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Popular Article

Environmental Ethics: Missing Link for Environmental Protection and Restoration

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Abstract

Environmental restoration is the central concern to environmental policy of all organizations/companies. It is also a crucial practical and ethical concern. Ethics as the overall subject of environmental protection and restoration is being gaining paramount importance. Emergence of environmental ethics has been far more enlarged with the canopy of corporate environmental responsibility. This paper, in this background has dealt the issues like (a) ethics and equity, (b) environmental audit and environmental ethics, (c) levels of environmental ethics and (d) range of environmental policy. Three largest issues in international debate at present have direct bearing on ethical issues are (i) the climate change negotiation and the rights of unborn generations, (ii) the biodiversity debate and the value or rights of other species ecosystems and (iii) the earth charter and the value of statements of environmental rights. Author elaborated ethical, legal and social issues (ELSI) of Genome Project and proposed twin strategy to deal with the growing damage to our support systems by 'DO ECOLOGY' for developing nations and' DON'T ECOLOGY' for industrialized nations. This appears to be a daunting task before us all. We must integrate the best in traditional knowledge and frontier sciences like Biotechnology (BT) and Information and Communication Technology (ICT). What is actually more important is to spread the genetic literacy among the population. We really need science with ethics/ morality, not simply hype. 'Greed' cannot be our 'Need'. We, therefore, need now is proper atmosphere/social ambience for strengthening social understanding on 'BT' and putting it in proper place in the overall frame of Science and Technology.

1. Introduction

International Webster's New Dictionary (1936) defines ETHICS as *"the science of moral duty, or more broadly, the science of ideal human character and the ideal ends of human action*". Ethics is the branch of philosophy dealing with values relating to human conduct with respect to rightness or wrongness of certain actions and to the goodness or badness of the motives and ends of such action (*Random House Dictionary of English Language*, 1973). Ethics is a branch of philosophy with the nature of ultimate value and the standards by which human actions can be judged right or wrong. The term is also applied to any system or theory of moral values or principles. Ethics is traditionally subdivided into normative ethics, meta-ethics and applied ethics. Normative ethics seeks to establish norms or standards of conduct, a crucial question in this field is whether actions are to be judged right or wrong based on their consequences or based on their conformity to some moral rule, such as "DO not tell lie". Meta-ethics is concerned with the nature of ethical judgments and theories. Some major meta-ethical theories are naturalism. Applied ethics, as the name applies, consists of the application of normative ethical theories to practical moral problems (e.g., abortion). Among the major fields of applied ethics are bioethics, business ethics, legal ethics, and medical ethics (*Britannica Ready Reference Encyclopedia, 2005)*. Webster's New International Dictionary,1936 defines ETHICS as *"the science of moral duty, or more broadly, the science of ideal human character and the ideal ends of human action*". It is concerned with what is wrong and what is right, irrespective of the culture and society. For example, it is ethical to have reverence for all forms of life and any killing is unethical. Morals reflect a culture's predominant feelings on ethical issues. For example, in most cultures it is morally right to kill enemies in a war, though it is unethical.

The very link with historical tradition of long duration is undoubtedly is one of the important aspects of environmental education. This environmental ethics have been ignored. Here, some thoughts given in one stanza of *Isho Upanishad* says:

"This universe is the creation of the supreme power and is meant for the benefit of all; individual species must therefore learn to enjoy its benefits by regarding themselves as a part of the system in close relationship with other species; let not any one species encroach upon the rights of others". Such thoughts are the base of the concept of ecological harmony which in turn emphasizes the message of the World Conservation Strategy (Khoshoo, 1987). The chief objective of environmental education is that individual and social groups should acquire awareness and knowledge, develop attitudes, skills and abilities, and participate in solving real-life environmental problems. Perspective should be integrated, interdisciplinary and holistic in character (Khoshoo, 1987). The most important objective in environmental education and awareness therefore is not to introduce a new subject, but a new approach to education which cuts across various subjects. Environmental Science is not essentially not a single subject, but a conglomerate of both basic and applied sciences as well as engineering, socio-economics, ethics and law. The aim is to have a perfect environmental bias which permeates all facets of one's life and does not get compartmentalized in one place. Some values and beliefs are not static entities. Dominant social thoughts and situations affect values. The concerns for material development, market economy, centralized bureaucratic organizations and confidence in science were the order of the past century. Alternative concepts on development have shifted the focus of development on local cultures, resources and sustainability rather than mere quantitative macro economic development (Kumar, 2008).

