

## Global Warming and Climate Change

*India's Response and Role of Information Professionals.*

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### **Introduction:**

It took nature millions years to develop environment as it exist today but man with only one million years of existence, has altered the environment in such a manner which threaten the very existence of a healthy biosphere. With the development of civilization man has un-wittingly endangered has own surroundings and tilted the ecological balance. In our efforts to seek comfort we have damaged our environment we have depleted our natural resources and distributed the ecological balance and created pollution in water, air and soil. Humankinds increased interaction with the earth has been causing grave environmental consequences. Uncontrolled economic activity, rapid population growth and urbanization are primarily responsible for environmental damage and Global Warming.

### **Global Warming:**

Global Warming refers to increase in the average temperature of the Earths' near surface air and oceans in recent decades and its projected continuation. The earth's atmosphere is made up of different layers. Gases such as carbon dioxide, methane, Nitrous Oxide, Chlorofluorocarbons, methyl bromide etc. make the atmosphere work like a green house. These gases heat emitted by infrared wavelengths from the earth's surface. This phenomenon is called green house effect, and is responsible for the average temperature at the earth's surface being + 15 °C rather than -15<sup>0</sup> the temperature it would be if there no atmosphere. Since 1900, the earth's average surface temperature has risen between 3.30 & 0.6 °C. By 2100, it could rise by as much as 3.5 °C as comparable shift in temperature as between today and the last ice age.

Global warming is caused by the Green house effect. The chief cause for warming the thought to be burning of fossil fuels such as coal, diesel and natural gas, which release Carbon dioxide and other gases in the atmosphere. Forest destruction and agriculture also release greenhouse gases. This is due to increasing, population, organization, shrinking of agricultural land, technological development, consequently deforestation, advances in nuclear technology continue to produce radio active pollutants, excessive cultivation, use of synthetic fertilizer, use of pesticides, excessive use of ground water, construction of dams and canals etc factors cause global warming, ozone layer depilation, increased sea levels. If we do not act to reduce our emissions of these heat-trapping gases, it is predicated that global temperature could raise 2<sup>0</sup> to 6<sup>0</sup> F I the next 100 years.

Issue concerning environments and Global Warming worries not only environmental scientists but should be of concern to every person of this threatened planet. Fighting global warming is a daunting task, but there are many steps we can all take to help curb it. Unless we take steps now to curb global warming, our way of life, our planet, and our children are all in grave danger. There is hope. Each us can make simple decisions that will reduce global warming pollution. An urgent need has been felt to educate everybody regarding the problems of environment and thus a wave of environmental consciousness and concern swept across the world in the sixties and seventies. Environmental studies have been included in the syllabi of school, colleges and universities all over the world. However, considering its multidiscipline publication, which are beyond the reach of common students. The present and future impact of global warming has sensitized all the nations. Even the Nobel Pease Prize for 2007 has been awarded to vice-

president Gore and UN Agency lead by an Indian Dr. R. Pachauri for their contribution in this field. We have not to look towards Governments rather see that what we can contribute at individual levels to reduce global warming by producing less and less of gases in whatever way we can. By taking a few steps each one of us can play a role in making our earth healthy again.

India is the only country that has a separate government ministry exclusively for non-conventional energy sources, and India has one of the largest national programs to promote the use of solar energy. Whereas the majority of developed countries have turned to solar energy mainly out of concern about the environment and energy security, the use for solar power in India is being advocated as a way to provide energy to regions where there is a shortage of electricity. Wind-generated energy is also an important component of India's strategy to boost the use of renewable energies. India is rich in wind energy potential, and the country has been adding installed wind power capacity at an impressive rate. The Indian government is looking to large-scale hydroelectric plants to meet its future energy needs.

#### **Constitution Provision:**

The constitution of India provides in Article 48 A, the provisions of environmental protection and improvement as a state policy: It declares, "The state shall endeavor to protect and improve the environment and to safeguard the forest and wild life of the country." Article 51 (A) (G), which says that every citizen shall have the duty "to protect and improve the natural environment including forest, lakes, rivers, and the wild life and to have compassion for living creatures".

#### **Important legislations dealing with Water & Air pollutions Control & Environment Protection:**

In India, a number of legislations have been enacted for the protection and preservation of Environments Some of the important legislations are,

1. The water (Prevention and Control of Pollution) Act, 1974.
2. The water (Prevention and Control of Pollution) Cess Act, 1977.
3. The air (Prevention and Control of Pollution) Act, 1981.
4. The Environment Protection Act, 1986.
5. Hazardous Wastes (Management and Handling) Rules, 1989.
6. Public Liability Insurance Act, 1991.
7. National Environment Appellate Authority Act, 1997.
8. Indian Penal Code and the Criminal Procedure Code.

