

Environmental Damage, Resource Depletion, Through Put Base Economy and Extinction of Bio-diversity: An Appalling Omen to the Posterity

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INTRODUCTION

Prevention is not only better than cure but also is cheaper than cure. This is an universal truth and is the medicament for the environmental problems. The environment has become a popular issue in recent years as its importance has become more obvious. We have looked at how the media has portrayed the environmental issues, how business is saying one thing and doing another, how politicians are using it for their own ends. So issues have become confused, even trivialised. It is imperative to take a broad view of environmental problems and look at alternatives, not just to industrial processes but also the way things are organized and how decisions are made and what needs to change to give the world and its people a chance of survival.

Increasing number of man along with the objectives of enhancing consumption and economic growth has led to the exploitation and over exploitation of natural resources, resulting in an appalling lack of concern about the quality of the environment.

A variety of factors seem to be indicating that environmental deteriorations is already at in an alarming stage and man must begin to alter the nature of his interactions with the environment if his food supply, health and the future of the habitable are not to be threatened.

WHAT IS ENVIRONMENT ?

The preoccupation with environmental issues has emerged at different times in history, but has never been so widespread and intense as in our days. The present concern stems from various sources and interests, originating first in the industrialized countries in relation to problems derived from the very process of industrialization and incorporating later, in the Founex Report the Stockholm Conference and Rio-Conference (The Earth Summit), the view points of the countries of the Third World. These are essentially related to the more social aspects including the irrational use of resources, the "pollution of poverty" and the general living conditions of the people. Because of the varied origins and interests behind the different proposals and

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views of the problem and partly because of difficulties inherent in the definition of the concept the term "human environment has been one of the most confusing ones used in the international fora. A classification of the concept "environment" seems therefore essential to establish relations between development and environment, and to find out possible meaningful solution and alternative approaches to sustain development with environment.

Even when all can agree that no societal scenario can be considered viable in the long run unless if it is compatible with the preservation and/or enhancement of the quality of the human environment, including those ecosystems upon which man depends physiologically, culturally and economically.

ABSTRACT CONCEPT

The interpretation differs drastically from pure scientists to social scientists and the politicians according to the contents they look to the concept "environment".

Originally, it is the biology-science which eroded the abstract concept of 'environment' along with a mechanistic conception in which a body is immersed and moves towards a motion of circumstance that influence or modify organisms (Canguthan, 1971). But this concept is not free from ambiguities, because heterogeneity angles adopted in viewing the environment along with ecological traits and different levels of aggregation of the bio-system considered by scientists made different details of the concept 'environment' and when social scientists, specially economists, tried to aggregate the abstract concept of bio-system to indicate in units like, populations, societies, biological communities and biosphere same ambiguity arises and little left for its of errationed value. For, planning and problem solving purposes, we must progressively specify the environment which is directly associated with our surroundings where men live.

This characterization used for men, some times called bio-system, is based on the implicit assumption that relevant environment of a bio-system is nothing but man and its neighbourhood. In this context it is relevant than, to use environment to mean the surroundings of the bio-system and as the economists we are interested to see the ways in which man influences himself through modification of his environment and how that influence other bio-systems.

CAUSE OF ENVIRONMENTAL CRISES

It is the cumulative addition of pollutants to the air and water and land to the point at which they threaten to overload the absorptive or chemical cleaning powers of the environment.

As Kenneth Building has very aptly put it, we have moved from a "Cowboy Economy", where the great open space were endless to a "Spaceship economy" in which we are acutely aware of the cramped confines of our collective living space. There is an economic side to this "running out of environment" It is linked to a category of inputs the productive process that we have ever overlooked. These inputs are called "free

goods" - the air, the water, the empty space of the environment itself into which we throw things away. Old fashioned economic thinkings used to begin their discussion of economics by mentioning free goods, then forgetting about them, since they never entered the economic calculus. Now free goods again become important because although they remain "Free" that is there is no charge for using them - they have become scarce.

