

Environmental Education in Schools: The Indian Scenario

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ABSTRACT Environmental education (EE) has been introduced as a regular course in formal school education system in India following the directive of the Honourable Supreme Court of India. Prior to this directive several programmes were current in the country related to EE in schools and communities. One of such programmes was the centrally sponsored scheme "Environmental Orientation to School Education (EOSE)". Through this programme it was expected to orient school children to its immediate environment using locale-specific examples and materials. To do so a range of activities were initiated including production of locale-specific print materials, training modules, practical activities and so on. The Ministry of Human Resource Development, Govt. of India had appointed three Nodal Agencies to implement the Scheme. The present writing is the product of an evaluation study of this Scheme which was conducted by the author in the year 2000.

1. INTRODUCTION

1.1 Environmental Education Defined

Environment, as an interactive entity, could be cited as the other side of life in the sense that the very basic support system for life is provided by environment only, in one way or the other. Thus, considering the fast deteriorating environmental condition, it becomes necessary to make Environmental Education (EE) as a tool for life and learning right from one's childhood. In this light EE can be defined as *a process of developing a world population that is aware of, and concerned about, the total environment and its associated problems and which has the knowledge, attitudes, commitments and skills to work individually and collectively towards the situation of current problems and prevention of new ones.*

Environmental concerns began to emerge in its present form due to the enormous technological growth and its application resulting in a drastic transformation of the environmental situation. Kirk (1985) described the nature study movements into some overlapping phases from 1860 onwards.

The organized global efforts started with the First United Nations Conference on Human Environment opened at Stockholm in June 1972. Consequently, United Nations Environmental Programme (UNEP) was formed and International Programme in Environmental Education (IEEP)

was launched by UNESCO and UNEP in January 1975. Environmental Education became centre of focus of environmental and educational movement after the Inter-Governmental Conference on Environmental Education held at Tbilis in 1977. The world conservation strategy (1980) was drawn up by the IUCN, UNEP and the WWF in collaboration with UNESCO and FAO. Another important document 'North-South – A Programme for Survival' The Report of the Independent Commission on International Development Issues (Brundtland 1987) had great impact on environmental Education globally.

The Agenda 21, the report of the United Nations Conference on Environment and Development (UNCED) held in Rio-de-Janeiro, Brazil (1992) calls upon the member states to raise public awareness and intensify education and training related to environment and development.

In India, taking initiative from Stockholm summit 1972, it incorporated environmental concern in the constitution through 42nd Amendment in 1976. Environment has become a priority in policy statements, Plans and Strategies especially after 1980 with the establishment of a full fledged Ministry of Environment and forests. Increasing concern on Environmental Education (EE) in India gained its momentum while its importance was recognized by the Government and policy was planned subsequently to introduce EE in schools. It is by now every one's general perception, rightly that, increasing population, unplanned growth of urban areas, ill

planned industrialization and misconceived development paradigm have given rise to the contemporary environmental crisis world over.

As most of the environmental problems are development induced as well as unavoidable consequences of livelihood extraction, a lot of phenomena are quite contradictory to the EE we impart in schools. There are certain situations to which we just cannot say “no” instead of the fact that though we know the potential harmful effect of the activity. Thus, a new paradigm of development and environment has to be the order of the day.

Environmental education in one or the other form was existed in school curriculum prior to the Honourable Supreme Court of India’s directive on 18th December, 2003, to impart EE in educational institutes as a compulsory subject. But the way of imparting EE in school was not similar throughout the country and there was no definite standard too. So far no agreement had been arrived at as how to impart EE in regular school curriculum. Several discussions and suggestions had been forwarded, but no general consensus had derived at. Except for the schools in Uttarakhand where EE was included as one of the regular subjects up to class VIII, no other schools in the country had found a suitable place for regular EE course. Question still persisted whether EE could be introduced as a separate subject or be infused in curricula through certain chapters in other relevant subjects.

