

Environmental Philosophy in the Context of Bangladesh

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Bangladesh is facing a tremendous challenge as it stands at the doorstep of the 21st century. The country's economy is in disarray; political instability has become a part of everyday life; the college and university campuses have turned into battle grounds; the security of ordinary citizens is threatened; natural calamities are rampant; and the quality of water and air has become unacceptable by world standards. Most of these problems have existed in Bangladesh in the past. However, there is no sign of improvement in sight, and the degree of deterioration has reached an alarming level. Many would argue that achieving political stability and economic prosperity should be the top two priorities for Bangladesh in order to provide a decent life for its citizens. Other issues of import are the improvement of law and order, education, and the state of the environment. While all of these issues are important and deserve attention, some are more important than the others, because they are contributing to a crisis situation and are posing a threat to our well being. The people of Bangladesh need to set their priorities straight and act upon them immediately.

Setting our priorities straight: If an opinion poll were conducted among ordinary citizens of Bangladesh to identify the top issues for the 21st century, the environment would not likely top the list. This is to be expected, given the low degree of environmental awareness and the low level of education on environmental issues that is available to people through schools and other institutions. I would, however, argue that in Bangladesh, the improvement of the state of the environment is a pre-requisite for prosperous economic development. Only a balance between the environment stewardship and economic development can guarantee a sustainable future and the well being of the country in the 21st century.

Environmental stewardship vs. economic development: The environment is comprised of physical (air, water, soil, mineral resources, light, and temperature) and biological (plants and animals) realms. The term "ecology" encompasses a complex interaction and the delicate ecosystems within which humans exist. Our dependence on the environment has both a short-term component and a long-term component. On one hand, since we breathe air, every minute of our life literally depends on the environment. On the other hand, the role that other components (such as, mineral resources, temperature, plants, etc.) of the environment play is not always very obvious within the time frame of the human life span. Quite often the long-term consequences of particular human activities are overlooked in the interests of short-term gain. Mineral resources

extracted from the earth's crust are the basis for civilization. Rocks and minerals are the raw materials for most of the industrial products that we use everyday (oil, gas, coal, construction materials, fertilizers, metals, rare earth elements, and radioactive elements are just a few to name). In other words, most of the products that we use to maintain our standard of living and comfort come from the environment. Therefore, economic development is just another term for exploitation of the environment. Unfortunately, most environmental components have a finite amount (i.e. non-renewable within a human life span), non-uniform distribution, and limited carrying capacity. It is for this reason that we need to understand the dynamism and the fundamental principles that govern the environment.

A better understanding of the fundamental principles and the underlying philosophy that govern the balance between components of the Earth's ecosystem can help us achieve economic development while safeguarding the environment. These philosophical concepts help us better comprehend the way our planet works, as well as will help us evaluate the extent and limitation of earth resources that are needed to attain a sustainable future. In the following few paragraphs those principles will be explored in the context of Bangladesh.

Everything affects everything else: The environment is a part of the "earth system", which has four interrelated components, namely, the lithosphere (the earth's outer layer), atmosphere, hydrosphere (surface and groundwater), and ecosphere (plants and animals realm). The interrelationship of various components can be demonstrated with the example of flooding in Bangladesh. Flooding is a natural phenomenon, which is a part of the hydrologic cycle (hydrosphere). Human activity (in the ecosphere), such as deforestation or soil erosion due to tillage, can reduce the water carrying capacity of rivers, causing more floods. Also, increased amounts of greenhouse gases in the atmosphere will result in increased temperatures, causing more evaporation, precipitation and floods. Volcanic eruptions (in lithosphere) can melt snow (in hydrosphere) in the mountains, causing more floods. The above examples demonstrate how all components of the earth system are interrelated. Many such examples can be drawn upon to elaborate on this point.

The earth is a dynamic planet that has maintained a delicate balance through time immemorial. Any external stress imposed upon the Earth's ecosystem can result in an imbalance among its components, much like a motor engine that would malfunction due to improper handling or mismanagement of its components. Humans are part of the ecosphere but depend on all the other components for their survival. Although the human species appeared on Earth only recently on a geologic time scale humans have already proven to be a major denominator in many spheres of the environment. Humans have accelerated natural changes in the environment at a rate faster than ever before. During the last few decades the earth ecosystem has manifested many signs of unbearable imbalance in its environmental components. Examples of such signs of imbalance, as demonstrated by nature's fury, would include the increased rates of: (a) recent major flooding in Bangladesh (in 1988, 1993, and 1998) and elsewhere; (b) water pollution (arsenic contamination of groundwater in Bangladesh is the largest mass poisoning case in the world); (c) sea-level rise

