



10th WEDC Conference
Water and sanitation in Asia and
the Pacific : Singapore : 1984

Education and training in India -
problems and solutions

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INTRODUCTION

The environmental degradation and ecological disruption has become a global problem. The problem is more serious in developing countries for various reasons. The major reason being illiteracy and lack of education. The other two, equally important reasons are the growth of population and poverty. All these three are interdependent. However, I feel the need of education in every field can be named as the basic reason. It is no wonder that the environmental education has been absent from even the thoughts of educationists who were more interested in educating the masses with the 3 Rs and other necessary techniques to earn the daily bread. During the last decade or so this problem has started worrying the developing countries and slowly but surely some steps are being taken in the right direction

DELAY IN STARTING THE PLANNING OF ENVIRONMENTAL EDUCATION

No doubt there has been unexcusable delay in starting the planning of education. In spite of the experiences of the environmental problems in the developed countries, India could not and did not take any lesson.

1. There was a certain amount of negligence and disrespect towards environmental problems because of the material profits one could see due to industrialisation. Economic gains were only looked for and gigantic irrigation projects and dams, Hydel projects, Iron and Steel industries, Fertiliser and Petrochemicals added to the chaos.

2. The industrialists were harping on the same string of pollution as a necessary evil' India was trying to attain the non-attainable aim of minimising the distance of development between India and USA. Telescoping the industrial revolution time in less than one twentieth times taken for Western countries had created some serious threats to environment and ecology.

3. The political scene and wars have their own share in concentrating the forces on other different issues of immediate interest and thereby delaying the thought and action about environmental education.

PROBLEMS

1. After experiencing various deleterious effects on health of men and animals, vegetation, forestry and crops, etc. due to environmental pollution and ecological imbalance there was a slow awakening in India. In a vast country that had nearly two decades altered physical landscape through the continual clearing of forests to pave way for gigantic human settlements schemes, the digging up ground for mineal and fuel exploration, the setting up of manufacturing industries which filled the air with smoke and the like, flooded the rivers with toxic muck, it is not an easy task to imbibe and inculcate the conscious concern to establish a balance between economic development and environmental needs. The decision makers and executives still remain developers rather than conservationists. Quick gains and benefits are yet their mottoes and industrialists and contractor's lobbies are able to influence the major decisions.

2. The majority of the population is poor, ignorant and superstitious in their attitudes and beliefs. Unless there is a force of either an economic gain or fear of future disaster and pain, the lethargy will not be shed off. Therefore the socio-economic problems and their relevance to the disaster of the ecology and environment must be told to them in their own language and by the local people of their cast, religion or creed which will make the project of conservation locally accepted.

3. India has another typical problem of growth of population, urbanisation and industrialisation. Industries are concentrated at few centres in every state. These centres are very much developed and have the complex industries like Petrochemicals and Fertilisers or Iron and Steel industry, Thermal Power and Paper industry etc. While the rest of the country is as backward and undeveloped as it was left by the British rulers. In other words, the unbalanced development within the country and for that matter within few kilometers changes the emphasis to be given to the environmental problems. For an industrialised urban area, the environmental pollution will be a hazard while for other urban

and rural areas sanitation aspects will be of genuine importance. Further in rural area agricultural ecology would form a major field.

4. There is a large percent of children and young people who do not go to school where formal education is imparted. This population group, with the women folk, forms a big percentage of the people who need to have basic education and awareness of the environmental problems. Their participation in the action against environmental degradation is one of the most important factor.

5. In the urban industrial complexes, university education at graduate and post-graduate level in specialised fields like environmental sciences, ecology or environmental engineering and allied fields is being imparted at some level and in some way. However, the greatest lacuna is in training for operation and maintenance of the treatment plants and the equipments. Due to this lack of trained personnels there is not a single water treatment and sewage treatment plant in India which is working entirely satisfactorily. Even in industrial waste treatment plants the machinery remains idle and untreated waste is being bypassed to the land or water course or in the sewers.

6. The teachers who are to teach the environmental subjects, themselves are not trained. As such they neither have the background or the visualisation of the problems. This defeats the purpose of the system and students (esp. those in primary school) do not get involved in the problem. The trained and educated teachers are the foundation of the entire education system.

7. The average percentage of literacy in India is only 30 percent which means that there are many areas where it is even less than 30%. The purchasing power of an average Indian is far low. Therefore, very negligible percent of the population can buy the newspaper. Hence the 'mass media' cannot be really the mass media in the sense as is used in developed countries. The communication depends on the socioeconomic situations of the country and therefore the 'printed word' has practically no significance in the "Oral Society" of the rural poor.

These are only a few important problems.

Agreeably the environmental education in our country is as complex a problem as the vastness and complexity of the texture of our society. The problem has also the dimensions of religious, lingual and cultural

variations. Therefore, half hearted and patchy efforts will not do any good to the society or to the environment.

Government of India has made a good beginning. The National Council of Education Research and Training has given due importance to the ecology and environmental sciences. It has introduced these topics at various levels in primary and secondary schools.

POINTERS TOWARDS SOLVING THE PROBLEMS

It is impossible to prescribe a prescription for solving all these problems. However, a few suggestions based on the experience of other workers in the field and myself can be put forth.