A serious thought about EE in schools started after the National Council of Education Research and Training (NCERT) circulated its Discussion Document (2000) inviting comments from concerned agencies. It was revealed that the document was miserably lacking environmental concern at school curricula. Towards the end of the last century four major reviews of EE in the country were published by Centre for Environment Education (CEE 1998), C.P.R. Environmental Education Centre (CPREEC 1999), Prativesh (1999) and Gill and Lahiry (1999). The National Curriculum for Elementary and Secondary Education — A Framework formulated in 1988 (NCERT; 1988) marked the first concerted and systematic effort to bring EE into the school curriculum. This took an “infusion” of environmental concerns and a whole range of environmental concerns were infused into the NCERT model test books published between 1987 and 1989 (NCERT 1987-89)

The problem of incoherence and confusion caused by such infusion was pointed out by Krishna Kumar in 1986 itself (Kumar 1996a, b). Pande (2000) in his critical assessment of NCERT books cited several examples of presence of such problems. For instance, the statement about the problems of pesticide use written in the text books of various standards, give different ideas at different time periods. Thus the author feels that the environmental science teaching is not complete. He professed for a holistic view of EE teaching. Referring to Gordon (1995) the author suggests that we need to teach ‘new’ or ‘ecological’ science if incoherence in the curriculum to be avoided. The author has also pointed out that in contemporary text books the socio-economic explanation of environmental degradation has not been addressed properly.

Contemporary science is depicted in school text books that emphasize the technological achievements as the best way for material comforts to mankind and disregards traditional knowledge as ‘wrong’ ‘peculiar’ and unenlightened (NCERT 1987-89). But it is reality that the very technology is causing environmental problems worldwide. Thus it can be said that the EE in school education is lacking the logical concept, knowledge, and skill that are needed to deal with the environmental problems. Instead, the introduction to EE in the overall curricula created incoherence in the overall curricula. Thus, formulating an Indian environmentalism was a large undertaking. The country’s main environmental problems might be grouped under four heads, viz, land degradation, degradation of forest, pollution of soil, water and air and the cluttering and fouling of landscape. But introducing students to bigger and wider issues of a wider territory it is logical and beneficial to introduce children to local eco-system. Advocating on to this idea Pande (2000) emphasizes that unless problems are adequately defined and solved at the local levels they will never be adequately defined and solved at national or global levels. But local specific environmental problem is not easy to conceptualize objectively. These may be driven by their special socioeconomic group interest and also for some can be their school text books and media exposure.

A thorough and continuous intervention is needed to document such problems and needs. Guha (2000) in his incisive global history of environmentalism delineates that central to every environmental problem in our country is a massive

human livelihood issue. But according to him our environmental perceptions are largely determined by Euro-American perceptions and this is the biggest barrier to effective EE in our country. So, he emphasizes that if the environmental educationists begin to listen to the authentic voice of the poor, the displaced and the discriminated against, can we hope to create more effective EE. Effective EE can also equip people to revive and regenerate their local environment and nature. Lack of insight into the cause-effect relation of environmental degradation in a specific locality, results in to 'ecological poverty' (Agarwal 1998; Sri Madhava Ashis 1978, 1979; Jackson 2000). Owing to such ecological poverty the people become ecological refugees or eco-system refugees (Gadgil and Guha 1995) when they feel that their land cannot provide the required materials for livelihood and migrates to other locality.

In complete contrast to this phenomenon, there are examples of many rural people in the country correctly diagnosing their environmental ills and seeking to cure them on their own. In the non-green revolution areas of the country women are generally taking the lead because they understand better than men that their main problem is ecological poverty, and are focusing their attention on the rehabilitation of village forest through community action. On the other hand, in the green revolution areas individual families are pioneering organic farming on cultivated land badly damaged by chemicals (Bhatt, 1992; Alvares 1996).

The views and opinions of concerned people like educationist, environmentalist and policy planners hitherto current cited here for this purpose.