2. Overall Ethical Dimension of Environment

Environmental restoration is the central concern to environmental policy of all organizations/companies. It is also a crucial practical and ethical concern. It is like that in an ever increasing urbanized and industrialized world.

Axiology is the theory of value. It attends to concepts such as 'good', 'bad', 'evil', 'worthwhile', valuable'. All these are used to rank objects, events, actions etc. on a scale of value ranging from the negative through the neutral to the positive. Thus, it might be claimed that happiness is a positive value or that pain is a negative value (Fox, 1984; Naess and Rothenberg, 1989; Weston, 1985). Deontology is concerned not with value or value concepts but with concepts such as 'obligation', 'permissibility', 'duty', right', 'wrong'. Therefore, both the considerations are not necessarily disconnected from one another. Actually, with such connections Theory of Environmental Obligation is developed. Environmental ethicists have drawn the attention to beauty, diversity, richness, integrity, interconnectedness, variety, complexity, harmony, grandeur, intricacy, autonomy of environment. All these properties are naturally evolved or the properties of naturalness (Fairweather et al., 1994 and Elliot, 1997). Ethics is the overall subject of environmental protection and restoration. It is being gaining paramount importance. Hence, the emergence of environmental ethics alongside those of 'governmental ethics' and' business ethics' with a far more enlarged canopy of "Corporate Environmental Responsibility". Corporate Social Responsibility for Environment and Environmental Ethics are synonymous. It refers to responsible attitude towards our environment needed by government, industry and the professions, and in the teaching of this subject in universities and colleges. Environmental ethics should seek to guideline at the policy, managerial and training levels in practice, as well as knowledge for teaching undergraduate and postgraduate students in universities and colleges across a range of disciplines (Thomas, 1997). Greed, self-interest, complacency, deception and lack of training need to be tackled and accompanied by education, awareness and the development of "Corporate and Social Responsibility". Human beings have a double nature capable of great sacrifice and charity and at the same time capable of committing heinous acts. There would be hardly anyone who has not, at sometime or other, grappled with feeling of guilty. Therefore, we need to be on guard always. Actually, we have the Golden Rule which lays down that we should "DO UNTO OTHERS", which we expect to "DO UNTO US". Wherever, we violate these rules we become liable for strife, tension and ill health (Khan, 2011).

3. Environmental Audit (EA) and Environmental Ethics (EE)

Big questions are; what is EA and is it effective and ethical response to demands that government and business develop a more responsible approach to the environment? Undoubtedly, the environmental issue is an ethical issue. Admittedly, every human is a polluter and deplete of resources. The simple message is that by way of pollution or depletion threatens life-styles and ultimately life itself. EA has actually become the accepted mechanism for enforcing minimum environmental standards. The common element against polluting and depleting has been a concern for the interest of someone other than the polluter or deplete. It is this outward looking perspective which has attracted the name environmental ethics to the endeavour. In the language of pure philosophy this is a 'concern for the others'; the religious person might refer to a 'brother' or 'sister'; the economist or lawyer will speak of a 'third party'; and a social scientist knows the importance of the 'stakeholders'(Carey, 1997). Any stakeholder must be able to answer five basic questions like-(1) Who are all of the stakeholders on any issue? (2) What is the extent of their stake holding? (3) What is the nature and extent of the stakeholder's

responsibilities to other stakeholders? (4) What are the challenges and opportunities in each stakeholder relationship? And (5) How might these challenges and opportunities be strategically assessed and what action might the stakeholder take? (Carey, 1997).

In practical terms an ethical relationship is not devoid of the exercise of power, but that power is exercised positively. *"Power evokes responsibilities, and this is the central reason that calls for corporate responsiveness that have been prevalent in recent years*".