Formal and Non-formal education

The first and foremost action should be about bringing about awareness of environmental problem. It must be acknowledged that this cannot be done only by the formal education. In India NCERT has formed various syllabii at various levels, wherein the subject has been introduced initially as relation of man with nature, (wild life, plants etc.) and then at the high school level pollution with its sources and effects has been discussed. Therefore the students have some idea of the subject but without audiovisual experience primary school children do not react. Their involvement needs to be encouraged. Unfortunately in most of the schools this aspect is neglected - probably due to non-availability of materials and/or the teachers themselves being not interested and educated enough in environmental field. Real life experiences and studies of actual environment should be followed. Hence some exercises like 'Invent your environment' need be introduced in the system.

The young students in the primary and secondary schools are very enthusiastic and my experience of 20 years tells me that once these kids and young boys are convinced then they give you far better approaches of teaching than we can think. Once the school boys have certain background about the totality of the environment and its importance in their future lives the syllabii the college education obviously have interdisciplinary approach with specific concepts from each discipline. All graduate courses should allocate a minimum period for class room instruction discussion or other suitable presentation of environmental topics. It is observed that ecology courses revolve around botany, zoology and similar life sciences while environmental engg. courses discuss only technology. While the social

and behavioural sciences have neither of these. Therefore it would be proper to have some course like Human ecology and human adaptability or social ecology wherein the man's relationship with the environment and also with other animal world in the environment is presented to the student as an integrated whole. In some Indian Universities such courses are introduced but the response for interdisciplinary of 'Mixed' courses is not very encouraging. But probably they will become popular shortly.

VOLUNTARY ORGANISATION

Hence Non-formal education in addition to formal in the form of extracurricular activities with the help of various non-governmental organisations or volunteer groups must be arranged. Such meetings and picnics or outings not only acquaint them with live problems and increase the interest of the students but also train and orient the teachers also. The experience of SOCLEEN Bombay or Regional College, Bhopal proves that such activities like essay competition, elocution competition, painting competition have been most welcomed by the students. It was observed that their awareness had increased immensely after this exposition.

Second important fact to be remembered is the differences in urban, rural and tribal environment. And therefore the environmental education should be relevant to the problems. It has been experienced that the tribals, rurals can teach you more about the forestry, botany and zoology, soils etc. than any outside doctorates. They have grown with the soil and nature hence culturally they are part and parcel of the environment. As such it would be beneficial to accept suggestions from those local stalwarts as a part of the education.

The real force in the democratic country like ours is the people. Therefore educating the masses, making them aware of the future disasters is the most important aspect of education. This has to be undertaken at every level. There are voluntary organisations and political parties who have devotedly brought these problems to the front. It is not that the rurals do not know the importance of a tree to their survival. But governmental agencies buy their leaders. But once the population stands by the conservation there is nothing like it. In India we have two glorious success stories viz., Himalayan Forestry (Chipko Andolan) and silent valley project where due to the public pressure and demands of the masses the politicians had to change their decisions in favour of environmental conservation.

The population was enlightened. The social

workers and environmentalists informed the people of the impending dangers and the local people themselves came up with similar expressions which made a tremendous impact. The local language, relevance to local culture and socioeconomic problems were the keys that could change the minds of the people.

In India especially in the rural part, television and films are the best mass media that could be used for dissemination of information and educating the rural masses. The message through the documentaries or special films should be hammered again and again and again to give better results.

The administrators and judiciary is being educated through various types of mass media 'printed words' being the most useful ones. In some cases continuing education (for younger generation) programmes are arranged so that they understand the environmental impact on the life of future generations.

The operation and maintenance of any treatment plant is the most neglected part in India. Therefore it is imperative that there should be specialised courses in Operations Maintenance. The person without such a certificate that he has undergone the course successfully should not be allowed to take up the job. There should be three fixed courses and the rinerachy and thereby economic motivation to get more knowledge. These courses should be started by the govt. aided institutions or by the professional institutions like Institution of Engineers, IWWA, but the government should give its backing. Like 'boiler operators' Certificates these certificates must become a necessity otherwise spending lakhs of rupees on building the plant and instruments would be wasted (as they are today).

CONCLUSION

The problem of environmental education is very complicated. Basically it has to deal with values and attitudes. The faith in technology and progress are the roots of environmental disaster. The environmental education will have to dispel this faith and replace it with harmonious life with Nature and all creations of God on this earth.

The environmental education should therefore be a total attack on the entire population to enhance the environmental awareness from the preschool days to the adulthood. The problem solving attitude needs be developed either by formal or non-formal education with the help of the NGO and

volunteer groups. Whenever the masses have understood the problem they stood against the project which spelt ecological disaster. It is already late. If we do not hurry up and inculcate and imbibe the environmental principles in the coming generation, there is no hope of stopping the disaster.

Reference

1. Pooniah N.D. "Present status of environmental education in the Asian region" in Education for Environmental Planning and N.L. Ramanathan for Indian Environmental Society (1982).

PRINCIPAL PROBLEMS IN DEVELOPING ENVIRONMENTAL EDUCATION PROGRAMMES FOR PRIORITY SECTORS (INDIA)

| Edu. Sector | Legislation | Funds | Institutional aid | Physical facilities | Personnel | Organisation |
|-------------|----------------|-----------------|-------------------|---------------------|-------------------|-------------------|
| Pre School | | High Importance | | | Low Importance | |
| Primary | Low Importance | Low Importance | | | Medium Importance | Medium Importance |
| Secondary | | Low Importance | | | Medium Importance | |
| Territory | | | | | High Importance | |
| Youth | Low Importance | | | | | |
| Adults | | | Low Importance | | | |

Note : Blank is absence of Env. Edu. Problems.

Table I (From Ref. 1)