ECONOMICS AND THE ENVIRONMENT

Economics, as some opine is a topsy-turvy science. For example, a standing forest provides real economic services for people: by conserving soil, cleaning air and water, providing habitat for wild life and supporting recreational activities. But consider the way we calculate (GNP) which is fundamental to all economic activities. As GNP is currently figured, only the value of harvested timber is calculated in the total. However, getting economic figures out of nature is not simple. How, do we calculate the price of a swamp? However, any serious attempt to protect the environment and promote sustainable development also means an over haul of social and cultural practices and values in both modern consumer and traditional societies. But this will undoubtedly prove to be the most difficult step of all, yet it is recognised that environmental aspects are an integral part of economic decisions.

THROUGH PUT BASE ECONOMY

Now-a-days most of the economic activities are 'through put base'. This means that resources from large areas in nature are pumped into the human economy and concentrated in industrial and urban centers. When the resources have been used up for economic purposes, either by the production process or by household consumption, they are returned to the environment as concentrated waste, toxins effluents and pollutants. And very favourite to ecological economists is a Jargon known as "Dematerialization", in other words giving priority to activities and techniques that consume fewer natural resources.

According to Kenneth Boulding in the long-run there is no alternative to viewing the earth itself as a spaceship to whose ultimately finite carrying capacity its passengers must adjust their ways (Robert L. Heilbroner, *The Economic problems* 3rd ed. P. 431). From this point of view, production now suddenly appears as a "through put" beginning with a raw material of the environment and ending with the converted material of the production process, which is returned to the environment by way of emissions, residuals, and so on. In managing this through put, the task of producers is not to maximize "growth" but to do as little damage to the environment as possible during the inescapable process of transformation by which man lives. If "growth" enters man's calculations in this period of rationally controlled production, it can be only insofar as he can extract more and more utility from less and less material input; that is as he learns to economize on the use of the environment by recycling his wastes and by avoiding the disturbance of delicate ecological systems.

Such a spaceship economy seems to be of some destiny but much depends on the rate at which the poor countries grow in population and productivity, and on the

technological means of lessening pollution in the advanced countries. Much depends also on the development of means to prevent the dumping of pollutants across national boundaries, such as the gases from West Germany that blow into Sweden. A true spaceship earth would require a feeling of international amity sufficiently great so that the industrialized peoples of the world would willingly acquiesce in global production ceiling that penalized them much more severely than their poorer sister nations. The true age of spaceship earth is still some distance in the future, but for the first time the passengers on the craft are aware of its limitation.

RESOURCE DEPLETION

Paul and Anne Ehrlich, of Stanford University write:

"To raise all the 3.6 billion people of the world of 1970 to the American standard of living would require the extraction of almost 30 billion tons of iron, more than 500 million tons of copper and lead, more than 300 million tons of zinc, about 50 millions tons of tin, as well as enormous quantities of other minerals. That means the extraction of some 75 times as much iron as is now extracted annually, 100 times as much copper, 200 times as much lead, 75 times as much zinc and 250 times as much tin. The needed iron is theoretically available, and might be extracted by tremendous efforts over long periods of times, but needed quantities of the other material far exceed all known or inferred reserves. Of course, to raise the standard of living of the projected world population of the year 2000 would require doubling all of the above figures" (Population Resources, Environment, San Francisco: Freeman, 1970, Pp. 61-62)

For the solution of the problems of resource depletion, the free market economy suggests the use of resources at a sustainable level. Resources could thus be concerned for future generations and industry would be prodded into inacting the technical changes necessary in finding substitutes to over exploitation of natural resources.

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. What will be required is a new pattern of public consumption, new ideals of stable rather than ever-rising standards of material achievement, perhaps even a wholly new conception of what is meant by an advanced society. All this will be required not as a matter of ideological preference, but as one of long-run necessity.

The ecological barriers of resource availability and the absorption capacity of the earth thus pose truly staggering problems for the undeveloped nations, once they manage to escape from the stagnation that still characterizes most of them. No one knows how these obdurate limitations of nature will be translated into the realities of social life, but it is certain that the relatively laissez-faire attitudes of Western capitalism will be hopelessly inadequate to the tasks.

SUSTAINABLE DEVELOPMENT

Sustainable development is defined as "A process of change in which the exploitation of resources, the direction of investments, the orientation of technological

development and institutional change are all in harmony and enhance both current and future potential to meet the human needs and aspiration" [WCED 1987].