1. There is need to channelise EE in school from very immediate environmental elements to national and global environmental issues as the child grows.
2. There must be logical inclusion of locale-specific materials in EE considering its relevance in contemporary value system prevailing in society. Like wise, the very term "Local" must be defined logically as well as empirically.
3. Investigation, experimentation and analysis through discussion should be the way of imparting EE in schools. This may be quite easy if locale-specific examples are included precisely.
4. EE should be aimed at developing a child's perception with values about its surrounding environment.
5. While "infusion" is accepted as one of the

methods of imparting EE in schools, it also gives rise to a problem of incoherence. The major need in this process is to harmonize the content of EE and contemporary developmental paradigm. There also appears to be paradigm contradiction between EE and contemporary science subject.

6. It was also felt that as far as possible the contradictory circumstances faced by students regarding school experience and real life experience in environment related issues should be reduced. The social-political-economic determinants of environmental problems must be discussed unambiguously with students so as to make them have clear ideas about social situation.
7. While locale-specific courses are taught in EE, it must not ignore other concerns existed in regular textbooks. Thus while a separate course on locale-specific EE is imparted, the "infusion" technique will do further justice to the course.
8. The most basic requirement of all these process is motivating teachers for EE as a central focus and to equip them with all sorts of skills and resources. The acceptance of EE must be universal and this can be done by empowering and including local communities to take part in EE activities. A holistic approach with a logically and empirically balanced strategy would be able to bring desired result to us.

While such concerns were taking a shape of universal consensus the Supreme Court's directive made it imperative to formulate compulsory courses on EE in school. At this backdrop it was felt that a detailed delineation of the working of a nationwide EE programme current prior to this directive would help concerned people in the country to critically examine and evaluate the present form of EE syllabus and pattern of working to achieve its goal.

The delineation here is the outcome of an evaluation study of centrally sponsored programme called "Environmental Orientation to School Education (EOSE)" sponsored by the MHRD, Govt. of India, Department of Education. The study was done in the year 2000.

1.2 Background of Initiating EE in Schools through EOSE

Generally, within a state, regional variation in environmental conditions and concerns are not considered to include separately in the State

textbooks. Therefore, to make environmental education meaningful to the school level students throughout the country it was desirable to supplement the effort at national and state level by a more intensive locale-specific effort. The very background of the EOSE scheme lies with this requirement aiming at harmonizing the environmental education with local environmental situations.

1.2.1 The Scheme was Based on the Following Perceptions:

- 1) A compact area having uniform eco-system would have similar environmental concerns and therefore, can form the unit for designing one set of programs for implementation in schools and the community in that area.
- 2) The basic components for identification of a specific area are geological formation and features, crops grown, rainfall and plant life.
- 3) The success of the programme would largely depend on the involvement of and interest created among the teachers, students, educationists, voluntary agencies, environmental experts and the local communities.

1.2.2 Scheduled Project Activities under the Scheme: On the basis of these goals three nodal agencies namely, - Centre for Environment Education (CEE) at Ahmedabad, CPR Environment Education at Chennai and Uttarakhand Seva Nidhi at Almora were appointed by the Ministry. These nodal agencies were given the responsibility to plan and implement strategies for environmental education in schools involving other state government agencies as well as NGOs working in this sphere.

These nodal agencies and some other independent NGOs involved in this scheme were visited for the evaluation of the scheme activities. A brief of important finding and observations relevant to the paper has been depicted as follows.

2. IMPARTING EE IN SCHOOLS BY CEE

2.1 The Workings of the Centre for Environment Education (CEE)

School programme is one of the major programmes of CEE since its inception. CEE develops, coordinates and conducts number of educational programmes for school children which involve the training of teachers and the development of educational materials as well as assistance in the development of such materials by other groups.

In order to facilitate the instructional process in the class room, the CEE has developed educational packages for teachers based on environmental themes. These are designed to help teachers get an understanding of a wide range of instructional activities and approaches for the promotion of environmental education in schools.