and coastal erosion (Bangladesh will be the most affected country should the sea-level continues to rise in the future); (d) soil erosion and desertification (northwestern region in Bangladesh is experiencing desertification); (e) cyclones (Bangladesh was hit by 7 of the 10 most devastating cyclones in the world during the last 100 years) ; (f) tornadoes (more than 100 severe tornadoes hit Bangladesh during the last 100 years) ; (g) air pollution (quality of air in Dhaka is the worst among the major cities in the world) ; and (h) decline in bio-diversity (along with other rare species, the number of the Royal Bengal tiger in the Sunderbans is in decline); (i) salinity intrusion in the coastal areas in Bangladesh and elsewhere; (j) depletion of the ozone layer; (k) global warming due to an increase in greenhouse gases ; and (l) El Nino and La Nina.

The carrying capacity of the earth is limited: Exponential growth of population is the root cause of most environmental degradation. The world's population has tripled during the 20th century; life expectancy has almost doubled during this time. The world economy, fuel consumption, industrial activities, and energy consumption have increased by as much as 20, 30, 50, and 80 times, respectively during the last hundred years. This increase in population has already exerted a tremendous stress on the Earth's ecosystem, depleting many of the earth's non-renewable resources (e.g. at the present rate of consumption, the earth's oil/gas reserve will last for 25 more years); and causing environmental degradation as mentioned above. The size of the World economy will have to increase by five times to support the increasing population at the present standard of living. The resources and land needed for such economic growth are just not there. The rate of increase in population in Bangladesh is even higher than that of the world's average. The carrying capacity of Bangladesh is well above the normal average. The density of population in Bangladesh is 50 times higher than in the United States. It is a scary scenario. The rate of population growth in Bangladesh will have to decline substantially for us to be able to strike an environmental balance while still maintaining the kind of decent life that any human being deserves.

Sustainability is not enough, prosperity is needed: Sustainable development calls for maintaining the present standard of living while safeguarding the environment. However, simply maintaining the current standard of living should not and cannot be the ultimate goal for our future generations, for it will mean "no progress." Humans have always striven to improve their standard of living compared to that of their predecessors. Doing better than what was possible in the past is the driving force behind progress. What we need, therefore, is not sustainability, but potential for prosperity. This should translate into a prudent use of the earth's resources, as well as an improvement in the quality of the environment. Discovery of new resources, energy sources, and innovation in the use of alternative resources can help us achieve this goal. Bangladesh should develop nuclear energy and solar energy to produce electricity, and to meet other energy needs of the country.

Clean air, water, and land are human rights: All people have a right to a clean environment. Material wealth, such as the guarantee of food, employment, subsistence, education, and health, will not make human life worthwhile without having clean air, water, and land. To achieve this

goal, Bangladesh needs to implement stricter laws to control solid waste, industrial waste, medical waste, and sewage sludge disposal. All municipalities need to have garbage collection services and sanitary landfills or incinerators to control solid waste disposal. In addition, implementation of sanitary toilets in all villages should be a primary requirement to keep both surface and groundwater clean. All chemical and liquid wastes need to be treated before disposing in rivers and streams as effluents. Recent incidences of ammonia contamination of rivers by the Ghorasal fertilizer factory, trace metal contamination of soils by the Hazaribagh tannery, arsenic contamination of millions of tube wells, and lead contamination of air will become catastrophic in proportion if no mitigation measures are taken. To reduce environmental degradation caused by point-sources of pollution (such as, industrial and medical sources of contamination), the "polluters-pay-policy" (PPP) must be implemented. Moreover, a better land management practice will be necessary to control non-point sources of contamination, such as arsenic, fertilizers, animal waste, detergent, and pesticides. These higher environmental standards will be costly to Bangladesh in the short term, but in the long term less costly than contending with more drastic environmental remediation and the destruction of major natural resources. These policies are often hard for elected politicians to sell to a population which is already faced with financial hardship. Only by educating the public on the need for immediate action, and on the connection between their survival and environmental stewardship will this be possible.

