Paper Name – Development Economics - II

Teacher's Name – Ms. Pragya Atri

Course – B.A. (Hons.) Economics

Semester – VI

Topic: Environment and Sustainable Development

Prescribed Reading: Gerald M. Meier and James E. Rauch "Leading Issues in Economic Development", Chapter – 10, OUP. Selection 10.1, WDR 1992 and Selection 10.5, Pearce, Barbier and Markandya, "Sustainable Development, Ecology and Economic Progress".

SELECTION 10.1

Meier and Rauch in the Report explore a two way relationship between environment and economic growth. The Report discusses how environmental problems can erode the foundation of the goals of development. This can happen in two ways. First, if the increases in economic growth lead to degrading environment quality then economic growth cannot translate into development. Second, current environmental damage can undermine future productivity. For instance, degraded soils, depleting aquifers and exhausting ecosystems can endanger the prospects of earning incomes tomorrow.

The Report also explores the other way link – from economic growth to environment. This relation identifies the conditions under which policies for efficient income growth can complement those for environmental protection and identifies trade-offs. The Report notes that policies that are justified on economic grounds alone can deliver substantial income benefits. For instance, eliminating subsidy policy for the use of fossil fuels and water, giving poor farmers the property rights on the land they farm, making heavily polluting state owned companies more competitive, etc are policy options that improve both economic efficiency and environment.

Economic growth and environment

The Report explores a long term projection of economic output while analysing what exact pressures will economic growth place on natural environment in the coming years? This is

crucial for policy formation. Within this, one needs to understand that the challenges are many but they are usually different for developing and developed countries. According to present projections as reported, developing countries' output would rise by 4-5% a year between 1990 and 2030 and by the end of this period would be about 5 times of its initial level. Developed countries' output would rise more slowly but would still triple over the period. In all, world output would be 3.5 times of what it is today.

The Report notes that "if environmental pollution and degradation in both sets of countries were to rise in step with such a rise in output, the result would be appalling environment pollution and damage. Tens of millions of people would become sick or die each year from environment causes. Water shortages, thus caused would be intolerable and consequently, tropical forests and other natural habitats would reduce to a fraction of their initial size". It is crucial to note that there is no inevitable relationship between income levels and particular environmental problems. Countries can choose policies that result in much better (or, worse) environmental conditions than those in other countries at similar income levels. Also, the continuous technological progress implies that we can follow the same growth path with better (or, worse) environmental options i.e. countries can develop in a more (or, less) damaging manner than previously.

Along with the increases in economic growth, if the countries choose the right policies and develop the institutions in a correct way then the environmental damage can be contained. The present Report identifies that such policies can be broadly divided into two sets – first, policies that seek to harness the positive links between development and the environment by correcting or preventing policy failures, improving access to resources and technology and promoting equitable income growth. Second, policies that are targeted at specific environmental problems: regulations and incentives that are required to force the recognition of environmental values in decision making.

The first kind policies are focussed on building positive links which encourage efficiency leading to less waste, less consumption of raw materials and more technological innovation, etc. There are two ways of doing this –

a) Removing distortions – At times, some of the government policies are harmful to the environment. For instance, the removal of all energy subsidies including those on coal in the developed countries would not only produce large gains in efficiency and fiscal balances but would also reduce the local pollution and cut worldwide carbon emissions from energy use by 10%. Another example as noted in the Report is regarding the logging fees in a sample of 5 African countries. Fee ranged from 1% to 33% of the cost of replanting. In most of the Asian countries, surprisingly irrigation charges covered less than 20% of the costs of supplying water. State enterprises are prominent in many sectors like power generation, steel, cement, mining but nearly all of these are heavy polluters. Thus, "the commanding heights are usually also the polluting heights".

b) Clarifying property rights – It is commonly observed that when people have open access to forests, wastelands, fisheries and pasturelands they tend to overuse them. Clearly stating the property rights can help the environmental cause in a number of countries. The Report, for instance, quotes a number of examples.

- Providing security of tenure to hill farmers in Kenya has reduced soil erosion.
- Formalising community rights to land in Burkina Faso sharply improved land management.
- Allocating transferable rights to fisheries in New Zealand has checked the tendency to overfish.

As per the analysis in WDR, usually governments make a mistake of nationalising the resources in the name of conservation while seeking to eliminate open access. Nationalisation has often reflected the failure of policy makers and aid agencies to distinguish between traditional common property systems which promote sound management of natural resources and open access systems that result in excessive exploitation.

The second set of policies is the one where, policies are designed for specific situations that induce or require resource users to take account of the spill over effects or externalities that their actions have on the rest of the society. As per WDR, policies in this (second) set can be formulated in two ways –

a) Market based policies – The Report notes that the policies which are based on incentives and tax or charge polluters according to the amount of damage they do. Market based instruments are considered to be the best in principle and in practice as they encourage those polluters with the lowest costs of control to take the most remedial action and they thus impose less of a burden on the economy. The Report, for instance, quotes a number of examples.

