Administrative and economic measures providing for managing the input of fertilizers within the marine and inland waters

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Using Regulations and Incentives to Reduce Eutrophication

- A government can use various tools to reduce nutrient loadings to appropriate levels
- It is necessary to develop techniques for translating this objective into actions that specific polluters undertake.
- Use direct regulation of polluters or institute economic incentives, such as a tax reduction for investment in pollution control
- A combination of instruments may be sometimes more effective than using only one

Classification of Instruments

- Direct regulatory instruments
- Persuasive instruments:
- Economic instruments:

Direct regulatory instruments

- “Command and control" instruments
- Correspond to institutional measures oriented to influence directly the environmental behavior of economic agents (polluters) in order to regulate production processes or product characteristics, and/or limit the discharges of certain pollutants to the environment, and/or restrict activities in certain periods of time or areas
- Require a previous definition of environmental standards incorporating government environmental objectives with reference to human health, natural resource conservation, ecological considerations and other issues.

Persuasive instruments

- Consist of non-economic programs, activities and actions oriented to make agents internalize environmental responsibilities in their decision-making processes
- Information, education, training and volunteer agreements among government and entrepreneurs are valid examples of this group of instruments
- Government has a role in making consumers aware of the deleterious effects of eutrophication and encourage consumers to place pressure on those from whom they buy their goods
- This type of incentive process corresponds is difficult to manage and will usually only occur over the long run

Economic instruments

- Economic instruments are a specific form of persuasive instrument whereby generating less pollution can save the polluter money
- There are two basic classes of economic instruments: fiscal and financial instruments and market instruments, including property rights instruments
- Fiscal and financial instruments includes emission charges, product charges, subsidies, preferential tax treatment, and financial incentives.
- Market instruments could harness market forces to solve water and pollution management problems. For instance, markets can be established for the rights to use water for industrial and agricultural use.

Emission fees

- Means charging polluters a fee per unit of pollutants generated
- This is not a fine for emitting more than allowed
- The idea behind this measure is that there is no correct amount of pollution but, all other things equal, less pollution is better
- The emission fee makes discharging pollution a little less attractive to the polluter
- No matter what amount of pollution is generated, the polluter must pay a fee to the regulatory body covering those emissions

User Fees

- Users of a system can be charged according to the load they place on the system
- A sewer use charge that is unrelated to the amount of waste generated (for instance, a fixed monthly charge) provides little incentive to reduce wastewater discharges to the system
- Relate the charges paid by users to the cost of providing services to those users in order to ensure a proper financing of the wastewater treatment
- This fee is based on metering. If metering wastewater generation is too costly, charges can be based on closely related variables, such as water use or size of facility.

Product charges

- It is a charge on a good or service that is closely related to pollutant emissions
- A charge per unit of fertilizer purchased by farmers would be a product charge whereas a charge per unit of fertilizer runoff into a lake would be an emission charge
- Product charge is much is to monitor than a emission charge in case of eutrophication
- A source for Environmental Fund

Subsidies

- Subsidize pollution reduction.
- Pay for every unit of emissions reduced below the baseline
- The problem with subsidies is that they require a source of funds, which may not be readily available.
- Removal of harmful subsidies is also a measure to influence the reduction of eutrophication
- A condition for granting subsidies for agricultural activities could be to meet the pollution standards related to eutrophication

Choosing Regulations: Benefit-Cost Analysis (1)

- Benefit-Cost Analysis (BCA), also called Cost-Benefit Analysis, is a useful tool for assessing the economic effects of projects, policies or programs.
- First task is to enumerate the physical consequences of the several regulatory options under consideration
- Convert these physical estimates into a common denominator
- The costs of a policy that improves water quality in a lake or reservoir would first include the monetary expenditure required to implement the policy and the necessary pollution controls.

Choosing Regulations: Benefit-Cost Analysis (2)

- The value of the foregone opportunities is the appropriate measure of the cost of combating eutrophication
- A commitment of resources to improving water quality may affect economic growth as well as affecting the distribution of economic welfare among various social groups. For example, it may reduce investments in industrial development while also providing jobs for rural people
- Environmental costs are another set of costs that need to be taken into account. For example, reducing eutrophication may reduce yields of certain fish species, which is an environmental cost. The value of the existence of a wide range of different species in a specific water body or during a specific period of time also needs to be considered in benefit-cost analysis.

Issues in Benefit-Cost Analysis

- Benefit-cost analysis alone is not enough upon which to base a decision but provides important information for the decision making process
- The estimation of costs is relatively simple compared the estimation of the benefits
- Collective benefits are not easily included in markets and, accordingly, are difficult to measure

Comparing economic instruments with command and control instruments

- Economic instruments leave a choice for water user – water polluter
- Control for some economic instruments is minimum comparing with command and control
- Economic instruments allow self regulation/equilibrium within the market
- For command and control there here are necessary specific standards for specific industries
- Diffuse pollution will create a problem for both type of instruments