EA may be found in the phrase book of governments/business/ consultants/environmental groups/research centres/regulatory agencies/legal firms/accounting firms/media. However, what it is exactly and how it is used are not always clear. EA is "……a systematic, objective review of the actual or potential impact of an organization upon the environment"(Quirke,1992). It is "….a tool comprising of a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing" (Robbins, 1991). The accounting profession has identified and distinguished four types of related audit services put under the generic "EA" level such as: (1) environmental Consulting Services; (2) site Assessment; (3) Operational Compliance Assessment; and (4) Environmental Management System Assessment (Livesey, 1991). Keeping ethical dimension in mind, the range of environmental policies may be classified into (i) Global Issues, (ii) Regional Issues, (iii) National Issues, (iv) Local and Sectoral Issues, and (v) Issues for the Individual. Three largest issues in international debate at present having direct bearing on ethical issues as pointed out by Osborns (1996) are: (a) the climate change negotiation and the rights of unborn generations; (b) the biodiversity debate and the value or rights of other species ecosystems; and (c) the earth charter and the value of statements of environmental rights. Needless to say that the responsibility for our environment is shared. It is not a duty of governments only. It is an obligation of us all. Caring for the environment becomes an instinctive characteristics of good citizenship. Our charter of duties/obligations should encompass: (i) to make our air and water clear; (ii) to preserve the beauty of our countryside and historic buildings; (iii) to improve the quality of life in our towns and cities; (iv) to encourage more efficient use of energy; (v) to promote more research and public information as the foundations of good environmental policy; (vi) to develop a more open and constructive dialogues with industries, local governments and voluntary groups; (vii) to develop the institutions that monitor and regulate environmental quality;(viii)to explore new ways of using economic pressures to achieve environmental goals; and (ix) to play our full part in the environmental diplomacy that will dominate the international agenda in future decades. What actually is needed now is to effectively mobilize the energies and commitment of individual man, woman and children. Each and everyone has a contribution to make. We all have to play, however small, in conserving this common inheritance.

4. Ethical, Legal and Social Issues (ELSI) of the Genome Project

On ELSI ten important questions are to be kept in mind. Questions are:

- How and to what extent privacy and confidentiality of genetic information are maintained?
- Is there enough fairness in the use of genetic information by insurers, employers, courts, adoption agencies and others?
- Is there guard against reproductive issues including adequate and informed consent and use of genetic information in reproductive decision making?
- Is the general public is clear about capabilities, limitations, and social risks and implementation of standards and quality-control measures?
- How transparent is the clinical issues including the education of doctors and other health service providers, people identified with genetic conditions?
- What are the safety measures against uncertainties associated with gene tests for susceptibility and complex conditions (e.g. heart disease, diabetes and alzheimer's disease)?
- To what extent it is fair in access to advanced genomic technologies?
- What are the conceptual and philosophical implications regarding human responsibility, free will vs genetic determination, and concepts of health and disease?
- What are the health and environmental issues concerning genetically modified (GM) foods and microbes?
- How and to what extent one can ensure commercialization of products including property rights (patents, copyrights and trade related secrets) and accessibility of data and materials?

To face and find answers to all such questions are really challenges before us.

The proposed twin- strategy to deal with the growing damage to our life support systems is: (A)"DO ECOLOGY" for developing countries, and (B)"DON'T ECOLOGY" for industrialized countries. The first one resolves around activities, which will generate an economic stake in conservation and will help to reduce poverty. The second one largely relates to regulations and restrictions in areas such as carbon emissions and the unsustainable consumption of natural resources (Swaminathan, 2009).

Enlightened self-interest motivates people and leads to harmony with nature. This is happening in the green revolution

areas of Punjab too. Thirty two years ago Dr. Swaminathan did pointed out Punjab farmers that "green revolution" was becoming a "greed revolution" because of excessive use of mineral fertilizers and the over exploitation of ground water. Now, in a despairing mood and situation, they are ready to change. The economics of unsustainable farming has become adverse, leading to indebtedness, and occasional suicides. The 'climate' has opportune for farmers to take to conservation farming.