CEE plans and coordinates a countrywide teacher training programme supported by the Ministry of Environment and Forest, Government of India. CEE also trains resource persons who, in collaboration with local NGOs and State Departments of Education (SDEs), take up the responsibility of training teachers in their region.

A major thrust of this programme in the past few years has been the establishment and strengthening of linkages between NGOs, SDEs and Schools. EE activities in schools are thus organized through a network of teachers, NGOs and SDEs and training individuals.

Since 1991, this has taken the forum of the "Cluster Approach". An NGO and associated 20-25 schools in geographically contiguous area form a "Cluster". Each cluster is an autonomous unit. The cluster approach is based on the principle of networking and horizontal communication with training, material and monetary resources provided by CEE. The NGO provides the schools material as well as technical support to perform EE activities more efficiently.

In view of the fact that children understand and appreciate environmental concern better if their concerns are related to their immediate context, CEE focuses on the development of locale-specific programmes and materials. CEE has integrated most of its school initiatives in to an umbrella programme called the National Environmental Education Programme for Schools (NEEPS). The programme is envisaged as a nationwide network which will facilitate greater interaction among related school programmes. Programmes under NEEPS are supported by the MoEF, MHRD and other agencies. The NEEPS Network consists of the NEEPS Secretariat, at the CEE office at Ahmedabad, the Regional Desk situated at Lucknow, Guwahati, Pune, Bangalore, Ahmedabad and the associated schools all over the country.

Till the year 2000, the CEE has sanctioned 99 projects on various fields to its associated NGOS for the purpose of Environmental Education. Table 1 shows the distribution of projects among

Table 1: Distribution of projects among regional desks

<i>Centre</i>	<i>P.C. of Projects</i>
CEE A'bd	16
CEE South	28
CEE North	16
CEE East	16
CEE NE	5
CEE Central	19
Total	99

the different regional desks of CEE. The South Desk has been awarded the highest number of projects (28%) whereas the NE Desk has been awarded only 5% of the total projects.

Table 2 shows some more information regarding the projects offered. The entire projects has been categorized into six categories namely adaptation, local-specific print, capacity building, audio-visuals, training and multi-approach. As the table indicates local-specific print materials shares the highest number of projects followed by capacity building approach and adaptation. Like wise, in expenditure pattern 46 percent of the allotted funds were for the projects related to local-specific print material production followed by adaptation and capacity building. Barring central desk, all other regional desk has given more stress on local-specific production whereas the central desk has given more stress on capacity building projects.

Data collected from the organizations showed that the projects were targeted for different groups, namely- teacher, educators and the students. On the basis of this the projects were grouped in to three broad categories. Projects meant for teacher-educators where the students can not take part, the next one comprises the projects meant for both teachers and the students, and the third category meant for the students only. It was found that the majority of the projects (42%) were meant for teacher-educators. Another 35 percents were meant for the teacher-students combined, and the least 23

percent were meant basically for the students groups.

It was found that the CEE Secretariat decentralizes its activities through its six regional Desks. These Regional Desks have direct contact with NGOs of its respective localities. To assess the activities and achievements these centers were visited. The following part delineates the same:

2.2 Activities of CEE South Regional Desk

The South Regional Desk of CEE was established in 1988 at Bangalore. It caters to the EE needs of the States namely Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu. It also covers Pondicherry and Andaman and Nicobar Island. It has one state office in Andhra Pradesh and three field offices one each at Kodagu, Gulbarga and Tirpur.

2.2.1 The Objective of CEE South

- ★ To facilitate effective coordination, monitoring and follow-up of regional programmes in environmental education and
- ★ To identify the environmental issues in the South region and develop programmes/projects based on these issues.

2.2.2 Analysis of Projects Conducted: The centre has done 27 projects, 8 each in Andhra Pradesh and Tamil Nadu, 5 each in Kerala and Karnataka and one in Andaman. The centre has developed 33 materials consisting of locale specific print materials as well as adapted and translated materials meant for EE in schools. These materials were developed in different languages to circulate in south Indian states namely Kannada, Telugu, Tamil, Malayalam and English.

