Issues in Environment Policy

Consumption versus Preservation of Environmental Resources

58. Sustainable development goes beyond a static framework of correcting environmental externalities , deficient markets and inadequate property rights. It is very much concerned with the availability of environmental and natural resources in the future. The problem may be particularly acute in developing countries that have high discount rates due to the scarcity of capital and prevalence of poverty (which indicates a strong preference for present over future consumption). Therefore, use of an appropriate discount rate/shadow prices is central to maintaining an optimal balance between consumption and preservation of natural resources.

Valuation of environmental damages

59. Attempts to establish optimal pollution abatement levels or to set more general environmental quality objectives confront several problems in determining the monetary value of environmental damage. One difficulty in setting optimal abatement levels is that an economic activity must be functionally related to measurable environmental changes and the scientific basis for establishing the linkages may not exist. Secondly, only a use value of a good is normally accepted as contributing to welfare. Environmental goods have non-use value and option value (willing to pay for preserving the option to use the goods in future), also. Thirdly, many environmental services do not pass through markets and, therefore, no market prices exist to indicate value. Determining the value also depends on the type of environmental damage under consideration (damage to productive resources, to eco-system maintenance services or human health) . Among the economic valuation techniques adopted for such valuation of environmental damage are the contingent valuation method, travel cost method, hedonic pricing , surrogate markets method etc. The importance of valuation of environmental damage lies in demonstrating the existence of substantial economic benefits from increased resource protection (Box 11.2). An appropriate emphasis, therefore, needs to be placed on valuation of such environmental damages and its suitable internalisation/incorporation in the development projects.

BOX 11.2

Estimated Cost of Environment Degradation in Selected Asian Countries

Country	Year or Period	Environmental Damage	Annual Cost (US$ Billion)	Cost as % of GDP (Per cent)
1. China	1990	*Productivity losses caused by soil erosion, deforestation and land degradation, water shortage and destruction of wetlands.	13.9-26.6	3.8-7.3
		*Health and productivity losses caused by environmental pollution in cities.	6.3-9.3	1.7-2.5
2. Indonesia	1989	*Health effects of particulate and lead levels above WHO standards in Jakarta.	2.2	2.0
3. Pakistan	Early 1990s	*Health impacts of air and water pollution and productivity losses from deforestation and soil erosion.	1.7	3.3
4. Philippines	Early 1990s	*Health and productivity losses from air and water pollution in the vicinity of Manila.	0.3-0.4	0.8-1.0
5. Thailand	1989	*Health effects of particulate and lead levels above WHO standards.	1.6	2.0
6. India	1992	*Costs of urban air pollution, water pollution, soil erosion, land degradation and deforestation.	10-13.8	4.5-6.0

Source : Human Development Report, 1998, pp. 67, 79.

Natural Resource Accounting

60. Accounting schemes that more accurately measure the environmental costs of economic activity at all levels could help increase the efficiency of natural resource use and reduce related environmental impacts. The need for Natural Resource Accounting (NRA) and their integration with the system of national accounts (Box 11.3) have been emphasised in various policy documents of the Ministry of Environment & Forests. The Ministry in 1993, had developed a framework for preparing such integrated accounts for India. It has further taken up programme for development of prototype accounts for air, water, biodiversity and common property resources for selected hotspots in the country with a view to firm up the methodologies and techniques in their preparation.

Use of Economic instruments/Price Mechanism

61. While regulatory measures remain essential, new approaches for considering market choices in the protection of environment are being increasingly adopted by both developed and the developing countries (Box 11.4). The aim is to give industries and consumers clear signals about the cost of using environmental and natural resources. If the environmental costs of economic activity are more adequately reflected in the prices paid for goods and services, then companies and ultimately the consumers would be guided to adjust their market behavior so as to reduce pollution and waste. The expectation is that price signals will influence behavior to avoid excessive use of natural resources/ pollution build up. Hence, a greater use of such market based approaches as a complement to the present regulatory system is desirable. Use of such incentives would facilitate operationalising the standard approach of Polluter Pays Principle.