The development will lead to some degree of environment degradation is inevitable but development policies can be so designed that they neither impair the environment beyond the level of sustainability nor reduce the potential for future economic growth.

Ecologically sustainable development means economic growth that does not jeopardies the future productive base. Renewable resources are managed so that they are not permanently depleted. In some case the use of particular technologies or processes may be so damaging that they should be banned.

If each individual appreciates the consequences of his or her actions, reacts to appropriate laws and is confronted with the full cost of his or her decisions we are much more likely to achieve her decisions we are much more likely to achieve the goal of an ecologically sustainable society.

Strong environment policies complement and reinforce development. It is often the poorest who suffer most from the consequences of pollution and environmental degradation. Unlike the rich the poor can't afford to protect themselves from contaminated water, they are more weekly to spend much of their time on the streets, breathing polluted air, on open fires of wood or dung, inhaling dangerous fumes, their lands are must likely to suffer from soil erosion.

IDENTIFIED ROOT CAUSES OF ENVIRONMENTAL DEGRADATION

(I) Physical causes

- a) Population pressure.
- b) Poverty and inequality.
- c) Rapid Economic growth.
- d) Industrialization.
- e) Resource exports or the demand for natural resource from developed countries.
- f) Export of polluting industries from the developed to developing countries.
- g) Protectionism by the developed countries against manufactured imports from developing countries.

(II) Economic causes

Policy and market failure are the fundamental causes of environmental degradation. For example, it is not loge exports that lead to deforestation, but subsidized logging. It is not population growth or density that leads to forest encroachment, rather it is the failure to provide adequate employment opportunities or the absence of secure property rights over certain resources.

Thus environmental degradation results not only from over reliance on the market that fails to function efficiently (Market failure) but also from government policies that intentionally or unwittingly distort incentives in favour of over-exploitation and misuse of scarce resources (Policy failure). Macro economic policies that lacks Micro-foundation is "Economic Liberalization in the absence of functioning markets".

Relative Significance of Resource and Environmental issues in Nepal:-

1.	Deforestation [Industrial Wood production, fuel food collection, water shed degradation and loss of biological diversity]	→	High priority
2.	Water resource problem [water shortages, ground water depletion flooding and water pollution]	→	Low priority
3.	Land and soil resource problem [desertification, sanitization, soil erosion, and other forms of land degradation such as water logging]	→	High priority
4.	Pesticides and Fertilizers	→	Low priorities
5.	Urban Congestion and pollution	→	Low priorities
6.	Industrial pollution	→	n.a. [Not applicable]
7.	Marine and Coastal Resources degradation	→	n.a.
8.	Waste disposal [dumping of industrial and toxic waste]	→	n.a.
9.	Acid Rain	→	n.a.
10.	Rising Sea level	→	n.a.

Source: ADB, *Asian Development outlook 1991*

Nepal with its total area 14718 Sq. Km. has tree planted area equal to 12600.70 hec. by mid 1988. Population has reached to 18916304 according to 1991 census results. Agriculture has been the basic industry and source of livelihood for majority of the people. Priority for land and soil resource problem and deforestation seems obvious.

But recently, some other issues have also become equally significant for the environmental concern. Specially in the urban areas the problem of concentration and congestion in getting height. Likewise, the problem of managing the waste disposal has become a serious problem in the urban centres. Even the Holly river of Kathmandu, 'The Bagmati' is being dirty and its water has been polluted by the wastes, dirt and effluents of the city. This is due to the lack of proper management and recycle of the wastes.

ENVIRONMENT AND DEVELOPMENT

Environment and development are indivisible unsustainable development and the environmental crisis are but two sides of the same coin. The value of the environment has been underestimated for too long resulting in damage to human health, reduced productivity and the undermining of future development prospects.

The achievement of sustainable and equitable development remains the greatest challenge facing the human race. More than one billion people in the world still live in acute poverty and suffer grossly in adequate access to the resources - education, health services, infrastructure, land and credit - required to give them a chance for a better life. The essential task of development is to provide opportunities so that these people, and the hundreds of millions of not much better off can reach their potential. But although the desirability of development is universally recognized, recent years have witnessed rising concern about whether environmental constraints will limit development and whether development will cause serious environmental damage - in turn impairing the quality of life of this and future generation.