- Fuel and vehicles taxes imposed in OECD countries
- Congestion charges applicable in Singapore
- Surcharges on potentially damaging inputs such as pesticides and plastics as applicable in Denmark and Sweden.

However, developed countries have been slow in adopting the market based strategies because environmentalists argued that degrading the environment was unacceptable at any price. More importantly because corporations feared that they would have to adopt emissions standards and also pay charges on the remaining emissions.

b) Quantitative command and control – According to the Report, the instruments such as direct regulations on what abatement technologies must be used in specific industries are typical features of this set of policies. The appropriate choice of instrument depends on the specific circumstances of an industry and the country in question. As per WDR, the points that need to be kept in mind in general while using qualitative policy instruments are as follows.

- Standards that are set should be realistic and enforceable. Many developing countries have set unrealistically high standards which leads to wasted resources, facilitates corruption and undermines the credibility of all environment policies. And even worse, at times policies are made but not implemented giving a false sense that serious environmental problems are under control.
- Controls must be consistent with overall policy framework. This is to say that at times good policies also get messed up by other policies that pull in the opposite direction. For instance, land use planning in sub Saharan Africa has primarily failed in the face of policies that did not encourage intensification

and off-farm employment. Three, sometimes a combination of policies might be required. Often environmental damage such as pollution is caused by different factors / reasons and therefore a single policy change might not be enough.

Apart from these policies, the WDR notes two additional points of concern. First, is reviewing public expenditure as it has a strong impact (negative or positive) on environment. Lot of public investments have caused huge damage by failing to take the environmental considerations into account. Often, it is argued in Report that public investments don't focus on design of projects, road alignments, infrastructure of the buildings and provision of access to forests, etc from the environmental angle. However, to correct this most countries have now introduced "environmental assessment procedures". Some of these procedures are fairly recent or in the initial stage and need to be fine-tuned in aspects like technical skills required, difficulties in incorporation of assessment results in projects, making these procedures transparent and locally viable.

As per the Report, the second point is, removing impediments to action. Even when appropriate policies are available at times the desired results are not obtained. Some of the prominent reasons for this as listed in the Report are as follows.

- First point mentioned in WDR is political pressures. Policies aimed at environment protection usually involve taking rights away from people who are politically powerful. Industrialists, rich farmers, loggers and fishermen fiercely defend their rights to pollute and exploit resources. Another issue with political set up is the inability of the governments to regulate themselves. This problem arises partly because state institutions have conflicting objectives which allow them to use resources less efficiently and partly because of the inherent contradictions of being both gamekeeper (defender) as well as poacher (offender).
- Second point mentioned in WDR is improving information. Ignorance is a serious impediment to finding solutions. Governments often make decisions in the absence of basic information / data about exposure to emissions, soil erosion, water depletion, land capability and actual area / type of forests, etc. To this end, independent

commissions have been set and they have proved useful in aiding government with information and also technical expertise.

- Third point mentioned in WDR is involving local people. Making choices between economic and social benefits with respect to environmental costs often requires subjective judgements and detailed local knowledge as well as participation. Local participation also yields high economic and environmental returns in implementing programs of afforestation, soil management, park protection, water management and sanitation, drainage and flood control. However, at times involving local people can be expensive and, in some cases, can even paralyse decision making. This can be resolved by selectively involving people for specific projects through increasing responsibilities of local governments as well as additionally training the public agencies in participatory approaches.

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Prescribed Reading: Charles D. Kolstad "Intermediate Environmental Economics", Chapter – 1, 2012, OUP.

Kolstad defines the following three fields of study in economics namely, environmental economics, ecological economics and resource economics. The broad definition of these fields and their paradigm is given below.

ENVIRONMENTAL ECONOMICS – Environmental economics tend to involve economists with their discipline being environmental economics. This branch of economics tends to be positive i.e. "what is". According to Kolstad, environmental economists believe "the value of a good stems from its embodied content of multiple scarce factors (including energy) as well as how much value individual people place on the final good and it involves question of excessive production of pollution by the market or insufficient protection of the natural world due to

the market failure". Broadly, it is concerned with the issues like why markets would not function correctly and why as a consequence there will be too much of certain things (like pollution) and too less of certain things (like wild animals, forests, scenic areas, etc.).

ECOLOGICAL ECONOMICS – Ecological economics tend to involve ecologists who study humans and economy which has a multi – disciplinary involving practitioners from a wide variety of fields who wish to study environment – society interface. According to Kolstad, "this branch is primarily normative i.e. what society should do rather than what it does and takes a biophysical view of value as they would measure value in terms of embodied energy content. In this paradigm, while comparing a type writer and computer, the appropriate question would be which took more energy to create? The less energy is used, the better it is".