#### **Environmental education:**

Environmental education at various levels students, people, academicians, politicians etc. could promote awareness and attitude and attitude towards the nature. The basic purpose of environmental education is to generate the feeling of every individual to realize her/his responsibility in the complicated ecological web to promote harmonious relationship between man and nature.

#### **Modes of Transmission of Environmental Education:**

Starting from 1967-68, Indian educationists, thinkers and political leaders expressed these feelings to include teaching of environmental education at all levels. In the National Policy on Education (1986) it was strongly directed to introduce environment related topics at all levels, i.e. from the primary to research stage mostly highlighting its social relevance not only to protect

environment from further deterioration but also for its improvement, conservation and creation of awareness, consciousness and love in human mind.

**By Revision of School Curriculum:**

Environment relates to all subjects. Selected areas of physics, chemistry, geography and the entire life science cover environment. It is suggested is to include such environment related topics in appropriate content subjects in such a manner that scientific information and/or social applicability can be suitably transferred to the concerned students. Students of biology will be more benefited than others. But curriculum designers and authors of books should take proper care so that other students are not debarred from receiving the basic concepts through their study material. Education is the means for any desired modification in the behavior of an individual. No, doubt, school education or formal education plays an important role in behaviors modification but informal education also plays an important role for the same. Here informal education means all the gain from interaction and observation with society, other than school schedule. Thus awareness related to all aspects of environment can be developed in children through both channels i.e., formal education system, having environment education, and informal education system or family and society.

**By Curriculum Restructuring at Graduation Stage:**

A general measure has already been taken by different university authorities to introduce Environment Study as a separate compulsory subject for students of all streams. All India Council for Technical Education (AICTE) and university grants commission (UGC) insist the universities to introduce Environmental education as a compulsory subject for all under graduate courses. This will create awareness among the younger generation of our country about environment pollution problems and induce them in environmental conservation activities.

**Through Post-graduate Teaching:**

In University postgraduate course in Environment Science has been introduced under the academic supervision of a separate department.

**Research and Development:**

M.Phil programmes in environment science is offered by universities. As these programmes usually cover some teaching schedule along with research schedule a definite course structure is followed. The dissertation work, a mandatory part of the curriculum is actually an investigation reports. The structural framework of research leading to doctoral degree in environmental science is based to doctoral degree in environmental science is based on extensive investigation in relevant areas followed by submission of thesis. The end result of research must open some development avenues.

**Through Seminars, Symposia and Workshops:**

Seminars, symposia or workshops are often being organized for students of different levels and common people to discuss environment related topics. Beside educational institutions, different non-government organizations also play positive role in this issue. The main aim is to convey environment related information and messages amongst people not only through lectures alone but also by demonstration of photographs, slides and other relevant exhibits. Observance of World Environment Day is a regular schedule of each year.

**Preparation of Teacher and Teacher-educators:**

Whatever be the mode of transmission, role of teachers or teacher-educators is the most crucial factor. The UNESCO-UNEP international environmental education programme has emphatically pointed out that to improve the effectiveness of environmental education teacher preparation is to be ranked as “The priority of priorities”. UGC and NCERT have undertaken a number of programmes in this regard. Faculty of Education of Mahatma Gandhi Kashi Vidyapith of Varanasi receive a project in 1994 to conduct teachers training in environment education as a regional resource center. The department conducted a number of programmes to train up teacher-education and also trained teachers of schools at pre-service and in-service level. The training schedule was so designed that the trained personnel are made capable to act as (a) effective curriculum designer, (b) trainer for rural manpower to handle environment related problems, (c) effective motivator to build up workforce for environment movement, (d) creator of environment awareness amongst students and people, (e) developer of scientific attitude and temperament etc.

Steps in the direction of environmental education were initiated world wide in 1970. History began with Environmental Intervention from UN conference on Human Environment (1972) Stockholm, Sweden and developed continuously and substantially by workshops, meetings, conferences through out the world. These were as International Workshop on Environment Education (1976) Belgrade, Yugoslavia, ‘Asian Regional Meeting (1976)’ Bangkok, Thailand, Inter Governmental Conference on Environmental Education (1977) Tbilisi, Georgia. Survey conducted by UNESCO/UNEP-IEEP revealed that in the Asian region, the pressing needs felt at almost all levels of education and teacher education was one of the high priority area. In 1986 (Nov.) regional meeting of experts was organized at Bangkok by UNEP to develop a programme of action of Environmental Education and training in Asia & Pacific. It suggested a number of approaches in implementing EE at different levels of education in the region. UNESCO and UNEP in their International Environmental Programme (1990) preferred and emphasized on Teacher’s Training for effective Environmental Education.