Harmony with nature should become a non-negotiable ethics. The rise and fall of great civilization in the past have been related to the use and abuse of land, water and other natural resources. Therefore, sustainability science should here after guide technology development and dissemination programme. The ethical principles propagated by sustainability science aim at curtail both poverty and sustain consumption of natural resources. This is a challenge before us from the point of view of ensuring the well being of both the present and future generations. To meet this challenge, we must integrate the best in traditional wisdom and frontiers science like biotechnology (BT) and information and communication technology (ICT). What we need now is to achieve proper blending of the two sides. Actually, knowledge is continuum. Most of our discoveries have their roots in prior knowledge. Unfortunately, the present IPR regime tends to ignore the contributions of traditional knowledge in the creation of new knowledge. This has led to accusations like bio-piracy, plagiarism, knowledge piracy etc. The World Intellectual Property Rights Organization (WIPRO) has therefore, emphasized the need for recognizing the role of traditional knowledge in the growth of contemporary science and technology. Fortunately, enough, the Global Biodiversity Convention adopted at Rio de Janeiro in 1992 and the FAO International Treaty on Plant Genetic Resources for Food and Agriculture (2001) have both stressed the importance of recognizing and rewarding traditional knowledge as well as the contributions of rural and tribal families to genetic resources conservation and enhancement through knowledge addition on their practical value. Indian National Legislations, Plant Variety Protection and Farmers' Rights (2001) and Biodiversity Act (2002) have both emphasized the importance of recognizing and rewarding traditional knowledge and local agro-biodiversity, which often constitute the back bone of our food and livelihood security systems (Swaminathan, 2009).

We really need for National and International financing instruments for promoting the conservation of traditional knowledge and endemic bio-resources. At the international level, the Global Environmental Facility (GEF) is financing measures to implement the Convention on Biological Diversity, the Framework Convention on Climate Change and the Convention to Combat Desertification. More recently, a Global Crop Diversity Trust has been set up. The motto on such Trust is to support information systems for the concerns of agricultural biodiversity including data base, documentation, collection and the exchange of information through networks. What is actually more important is spread of genetic literacy among the population. Every child, man, woman should become aware of the value and significance of traditional wisdom and local biodiversity. This will be easier if there is an economic stake in conservation. We should also establish bio-valleys in areas rich in bio-resources. The aim of the Bio-valley is to promote an era of happiness arising from the conservation and sustainable and equitable use of biodiversity, leading to more jobs and income for the local population. Otherwise, it is afraid that both traditional knowledge and native biodiversity may tend to disappear.

5. Ethics and Equity

The concept of equity is to be discussed in terms of both intra-generational and inter-generational equity (I.e. safeguarding the interest of the future generations). As for example: (a) Over-exploitation and pollution of the aquifer will deny opportunities for ground water availability to future generations, and (b) the melting of ice and glaciers resulting in water shortage in cold desert areas like Ladakh will force the future generations to migrate from the area. Moreover, climate change leading to the melting of ice will not only cause floods in the plains, but also a rise in sea level over a period of time. Another important component of equity relates to the gender dimension of sustainability science. Women are the great conservers of biodiversity and natural resources. Their role should be acknowledged and strengthened. Ethical considerations will have to guide human behavior in relation to natural resources exploitation. Bioethics and environmental ethics are now developing into well-defined scientific areas. Ethical responsibility to safeguarding the environment rests on professionals, political leaders and the public. In the past by investing conservation with spiritual significance, every individual was made to integrate ethics in day-to-day life.