RESOURCE ECONOMICS – Resource economics is concerned with production and use of renewable and non – renewable natural resources. This economics' branch is concerned with dynamic issues i.e. time involved. According to Kolstad, "essentially it is the time what makes the resources renewable (fisheries, forests, etc) and non – renewable (Alps, species of plants and animals, etc). How fast we extract the non – renewable resource will determine its scarcity and its price in future. For instance, if we log a forest slowly enough, the forest can regenerate itself and we can continue to log indefinitely. It is, therefore, time rather than failure of markets to operate properly that is the essence of environmental problems".

ENVIRONMENTAL REGULATION

Different economies have responded to the environmental problems in different ways. Kolstad, in this Chapter focuses on primarily the two ways – Regulatory Approach and Economic Incentives – which are used to deal with environmental problems in three economies namely USA, European Union and Russia.

A. EUROPEAN UNION

1. REGULATORY APPROACH – Kolstad in this Chapter, explains two basic principles of EU environmental policy. The first one is the principle of "subsidiarity" – which leaves all the power to the individual member states unless there is an abiding reason to take action at the

European Union level. Hence, the pollution control is the responsibility of the member states independently. Second one outlined in Kolstad is the principle of "polluter pays" which means that the polluters are required to pay for the environmental damage that they cause and also for the environmental controls and administrative costs of the environmental agencies.

2. THE USE OF ECONOMIC INCENTIVES – Kolstad outlines in this Chapter the long history of EU of using economic incentives for the purpose of economic regulation among which the predominant type is – emission fee. It is important to note that the economic incentives given in EU are more of revenue raising in nature rather than incentive giving i.e. the charges are way too low to provide any incentive to firms to reduce the pollution, rather these charges were only sufficient to cover the administrative costs of the pollution controlling agencies. For example, Kolstad notes that the German water pollution charge which was instituted in 1976 and implemented in 1981 is just a charge which covers administrative costs. However, in some member states in EU the use of economic incentives seem to be more effective. For instance, the fee charged in the Netherlands on the discharge of the organic material into sewer systems was efficient because rather than a flat rate it was based on the amount of load of the sources that is put into the treatment plant.

B. RUSSIAN FEDERATION

1. REGULATORY APPROACH – Kolstad discusses this approach as adopted in 1970s in Russia. Some additional air and water pollution controls were set up and the regulatory approach was dependent on the health based ambient standards which in turn, were based on the national level health information. Author notes that the best feature of these standards were/are that they aren't absolute and depend upon the ambient environment. For instance, the ambient standard for water would vary according to the use of water – for drinking, for fishing or for recreation.

2. THE USE OF ECONOMIC INCENTIVES – Kolstad notes that Russia makes use of emission fee extensively. The original intent of charging emission fee was for financing of environmental funds and these funds were used to pay for the environmental protection as well as for the correction of damages. Each polluter was required to contribute to this fund depending o their emission levels. There are two levels of emission fee – (a) A base level for the emissions under the emission limits for the facility and (b) A level 5 times higher than the prescribed

limit for the emissions higher than the limit. However, it has been noted that for most of the times, most of the emission fee charged was too low to provide any incentive for pollution control.

C. UNITED STATES OF AMERICA

1. REGULATORY APPROACH – Kolstad in this Chapter notes that major national environmental legislation was passed in 1960 and emission standards were established for the automobiles. In order to control the existing sources, states were free to decide the ways and means and charges or fee if any, were to be charged. This was followed by a regulation for the automobile manufacturing where manufacturers were required to install anti-pollution devices in new cars and for the new sources of pollution Central / Federal government passed on the rules on ambient environment quality and states were supposed to draw up the plans specific to their local conditions which would be then approved by the Federal government. The Environmental Protection Agency (EPA) established in 1970 decided for the existing and would decide for the new sources – an industry by industry pollution control plan. Toxic regulation for different categories is done in three different ways – toxic governed by the occupational safety and Health Administration; the generation, transportation and disposal of the toxic is regulated by the Environmental Protection Agency and the regulation regarding accident causing toxic (accidents caused due to improper handling or accidental leakage) or the discovery of an old toxic site is governed by Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of1978.

2. THE USE OF ECONOMIC INCENTIVES – Kolstad finally discusses the major experiment that was done for the first time i.e. giving economic incentives, as a part of the environmental regulation in USA. Author notes that experiment with marketable emission permits for sulphur has been one of the best or most successful experiments in US for decades. Under this experiment, a system of marketable permits was established the projected level of costs or price per tonne of sulphur was $500 but after the permits were issued and were marketable then the price dropped to $65 per tonne. In the present chapter, Kolstad discusses more such experiments or a type of economic incentives –

- Widespread adoption of the volume based pricing for municipal solid waste i.e. a fixed monthly fee to the household paying for each bag (the per bag pricing) for disposal services.
- Another marketable permit system was used to phase out the lead in gasoline in early 1980s which was very successful.