The relationship between development and the environment lies on how environmental problems can and do undermine the goals of development. There are two ways in which this can happen.

Environmental quality : Water that is safe and plentiful and air that is healthy - is itself part of the improvement in welfare that development attempts to bring. If the benefit from rising incomes are offset by the costs imposed on health and the quality of life by pollution, this cannot be called development.

Environmental damage can undermine future productivity. Soils that are degraded, aquifers that are depleted and ecosystems that are destroyed in the name of raising incomes to day can jeopardies the prospects of earning income tomorrow.

The world has learned over the past two decades to rely more on markets and lesson Governments to promote development. But environmental protection in one area in which Govt. must maintain a central role. Private markets provide little or no incentive for curbing pollution.

The main focus, of environment and development in the global context, should be primarily on the welfare of developing countries. The most immediate environmental problems facing these countries - unsafe water, inadequate sanitation , soil depletion, indoor smoke from cooking fires and out door smoke from coal burning are different

from and more immediately life threatening than those associated with the affluence of rich countries, such as carbon dioxide emissions, depletion of stratospheric ozone, photo chemical smogs, acid rain, and hazardous wastes. Industrial countries need to solve their own problems, but they also have a crucial role to play in helping to improve the environments of developing countries.

COST AND BENEFIT APPROACH

However the common causes of environmental crisis are; population growth, the cumulative effects of industrialization; new technology and externalities, the emergence of new technologies of extra ordinary environmental impact are of most important which are pesticides, radiation, jet planes, and many more. The economic effect of these ecology disturbing new commodities is termed as externalities of production or consumption.

These externalities effects exerted by the process of producing or consuming goods, by pas the price system. For example, ordinarily when we consider the price of a good-say an automobile - we assume that this price fully reflects all its costs of manufacturing. By the way of auto factory's emission of smoke that lowers local real estate values or multiples local cleaning bills. These are costs that are not included in the price of autos, on other hand the use of automobiles requires the installation of traffic lights or expensive through ways, which are consumption externalities, will improve costs (taxes) on users and nonusers alike. Similarly the consumption or production of a product may be beneficial externalities, such as the construction of a new school that greatly improves the value of a neighborhood.

"Externalities are a pervasive and inescapable attribute of nearly all economic processes and that one of the problems of even a perfect market system is that it fails to take into account their benefits or costs". [Robert L. Heilbroner, the economic problems, 1992, P. 572]. Thus the new, environment the threatening technologies constitute a special causes of the ecological crisis only because they point up more sharply the failure of the market system.

Previously, the market was assumed to be an efficient allocator of goods and incomes. It was the assumption that all the inputs going into the process were owned by some individual and that all the outputs were bought by some person or firm or agency. Presuming that the offered price would include all the costs incurred in the production process, price that supposing all the disutilities involved in the process of production, will be taken into account.

What the ecological crisis has brought home is that the market is not a means for effectively registering a great many of these costs and benefits. The examples of the damage wrought by smoke that is not changed against the factory or of a neighborhood nuisance.

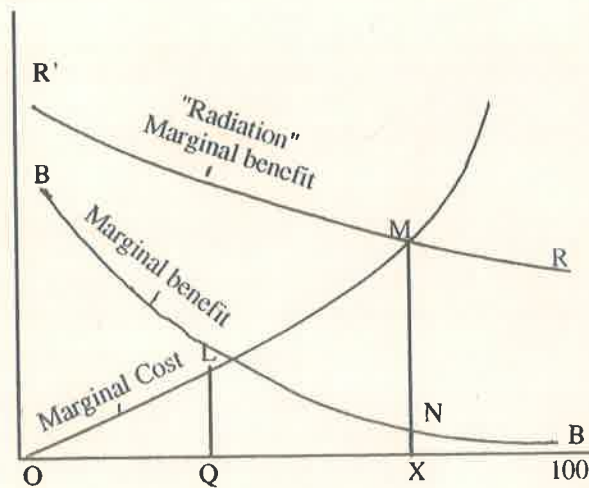
Contrariwise, when a person spends money to educate himself, he benefits not only himself but also the community, partly because he becomes a more productive

citizen and partly because he presumably becomes a more responsible one. Thus the social benefits of some expenditures may be greater than their private benefits.