6. Ethics and Climate Change

Undoubtedly, significant risk to the planet-earth is posed by climate change and thereby every nation should have an important stake in addressing this threat. The Intergovernmental Panel on Climate Change (IPCC) has confirmed the gravity of the problem. Dimension of climate change are cross-sectoral, while international organizations, processes and mechanisms are limited by their mandates and portfolio boundaries. Hence, dealing with climate change is really difficult (Das Gupta, 2008). Action is essential now on energy efficiency, conservation and diversification and adoption. Appropriate technological

innovations are urgently needed. For this, research and development (R&D) of private sectors should be supported by governments. Here the biggest question comes as: who is going to pay for the costs of addressing global climate change and how the costs will be shared? Such challenges are being faced by leaders, parliamentarians and policy makers. Both industrial and emerging market economies need to acknowledge their common but differentiated responsibilities to accept an equivalence of burden- sharing to see that all countries take national action on climate change, and to negotiate an effective regime aimed at stabilizing global levels of carbon emissions within agreed acceptable targets. The effect of climate change/ global warming is global in nature. However, the solutions need to be implemented locally and every individual can make a difference. The solution lies in being environmentally aware and following environment friendly practices suggested by Das Gupta (2008) as hereunder:

(a) Limiting the use of deodorants and aerosols, especially those containing CFGs.
(b) Using air conditioners only as and when required would not only help reducing electricity bills, but also assist in reducing the warm temperature around.
(c) Using compact fluorescent lamps (CFLs instead of normal bulbs. CFLs consume less electricity thereby lesser energy.
(d) Using renewable energy (wind and solar) as far as possible. These sources do neither emit gases nor contribute to global warming.
(e) Reducing newspapers, glass and metal products from recycled materials.
(f) Limiting gas emissions by walking or riding bicycle rather than using automobiles for short distance.
(g) Planting trees and managing a garden. This not only add aesthetic value, but also effective in the climate cool.
(h) Preserving forests around the world as trees "breath in" in carbon dioxide.
(i) Campaigning against global warming by student community.
(j) Educating people on how to reduce global warming and pollution can prove to be a worthwhile measure to spread awareness among people.

7. Societal Dimension in Agricultural and Rural Development

Remarkable breakthrough in Indian agriculture with its allied fronts after the independence had been attained. However, the cardinal issue demanding our urgent attention may be summed up as: Human beings with all their capabilities for rational/irrational thoughts and actions, their intellectual, moral and spiritual qualities of all ages and conditions must be at the heart of development. From this important point of view, serious introspection and retrospection on the research and development (R&D) on farming front as a whole are the demand of the time. This is however, not an easy proposition. Das Gupta (1993, 1994, 1996, 2001, 2006 and 2008) suggested major issues on the problems as (a) Science, environment and ethics,(b)Involvement of farmers in research-extension interface,(c) Societal elements in appropriate technology,(d) Collaborative research and intellectual property rights, and (e) Systems approach in transfer of technology. In the context of this paper, only the first four issues are discussed below.

7.1. Science, Environment and Ethics

Analysis of the ethical implications of applied science like agriculture is undoubtedly important, but it is found to be rare."Scientists have always to consider themselves as agents, not merely observers, and ask about the moral significance of the actions that comprise even the very doing of science" (Toulmin, 1982). Now, the question is 'what is the moral significance of the very doing of science?' Here, it is to emphasize that the most important part of any human effort to mitigate farm problem is the propagation of eco-culture which generates in the human mind a sense of ecological ethics and leads to the wisdom. The holistic perspective of S & T suggests and integration of" TOOL MAKER" role of man with "VALUE MAKER" role (Das Gupta, 2006 and 2008).

7.2. Involvement of Farmers in Research-Extension Interface

Vast knowledge on farmers' own innovations possessed by the field level workers are seldom transferred back to the scientists for validation, modification and diffusion (Richards, 1995; Chambers and Ghildyal, 1985; Warren,1986; Basant,1989). The usual tendency is from lab-to-land and not land-to-lab. Demand is to have 'farmer-first and farmer-last model' (Das Gupta 1992, 1993 and 1994). Only by admitting and practicing such model, scientists may enlarge ethical boundaries of their profession by simply recognizing the fact that ideas of many experiments are derived from farmers' practices.