#### **Environmental Concern in India at a glance:**

In 1972 the government after playing a prominent role in the UN Conference on Environment at Stockholm set up a National committee on Environmental Planning and Coordination (NCEPC). This committee founded number of research projects on environmental preservation and biosphere studies.

In 1984, India stepped forward with the Scheme of Environmental Education initiated by Central Ministry of Environment and Forestry. Successively various programmes and schemes were initiated to formulate and implement Environment Education, In this continuation the National Policy on Education (1986) stressed: “There is a paramount need to create a consciousness of the environment. It must permeate all ages and all sections of the society, beginning with child, this aspect will be integrated in the entire educational process”.

Ministry of Human Resource Development, Government of India (1991-92) started Environmental Education scheme with 100 percent assistance to State/Union Territories and voluntary agencies. NCERT and IEEP (International Environmental Education Programme) and IEEP and NIEPA jointly organized workshops on Teachers training and Inter-Regional Training Programme for Environmental Education (1983-1989). In 1993, Global Forum for Environmental Education Delhi was organized, where Dr. Abdul Ghafoor Ghajanawai, Head, Environmental Education UNESCO addressed that, “There is need to develop a national plan and strategy for environmental education Humans are integral part of environment and agents of

change in Environment, Environment and developments are the two sides of the same coin. There is need for a political decision to be taken on the issue of Environmental Education.”

Universities ought to be entrusted to provide Environmental Education at every level of higher education; Under Graduate & Post Graduate level, Research, Teacher Education (B.Ed and M.Ed) Course, Refresher and Orientation Courses of University Teachers. Consequently Universities and institutions of higher education have moved forward to set up Environmental Education in their premises of knowledge subjects. Various Universities and Institutions have used interdisciplinary and multidisciplinary approaches as strategies of Environmental Education. Some Universities have introduced subjects as Environmental studies and Environmental Science at P.G. level, In Some Universities, subjects related to Environment are infused with the existing curriculum of various subjects in natural and physical sciences, Social Sciences, and humanities etc. In Science subjects ‘Ecology’ is introduced as a separate paper. Much stress and priority have been given to professional Courses. Teacher Education is the priority area of Environmental Education, but it is also marked that there is shortage and scarcity of appropriate teaching materials, the qualified teachers & teacher educators and limited scope of research and experimentation in Environmental Education.

#### **Plan of Action Suggested:**

- University should develop their EE curricula based on the local environmental needs. The curriculum should aim at inserting more harmoniously each person or group in the environmental system of which they form a part and on which they depend for their lives.
- At the graduation level, ‘Environment Education’ subject should be compulsory in each faculty for every student. Prospectively every student at graduate level should attend E.E. Course.]
- Use of ICT and co-operation among the institutions will certainly allow the implementation of the teaching/instruction of the subject through interdepartmental education and specialized training.
- During Teacher Education Courses (B.Ed & M.Ed) every graduating teacher as well as Teacher educators should receive theoretical and practical training on the value system and approaches related to environmentally conscious behavior.
- Every department of the university, if lacks subjects serving specialized Environmental Education should at least introduce basic Environmental Education as a separate subject or discipline.
- An environmental retraining system should also be framed for every professional course of Teacher Education in University Education.
- In current situation, it would be serviceable to present the system of requirement as well as the applicable methodology for Environmental Education to university teachers from varied aspects.
- Environmental experts from out side may also be invited to train teachers and teacher educators or teachers of different departments of universities.
- The most probable solution for each teacher will be to build the demanded information into his/her own discipline. If not possible, basic factual information about the environment should be provided to achieve. As retraining programmes for university teachers, refreshes and orientation courses on E.E. should be organized time to time by Academic staff colleges.