As the saying now goes, we want an economy that produces more 'goods' and less 'bads' but under a pricing system that takes no account of the externalities wrought by consumption and production, the economy will produce too many bads and too few goods.

How are we to estimate what the proper allocation of resources should be, if we do take into accounts the externalities that production (or consumption) may impose? By how much, in other words, should we try to reduce the smoke flowing from factory stacks or the waste pouring from a pulp mill? "By whatever degree our technology makes possible", answers the antipollution engineer, "No, by whatever amount equates marginal costs and marginal benefits", answers the antipollution economist. The difference yields important insights into how an economist approaches certain social problems.

Let us examine an economist's approach with the help of a diagram.



Amount of pollution reduction, percent

The diagram shows the costs of, and the benefits from reducing pollution, say from a factory. The cost and benefit of each unit of pollution reduction are the vertical axis. Along the horizontal axis we show the amount of pollution reduction, beginning at point O the no reduction and proceeding towards point B, where we reach complete pollution elimination.

On the diagram, The curve OM shows the cost of bringing pollution closer and closer to zero. Note that by the time we have reduced pollution by an amount ox, the

marginal cost curve is very steep, meaning that it will cost a great deal to achieve a relatively small amount of additional control beyond this point.

The marginal benefit curve, B'B, slopes in the opposite direction. At zero pollution control, the benefit from even a small amount of reduction is very high (OB'); but as more and more smoke is prevented from reaching the air, the benefit from an additional unit of improvement steadily falls. If we ever get to point B, where pollution is completely eliminated, the marginal benefit at that point would also be zero.

New how much should we spend for pollution control? The engineer, studying the technical possibilities, might conclude that our target should be a reduction by OX. But the economist notes that at OX, the cost of controlling the last unit of smoke has reached MX, whereas the benefits enjoyed from the reduction of the last unit have fallen to NX. Thus his solution is to cut pollution by only OQ, at which the benefits from eliminating this last unit of smoke are just equal to the costs of doing so.

Thus the economist tends to think not only in terms of technological possibilities, but also in terms of relative plusses and minuses, gains and losses, opportunities won and lost. Needless to say, the computation of these benefits and costs is an exceedingly complicated task. Smoke over a city not only adds to cleaning bills and causes ill health, but defaces buildings, delays air traffic, and irritates people (who then move to the suburbs). Putting money values on these effects is inevitably a somewhat arbitrary procedure, often better than an educated guess. Nonetheless, the economist's view of things alerts us to the fact that the task of rational environmental control is not always to push for the most advanced possible engineering solution, but to look for a solution that, in the best informed opinion, balances the marginal cost of making a better environment and the marginal benefits to be had from it.

BIOLOGICAL DIVERSITY

Biological diversity, sometimes termed as bio-diversity is the total sum of life's variety on Earth, expressed at the genetic, species and ecosystem level. According to Dr. Martin Holdgate, Director General of the International Union for the Conservation of Nature and Natural Resources, U.K. - within this broad definition there of course many subtleties: groups of plants and animals with relatively few species may nonetheless be very distinct genetically and ecosystems may be both distinctive and of major importance in the world's system even though they do not display high diversity at either the genetic or species level.

All human activity is underpinned by biological resources. We exploit plants and animals for food and raw material at differing levels of sophistication in different societies, but in no case can human beings exist in isolation from the rest of the natural world. Biological resources and biological diversity are two quite different things. Globally, we derive most of our food from less than 20 species of domesticated plants and animals, and exploitation as raw material accounts for a small portion of total diversity.

No one knows how many living species of organism inhabit the earth. There may be as many as 50 million, of which third could become extinct by the year 2025. As genes and species disappear, the world may be losing valuable sources of food, medicine and industrial materials as well as the incalculable but real value which most people place on variety and diversity itself in the natural world. How much is conserved will depend on economic and political as well as ethical and scientific consideration.

