI III: Legal, Voluntary and Information Based Instruments

Category	Instrument	Example
Liability instruments Definition: Instruments that aim to induce socially responsible behaviour by establishing legal liability for (a) natural resource damage, (b) environmental damage, (c) non-compliance to environmental laws and regulations, and (d) nonpayment of due taxes, fees or charges. In a sense, all these instruments have an enforcement incentive, namely the threat of legal action. Liability instruments differ from others in that they assess and recover damages ex post i.e. they are triggered when damages from the activity are realised.	**Legal liability** Making an agent legally liable for damages associated with an accident or action that damages the natural environment. In cases where, two or more parties are liable in respect of the same liability, they may be jointly and/or severally liable.	• A company may face remediation obligations due to contamination at a site that they use or own.
	Non-compliance charges A fee imposed on an agent who does not comply with environmental requirements and regulations.	• A fine for poaching; overconsumption charges regarding water use.
	Natural resource damage liability This liability generally relates to injury, destruction, loss, or loss of use of natural resources that do not constitute private property. Rather, the resources must belong to or be controlled by federal, state, local, foreign, or tribal governments. Such resources include flora, fauna, land, air, and water resources. The liability can arise from accidental releases (e.g., during transport) as well as lawful releases to air, water, and soil.	
Voluntary instruments	**Voluntary environmental agreements** Formal negotiated agreements between groups / agents and the government to limit the over use or encourage sustainable management of natural resources	• Stewardship agreements
	Environmental certification Voluntary compliance with principles and standards recognized as being sustainable/ responsible environmental management. Compliance assessed by third party and incentives for certification largely market driven	

EI III: Legal, Voluntary and Information Based Instruments..Cont…

Category	Instrument	Example
Information based Instruments for informing the public about how eco-friendly a product or organization is.	**Labelling** Branding and labelling of products with information on approaches to avoid or reduce environmental impact either in production process or in usage of product.	• Products are directly labelled as being environmentally friendly or meeting certain criteria (e.g. low energy usage, organic, badger friendly).
	Public disclosure May include sustainability reporting in annual reports or production agents or organization to declare impacts to environment and initiatives and resources allocated to mitigate or reduce negative impacts while enhance positive impacts.	

Thank You for Your Attention

Questions?