Removing subsidies that encourage unsustainable use

62. Production of natural resource related commodities is often subsidised. . For example, Power tariff charged is only a fraction of costs of generating power. Such subsidies encourage wasteful use of resources, often creating or exacerbating environmental problems. Salination from overirrigation is a major cause of land degradation in the country. Imbalance in the use of fertilizer nutrients (NPK), especially owing to underpricing such as, urea affects soil productivity. Low price of kerosene has encouraged its adulteration especially of diesel and motor spirit contributing to air pollution. Similarly, the water and sanitation problem may be largely due to low user charges, starving the implementing agencies of funds to maintain and operate these facilities. Eliminating or reducing such subsidies would confer both economic and environmental advantages. However, in certain cases, elimination of such subsidies may require weeding out of inefficient and marginal enterprises, thus raising unemployment. A careful targeting of subsidies where these are most needed is, therefore, called for.

Extension of Property rights

63. In some cases, the problem of environmental externality derives not from lack of appropriate user charges but from the lack of or ill defined property rights over resources. The extensive degradation of village commons or overexploitation of lakes/oceans for fisheries are examples of such externalities. In such cases it may be more efficient for the government to assign or clarify property rights and allow private agents to handle problems of environmental quality through negotiations among the affected parties.

Trade and Environment

64. The concern with environmental implications of trade involves both the domestic implications of policy reforms as well as the global environmental dimension of international trade agreements. Domestic implications of trade policy would suggest growth of less polluting industries and shift to higher quality and environment friendly products/processes for traditional polluting industries (like leather and textiles) through adoption of cleaner technologies, so that greater efficiency and productivity associated with liberalised trade policy may also reduce pollution intensity. As regards global environmental dimension of international trade, the debate has revolved around the issue of whether free trade is beneficial to global and national environmental conditions and whether it should be used to influence national and international environmental standards and agreements. A number of countries have adopted trade related environmental measures with implications for product/process standards, packaging and labelling of export merchandise. These measures have the impact of non-tariff

BOX 11.3

Green Accounting

- National Accounts have been providing the most widely used indicators for the assessment of economic performance, trends in economic growth and the economic counterpart of social welfare. However, the new emphasis on sustainable development draws attention to the need for a broader assessment of growth and welfare by modified national accounts. In assessing cost and capital, national accounts do not consider scarcities of natural resources which threaten the sustained productivity of the economy and the degradation of environmental quality and consequential effects on human health and welfare. In addition, some expenditure for maintaining environmental quality are accounted as increases in national income and product. This is despite the fact that such outlays could be considered a maintenance cost of the society, rather than social progress. Thus, the conventional accounts are likely to send wrong signals and may result in policy decisions which are non-sustainable for the country. Green accounting on the other hand is, focused on addressing such deficiencies in conventional accounts with respect to the environment.
- Integrated environment and economic (green) accounting, therefore, attempts at accounting for both socio-economic performance and its environmental effects and integrating environmental concerns into mainstream economic planning and policies. Such accounting imply allocating environmental costs (and benefits) to those activities and sectors that have caused them, in other words accounting for accountability, is a pre requisite for national management of both the environment and the country. Given the experimental nature of some of the proposed methodologies, particularly those on monetary valuation of non-marketed asset and externalities, such environmental accounting would require numerous and controversial estimates and valuation. Therefore, rather than modify the 'core' system of SNA, their incorporation through a system of "satellite accounts" have been suggested.
- Such integrated accounts can be useful in assessing the sustainability of economic growth and also the structural distortion of the economy by environmentally unsound production and consumption patterns. However, lack of international consensus on how to incorporate environmental assets and costs (and benefits) of their use in national accounts and existence of low statistical capacities for measuring natural resources depletion and environmental quality changes have resulted in a slow progress in development of green accounts.
- Nevertheless, the idea of placing statistical coverage of environmental concerns in a national accounts framework commands widespread support. Already, several attempts have been made at experimenting with satellite accounts - notably in Costa Rica, Mexico, the Netherlands, Norway and Papua New Guinea, among others. Indicative estimates suggest that conventionally measured GDP may exceed GDP adjusted for natural resources depletion and environmental degradation by between 1.5 per cent to 10 per cent.