It is the moral imperative to conservation to the right of other species to exist. Conserving bio-diversity has the long term value. Conservation of biological diversity can be possible through more research monitoring, through training, through support of good conservation projects and through deployment of more resources, etc. Political, economic and social reforms can be essential to underpin conservation strategies.

As the development pressures upon the world's biological resources inexorably grow, so the need for reliable up-to-date information correspondingly increases. Using the latest advances in information technology and computer mapping, the world conservation monitoring centre provides an information service on global bio-diversity to support conservation and sustainable development. Data holding include information on threatened plant and animal species; habitat of conservation concern particularly tropical forest, coral reefs, and wet lands, critical sites within these habitats for the conservation of bio-diversity threats to the global network of national parks and protected areas; and the international trade in endangered species.

Thus, biological diversity at its different levels are genetic species, habitat and ecosystem. But there is still lack of knowledge in many areas of biological diversity and there is the need for further research. However, it is clear that since we can already see the dangers of losing species, the precautionary principle should apply and we should act without delay.

CONCLUSION

We want an economic system which produces more 'goods' and less 'bads'. But one billion people in developing countries do not have access to clean water and 1.7 billion lack access to sanitation. These are the most important environmental problems of all [world development report, 1991]. Their effects on health are shocking; they are major contributors to the 900 million cases of diarrheal diseases every year, which cause the deaths of more than 3 million children, 2 million of these deaths could be prevented if adequate sanitation and clean water were available. At any time 200 million are suffering from schistosomiasis or bilharzia and 900 million from hookworm, cholera, typhoid and paratyphoid also continue to wreak havoc with human welfare. Providing access to sanitation and clean water would not eradicate all these diseases, but it would be the single most effective means of alleviating human distress.

The economic costs of inadequate provision are also high. Many women in Africa spend more than two hours a day fetching water. In Jakarta an amount equivalent to 1% of city's gross domestic product (GDP) is spent each year on boiling water and in

Bangkok, Mexico-city and Jakarta excessive pumping of ground water has led to subsidence, structural damage and flooding (World Development Report 1992).

The environmental problems that countries face vary with their stage of development, the structure of their economies and their environmental policies. However, the challenge is to accelerate equitable income growth and promote access to the necessary resources and technologies.

Even to day many countries have not given priority to the environmental problems. This is because:

1. Environmental problems seem transcendent because its effects are largely subtle, intangible and long-term in nature.
2. Developing countries have more pressing problems such as external debt, trade, investment and poverty to attend to .

Environmental concerns are therefore seen as secondary, postponable or a problem of affluent society. Yet in South east Asia environmental problems that were hardly understood in the 1960s and 1970s have become increasingly palpable in the 1980s in the wake of accelerating industrialization and urbanization. Water, air and noise pollution insidiously harm the health and productivity of urban residents. In the countryside population growth and poverty exert pressure on natural resources eg., through fuel-wood use, and slash and burn cultivation, leading to deforestation and soil erosion.

So far our country Nepal is concerned, important issues that have to be considered for better environment are:

- a) Stabilization of soil conditions
- b) Protection of forests and natural habitats
- c) Improved air and water quality
- d) Proper management of solid wastes and effluents
- e) Increasing the family planning expenditures
- f) Sharply improved school enrollment rates for girls
- g) Decreasing the urban Congestion and pollution

However, there is always trade-off between income growth and environmental protection, requiring a careful assessment of the benefits and costs of alternative policies as they affect both todays' populations and future generations. The evidences indicate that the gains from protecting the environment are often high and that the costs in forgone income are modest if appropriate policies are adopted. Experience suggests that policies are most effective when they aim at underlying causes rather than symptoms.

Govt. need to build constituencies for changes - to curb the power of vested interest to hold institutions accountable and to increase willingness to pay the costs of protection. Local participation in setting and implementing environmental policies and investments will yield high returns.

To conclude, we have taken too much from the earth and given too little. When the earth is spoiled humanity and all living things are diminished. With the right mix of political commitment and community support we can ensure that our country is simply the best in the world. This is our country, our future. Let us give our commitment to the children of our country that our generation will hand on to you a better country, a brighter future.

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