- Besides Teacher's Training, much thrust should be given on curriculum transaction of Environmental Education. For this purpose non-formal and informal methods should be used to supplement the formal curriculum ideas may be borrowed from various environmental movements as 'CHIPKO' movement of Uttarakhand & A PPIKO movement in Karnataka etc.
- In extension programmes of universities, regional and local authorities as well as non-governmental bodies should be informed appropriately about the objectives and goal of E.E., environmental policies, the scope of responsibilities attached to the individual countries and their possible role.
- Universities should allow the cross-disciplinary approach for the teaching learning sustainability to deal with any specific environmental problem from different point of views.
- Issues concerning environment should be seen as a whole covering natural sciences (biology, ecology, earth sciences), social sciences (economics, history, sociology) and humanities (philosophy, art and ethics).
- University should take Environmental Education as a social mission for which, a group of young highly motivated teachers and students should be made prepared to take the immediate environmental problems at local level.
- Environmental Mission should create Environment Action Group & Task Forces comprising of highly motivated, environmentally sensitive and trained teachers as leaders.
- Young students have tremendous power and energy, it should be channelised to solve the environmental problems with the help of local community participation, every community has its own environmental issues and at the same time the community itself possess the opportunity for revealing the problems.
- Pressure Groups of students may be formed to resist & control the unethical, immoral & unplanned developmental programmes backed by governments and local powerful communities as; illegal building constructions, elimination of greenery from the cities and towns, waste disposal to local rivers, deforestation etc.
- Action Groups of students should be provided specialized training of preparing 'Discharge & Waste Inventory' and Environmental Auditing, so that action may be taken in proper perspectives.
- From a national perspective, the university education of teachers specializing in environmental studies seems to arrive at a solution, but providing every teacher obligatory and basic environmental education is more justifiable.

Moreover, the accreditation of specialized training programme and course may be more effective. In the light of the above discussions about Environmental Concern in Indian Universities the paper proposes to deal Environmental Education as a 'Mission' the functional philosophy of which should be "protect Environment for Sustainable Human Society".

### **Information Support for Global Warming**

#### **Printed Literature:**

A number of serious authors have written and published books dealing with Global Warming & Environmental change literature is available on different issues of Global Warming.

#### **Non-Book Material:**

The extension literature in the form pamphlets and brochures is prepared and publishes by different departments.

**Mass Media:**

Radio and Television has also been found most effective medium of communication for maximum gain in knowledge.

**Slogans for Global Warming:**

Slogans can be written and display in the library. For example, These ten steps will help curb global warming: Drive Smart, Buy Local and Organic, Support clean, renewable energy, Replace incandescent light bulbs with compact fluorescent bulbs, Saving energy at home is good for the environment and for your wallet, Become a smart water consumer, Buy energy-efficient electronics and appliances, Plant a Tree, protect a forest, Reduce! Reuse! Recycle!, Mount a local campaign against global warming.

**Information Documentation:**

Various research organizations, institutions and NGO's have undertaken research studies on Global Warming, environment and pollution green house effect. There is a need for documentation of all hidden and scattered literature on this topic. Comprehensive bibliographies should be compiled on different subjects pertaining to Global Warming – containing research articles published in journals, research reports, bulletins, theses, conference proceedings etc. Selected bibliographies can be prepared on Global warming, climate change, Environment and pollution. Documentation of newspaper clippings should also be done.

**Documentation of legal literature:**

Documentation of legal literature pertaining Environment is required to make them aware which give knowledge of law reality to this.

**Packaging of Farm Information:**

1. All research literature and information contained in book form should be summarized and printed in one or two page pamphlets.
2. All laws pertaining to this should also be summarized and written in local language for making aware to each & every person.
3. Available literature on Global Warming, Climate change, environment should be translated into regional languages, Environmental institutions, NGO's Environmental protection Agency. Can share such responsibilities.

**Information Centers:**

The present Public Library Network in country is almost confined largely to urban areas. Agri rural libraries also non-existent in rural India. Mobile libraries visits to village can serve a great purpose. It is, therefore, necessary that massive effort should be made to establish Rural Information centers. Such information center should contain following types of materials.

1. Books/monograph on all Environments related such as Global Warming, Environment, Pollution and climate change and so on. For information.
2. Packaged information for easy understanding in rural area.
3. Extension literature on this topic should be published in pamphlets/brochures and placed in abundance in these information centers.

Low cost books in regional languages must be made available, new books on this issue be published by the Government Departments and Institutions and books concerning Global Warming must be popularized through mobile libraries, exhibitions/books fair and women seminars, etc. Thus information/literature support shall contribute.

**Conclusion:**

Creation of environmental awareness can be made possible only through continuous efforts and by multidimensional means. Here transmission of knowledge and information through curriculum revision at different levels, research activities, seminars, workshops or organizing similar programmes are not enough to reach the target Regular awareness campaigns should be conducted by voluntary organizations and by appropriate governmental agencies to create awareness among the general public about the environmental pollution. To combat environmental degradation many initiative have been taken up at International, state and institutional level by government and voluntary organizations. Among those, compulsory environmental Education at all levels in the education system as directed by Supreme Court is the most appropriate strategy to create awareness, attitudes understanding and action towards environmental protection. Any environmental policy, Government legislation, Regulation for environmental protection can be successful only with people's participation. There can be no hope of finding viable solutions to environmental crisis unless and until general education, at all levels is suitably modified to enable people from all walks of life to comprehend, from childhood, the fundamental interventions and relationships, between man and his environment.

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