BOX 11.4

Environmental Taxes

- As against the Command and Control approach to management of the Environment, the Economic or Market Based Instruments (MBIs) approach sends economic signals to the polluters to modify their behaviour. The approach normally involves financial transfers between polluters and the community and affects relative prices. But the polluters have freedom to respond and adjust, in the manner they want. They can thus choose the least cost option to meet the requirements. Hence, it is considered to be an efficient approach compared to the approach based on standards and regulations. The MBIs, therefore, have the benefit of being flexible and cost effective providing incentives for dynamic efficiency and resource transfer.
- Economic instruments used for environmental tax include pollution charges (emission/affluent tax/pollution taxes), marketable permits, deposit refund system, input taxes/product charges, differential tax rates and user administrative charges and subsidies for pollution abatement. These can be both price based and quality based instruments.
- MBIs have been applied in both developed as well as developing countries. In general, price based MBIs have been more widely used than those which are quantity based. Within price based MBIs, indirect instruments such as input-output taxes, differential tax rates and user fees have found extensive application in developed countries. By contrast, developing countries have made greater use of subsidies including those for end-of-pipe treatment equipment.
- The main MBIs used in India are subsidies for pollution abatement equipment for air and water resources. This provides rebates on duties for various pollution control equipment, monitoring instruments and abatement machinery for air/water pollution and promotion of unleaded fuel/fuel efficient automobile subsidy on automobile pollution kits/converters etc. Accelerated depreciation for pollution control machinery is also provided. Among user charges/administration charges, consent fee is charged from industries under the Water Act and the Air Act. A water cess based on the consumption of water and type of industry (polluting) is also levied on selected industries and urban municipalities to conserve consumption and control pollution of water.

barriers and need to be tackled through improved product/process quality. Removing such trade barriers would increase employment, promote economic diversification in developing countries, and facilitate a greater effort towards improvement of the environment.

Development that can reduce poverty

65. Efforts should be made to encourage economic growth and provide employment to the poor. The growth strategy should also accord weight to the direct intervention programmes for poverty alleviation, stabilisation of population growth rate and greater employment opportunities for both the rural and urban poor. Further, it should target human capital investment in health care and education, provision of basic civic amenities like drinking water and sanitation, legal reforms to extend land tenure and other rights to the rural poor and enhancing the status of women while increasing their participation in development.

Peoples' participation—Green Movement

66. Public participation is an essential ingredient of environment management along with other components like regulation and use of economic instruments. Public participation is facilitated by various environmental education and awareness programmes. The MOEF implements formal as well as informal education programmes and conducts various environmental awareness programmes. The usefulness of public participation is highlighted by the success of programmes like the Joint Forestry Management. A common approach followed by many countries, including India towards greater public participation is the scheme of Eco-labeling, which helps consumers to identify products that are environment friendly. Public hearing of major projects coming for environmental clearance to the MOEF has also been made mandatory. Other approaches in practice include the "consumer cooperatives" in Japan which popularise green products which are recyclable, biodegradable, rechargeable, ozone friendly and unleaded. Indonesian experiment with rating and public disclosure of the environmental performance of industries/factories has also vindicated the effectiveness of public participation/opinion in management of the environment.

Participation in global dimensions of environment

67. The country is signatory to various international Conventions having a direct bearing on environmental protection and conservation. Such Conventions play an important role in harmonising approaches and ensuring joint action on various global environmental issues. They also facilitate flow of larger funds and greater access to new technologies, contribute to protection of natural resource commodities and promote more sustainable production methods. Environmental protection and conservation of natural resources emerged as the key priorities in the wake of the Stockholm Conference on Human environment in 1972. The country is also a party to the Rio Declaration on Environment and Development and the Agenda 21, the operational programme for sustainable development