7.3. Societal Elements in Appropriate Technology

Admittedly, in almost all the Rural Technology Centres and Technological Institutes, appropriate technology has been almost exclusively in the hands of technologists and engineers. Social scientists except for a handful of rural economists are seen almost totally oblivious of the appropriate technology movement. As a result of this, socio-cultural and psychological factors that facilitate or impede the diffusion of appropriate technology remain largely unexplored. It is high time that social scientists team up with their counterparts in science and technology in R&D as well as application of appropriate technology in rural areas. Both hardware and

software specialists need the experience and expertise of trained social scientists who can provide insights into social and cultural framework of target groups and help to determine the appropriateness of any technology products and methods. Undoubtedly, in most cases, technical problems associated with farm problems are expressed in bio-physical symptoms; but essentially the primary causes are socio-economic and not bio-physical. As a result of this, solutions ought to be socio-economic in nature as well as sound in technical sense.

7.4. Collaborative Research and Intellectual Rights

Indigenous knowledge is a cumulative body of knowledge and belief handed down through generations by cultural transmission about the relationship of living beings (including human) with one another and with their environment (Gadgil et al., 1993). Knowledge and traditional resources are central to the maintenance of identity for indigenous people, the control over these resources is of central concern in their struggle for self-determination. Indigenous practices, if properly studied, may help in extending the knowledge boundary of formal science and also give clues to the scientists in designing newer and newer experiments. The missing ecological key can be revealed by such knowledge. This may keep scientists to evolve alternative technological model which is less dependent on environmentally damaging inputs (Das Gupta, 1996; and Das Gupta and Pal, 1997; and Pal, 1999). Moreover, control over data has become one of the key battle cries for the indigenous movement that is now demanding Intellectual Property Rights (IPRs) over the information obtained through research (Das Gupta, 2008). Let us therefore, take the oath with all seriousness for (a) taking stocks of gaps in farm research; (b) giving due importance on social perspectives in farm research; and (c) giving ethical and socio-cultural pragmatism in farm research of interdisciplinary in nature essentially with the joint partnership between researchers, extension specialists and clientele. Only by this way we would be able to upgrade the quality of the state-of-art of our farm research and also to evolve proper strategy for achieving the maximum quantitative and qualitative growth in agriculture and allied sectors in near future.

8. Sustainable Development (SD)

"Development" is a continuous process and it takes place with the change of space and time**.** Other sides of this development phenomenon are gradual deterioration in the environmental conditions by the present model of development and counter-productive features of alarming nature due to such development in the area of agriculture, industry, electricity, transport, mining and so on. Importance of ethics and culture in defining SD, two vital dimensions are to be kept in mind such as: our relation to follow inhabitants of our country and planet; and our relationship to the land, planet and animal inhabitants of the world. Ethical principles for gauging progress towards SD are: (a) sustainability should be viewed in a holistic sense including economic, social and environmental; (b) notion of equity, access to resources as well as human rights and other 'non market 'activities should be encouraged; (c) methods and data employed for progress should be open and accessible to all; and (d) institutional capacity in order to monitor progress towards SD.

Thumps rules of sustainable resource use are (a) protecting habitat patches; (b) protecting selected species; (c) regulating extraction; (e) ritualizing use of species; and (e) domesticating important species.

9. Actions to be Taken to Achieve Low-Carbon Economy

Towards a low- carbon economy suggested steps to help one KICK THE CARBON DIOXIDE HABIT are listed below (1)making a commitment,(2)assessing where one stands, (3) deciding and planning where one want to go,(4) getting energy efficient,(5) switching to low-carbon energy,(6) investing in offsets and cleaner alternatives,(7) offering or buying low-carbon products and services,(8) getting efficient,(9) buying green and selling green,(10) do-carbon one's life, (11) teaming up, and (12) talking and debating.

Whether you are an individual, an organization, a business, these are the suggested steps you can take to reduce your carbon emissions, the total of which is described as carbon footprint. You may think that you don't know where to begin; but by simply reading the steps, you have already begin.

9. Conclusion

To quote of E. Hillary… *"Environmental problems are really social problems ……they begin with the people as the cause and end with the people as the victims"*, we shall have to strengthen our scientific infrastructure and human resource to meet the daunting emerging challenges like food production, poverty, sustainability of the farming systems, genetic erosion of rich biodiversity, adverse impact of global climate change. We must provide minimum livelihood security by implementing appropriate policies, new institutions, new breed of scientists and above all new technologies.

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