Effect of land-use is cumulative: Gradual degradation of the environment eventually will lead to catastrophic consequences. For example, every time we build a new house or a road on a floodplain, we reduce the total run-off area and groundwater recharge area, which results in an increase in flooding propensity or in decline in the groundwater table. Filling up of the lakes (e.g. the recent incidences of encroachment onto and land-grabbing of Gulshan-Baridhara lakes in Dhaka by the Rajuk) and rivers by dumping sediments for development reduces the water carrying capacity of a drainage network, causing water logging and extended flooding in an area. In order for us to be able to reduce the flooding propensity in Bangladesh, we have to control building on the floodplains. Also, deforestation due to development leads to increased soil erosion, decline in bio-diversity, increase in flooding, decline in groundwater recharge, and increase in carbon dioxide (a greenhouse gas) in the atmosphere. In Bangladesh, lateral spread of development should be contained as much as possible by implementing more environmentally-sound development, such as cluster housing and compact township. New development for housing, roads, shopping malls, or offices will have to be vertical, i.e. multi-storied. New laws and regulations need to be developed and strictly enforced to control lateral development onto the floodplains. Planners and developers must produce an environmental impact statement (EIS) for their planned land-use activities. The EIS should include alternative plans, as well as cost/benefit analysis, which should be reviewed by the general public and independent experts in the field before implementing.

Most environmental problems are related to Earth processes: Many environmental problems result from human interactions with natural processes, the extent of which do not conform to political boundaries. Natural processes cannot be prevented. However, a comprehensive understanding of these processes can allow us to effectively plan land-use and thereby mitigate their effect. For example, flooding in Bangladesh is but a part of the overall hydrodynamic

process that is active in the Ganges-Brahmaputra-Meghna watersheds. Bangladesh comprises only 10% of the watershed, and is located at the receiving end of this basin. Since Bangladesh is a small part of a bigger hydrodynamic system which consists of several countries in the region, a mutual understanding and cooperation among the co-riparian countries will be necessary in order to formulate any long-term and permanent solution to the flooding problems. Arsenic contamination of groundwater in Bangladesh is just another example of a geologic problem that owes its origin to areas beyond the confines of Bangladesh. Therefore, any clean up measures for these aquifers could be futile, since Bangladesh is located down-gradient of the geologic formations that contain water. However, further research may prove otherwise.

Multiple and aesthetic uses of land: Because of the scarcity of land, any land-use planning needs to be designed for more than one purpose, when and if possible. For example, a lake in a residential area can have multiple purposes: (a) water sports, (b) fishing, (c) groundwater recharge basin, (d) recreational park, and (e) flood control reservoir. Another such example can be the usage of dredged sand from rivers. The dredging of rivers can: (a) improve water transport, (b) reduce flooding propensity, (c) supply sand for building and road construction, and (d) supply sediments to elevate roads and villages, which in turn can reduce flood damage. In addition, dredged sands that are enriched with iron hydroxides (e.g. red sand from Barind Tract, Madhupur Ghar, and Brahmaputra-Tista basin areas) can be used as liners in ponds to reduce arsenic contamination in surface water. However, further research will be necessary to study the feasibility of such usage of red sands.

Recycle-Reuse-Reduce: This is the most fundamental slogan for environmental awareness. Most Bangladeshis recycle newspapers, aluminum utensils, and glass bottles. However, an integrated plan is needed for a nation-wide recycling plan for everything that is recyclable. Proper environmental education, workshops, training, and publicity can increase awareness about reduction in the use of commodities through the basic concept of recycle-reuse-reduce.

All species have the equal right to survive: According to the "Gaia Hypothesis" put forward by "Deep Ecologists", all flora and fauna are nature's creation and have an important role to play in the intriguing web of life. All species have an equal right to survival. Human activities have already driven many species from the surface of the earth. Only a few years ago most jungles in the villages of Bangladesh were rich in bio-diversity. For instance, hedgehogs, weasels, lizards, cheetahs, parrots, owls, etc. are now almost extinct. Stricter environmental laws and better awareness are necessary to save all species before they are extinct. This is primarily a result of loss of habitat. This issue will have to be addressed by setting aside sensitive parcels of land for bio-diversity and by encouraging the reclamation of certain habitats through reintroduction of the near-extinct species in those protected sanctuaries.

The star thrower: According to an American folk story, two friends were walking on the beach after a coastal storm that washed thousands of starfish ashore. As they walked, one of the friends

started to pick up starfish one by one, and started to throw them in the water. The other friend says, "there are thousands of starfish on the beach, what difference will it make if you throw just a few in the water?" His friend picks up another starfish and says, "it will make a difference for this one" as he throws it in the water. All of us can be "a star thrower" even in a small way. Everyone can make a difference. Collectively, we will make a big difference.

Money is not edible: To summarize, nothing can be said more succinctly than what a Chief of the Mohawk Red Indian Tribe said, "not until the last tree has fallen, the last river has been poisoned, the last fish has been caught, will man realize that money isn't edible." We need to act to preserve the only habitable planet before it is too late.