68. The United Nations Framework Convention on Climate Change (UNFCCC) aims at stabilization of greenhouse gas concentrations in the atmosphere at levels that would prevent dangerous anthropogenic interference with the climate system. It enjoins upon the parties to implement commitments contained in the various provisions of the Convention. As per the existing commitments, India is not required to adopt any reductions and limitation of greenhouse gas emissions. However, the third Conference of Parties to the Convention, held in Kyoto, Japan in December, 1997, considered an alternate Protocol for strengthening of commitments of the parties to achieve the objectives of the Convention. The Kyoto Conference witnessed deliberate efforts of the developed countries to introduce new commitments for developing countries on the one hand, and to secure flexibility to implement their commitment through new mechanisms (such as emission trading, bank borrowing and joint implementation), on the other. The final agreement calls upon for an average cut in greenhouse gases emission of 5.2 percent below 1990 levels to be achieved between 2008 and 2012 (European Union 8 percent reduction, Japan 6 percent reduction and U.S.A 7 percent reduction). The provision of joint implementation and emission trading , however, would be confined to developed countries only. A clean development mechanism has also been defined for use by both developing and developed countries for sustainable development and implementation of commitments respectively.

69. The Convention on Biological Diversity attempted at conservation of biodiversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of utilisation of genetic resources. Several steps, like preparation of a National Action Plan, framing a legislation on biodiversity, intellectual property rights on patenting of micro-organisms etc., have been initiated to meet our commitments under the Convention, as also to restructure administrative and policy regime in tune with the Articles of the Convention. Similarly, by acceding to the Convention to Combat Desertification, the country has reiterated its commitment to continue to accord priority to all actions to prevent land degradation and to improve the productivity of land on which the poor depend for their subsistence in such areas.

70. With a view to strengthen the global efforts to protect the ozone layer, India acceded to the Montreal Protocol in 1992. Draft rules on Ozone Depleting Substances (ODS) phaseout under the Environment (Protection) Act, 1986 have been prepared after extensive consultations with industry, NGOs and concerned Government Departments. The policy to issue licences for import of ODS has since been formulated. Duty exemptions are granted for new investment with non ODS technologies. Instructions have been issued to all commercial banks prohibiting finance/refinance of new investments with ODS technologies.

Financing sustainable development

71. The share of environment & forests sector in the Eighth Five Year Plan public sector outlay amounted to 1.1 percent, as compared to other social sector shares of 1.2 percent for urban development, 1.3 percent for housing, 1.4 percent for family welfare, 1.6 percent for medical & public health and 3.9 percent for education. About 75 percent of this approved outlay of environment & forests was in the state sector with bulk of the investment being in the forestry sector. The approved plan outlays in the Environment & Forests sector in the Seventh and Eighth Plans are indicated in the Table 11.8.

72. The United Nations Conference on Environment & Development (UNCED) secretariat has estimated that $ 600 billion would be required over the period 1993-2000 to implement Agenda 21 in developing countries. About two thirds of these resources are expected to come from the developing countries and the remaining as concessional aid from developed countries. The developed countries commitment to give 0.7 per cent of their GNP as concessional aid to developing countries for their sustainable development has not, however, materialised so far. Higher priority in resource allocation for this sector, therefore, need to be emphasised in order to implement its mandate on sustainable development programmes. Besides, greater involvement of the private sector and higher external aid would be needed to garner higher investment in this sector. For example, out of the total forest cover of 63.3 million hectare in the country, about 25 million hectare *i.e.* 40 per cent is degraded. The current availability of funds is resulting in afforestation of around 1.2 million hectare only per year. Thus, at the present rate, it will take more than 20 years to afforest all the degraded forest land.

73. Keeping in view the resource constraints, the Ministry of Environment and Forests have identified in its Environment Action Programme priority areas covering conservation of and sustainable utilisation of Biodiversity in selected eco-systems; afforestation, wasteland development, conservation of soil and moistures including measures to lessen/eliminate water pollution; control industrial and related pollution with accent on reducing and/or management of wastes particularly those of hazardous nature ; improve access to cleaner technologies; tackling of urban environmental issues; and strengthening the scientific understanding of environmental issues as well as structures at different levels and orientation and creation of environmental awareness and an alternative energy plan with emphasis on cleaner sources of fuel.

TABLE 11.8

Approved Outlays—Environment and Forests Sector

	VII Plan	VIII Plan (Rs crore)
1. Ecology & Environment	428	828
2. Forests & Wildlife	1859	4082
3. Total, Environment & forests	2287	4910
(a) Central sector	797	1200
(b) State sector	1490	3710

Source : MOEF