Some of the NGOs under South Regional Desk were conducted in this regards. The activities and achievements of the NGOs were enumerated carefully and documented accordingly. Some of the basic findings are delineated here.

For instance the *Chatnath Education Trust, Chennai*, received a one-time grant to conduct a

Table 2: Basic aspects of projects implemented

<i>Types of projects</i>	<i>No. of projects</i>	<i>P.C. of expenditure</i>	<i>Regional desk activities in %</i>			
			<i>North</i>	<i>South</i>	<i>East</i>	<i>Central</i>
Adaptation	15	21	13	18	13	11
Local-specific print	45	46	30	43	69	37
Capacity building	17	13	25	21	6	47
Audio-visual	9	9	13	11	6	
Training	4	1	19			
Multi-approach	10	10		21	6	5

project titled "Preparation of Educational Package on Solid Waste Management through Environmental Education in School". The objective of the study was to:

- ★ Help create awareness among children, of how solid wastes were produced, disposed and different types of wastes with special reference to Chennai City and sub-urban areas.
- ★ Enable them to understand the ill effects of solid wastes and environmental degradation due to solid wastes.
- ★ To motivate them to consider segregation and recycling methods for clearing solid wastes and to help them minimizing their own solid waste production.

It was observed that the project covered students and teachers from 30 schools of Chennai and its sub-urban while in action. The product received wide acceptance in other schools and areas in Chennai. The material seemed to be sustainable for EE and could be extended to other parts of the country as a tool for "model activity" having the similar environment. Needless to say that considering the non-availability of infrastructure facilities in all schools, the role of the NGO is still important to disseminate these knowledge base to the target groups.

SRAVANTI Association, Rajahmundry, Andhra Pradesh is a registered society established in 1992. The organization has taken up a project under EOSE titled "Environmental Awareness Campaign among the School Children towards Conservation of Mangroves". The areas covered by this project were the fringe villages of Coring Wildlife Sanctuary and the project was sanctioned in the year 1999 for one year duration. The objectives of the project were:

- ★ Addressing the problem through an educational programme regarding degradation of mangroves due to shrimp culture and fire-wood collection.
- ★ To make an in-depth survey and preparing a status report on mangroves; development of a booklet in Telugu: training and orientation to students on the conservation of mangroves and marine ecology and formation of task force, to involve students in conservation activities.

The outcome of the project was a booklet in Telugu titled "*Kosthatheera Paryavarana Parirakshanalo: Mada Adavula Paathra - Mana Badhyatha*". It was observed that 1000

copies of the material were published and were distributed among the teachers, students and NGO personnel in the fringe villages of Coringa Wildlife Sanctuary.

Besides these the centre has developed sufficient number of quality EE materials using remarkably smaller amount of money. The NGOs selected by the centre were quite efficient and successful in bringing the issues meaningfully to the front. The network of the centre with the NGOs is seen strong and co-operative.

After careful observation it was found that there is necessity to spread its action and network further to a wider range involving more able NGOs and concerned Government agencies. The centre might take direct responsibility to monitor the utilisation of its valuable materials in schools. The limited existing cluster NGOs till now were quite a small in number of agents to bring the desired result in EE in schools.

2.4 Activities of CEE Central Regional Desk

The Regional office of the Central Desk of CEE is situated in Pune. A total of 19 projects have so far been conducted under the Central Regional Desk either through other NGOs or by the CEE Central desk itself. Among these projects 2 projects were meant for adaptation and translation of existing EE materials published by CEE Ahmedabad, 9 projects were meant for capacity building among the target groups, 7 projects were meant for development and inclusion of locale-specific examples in EE and one project was multi-approach in nature. Some NGOs working in assistance with the CEE Central Desk were conducted for the study. Some of the important findings have been cited for reference here.

2.4.1 The Bal Mandir Sanstha (BMS): This undertook two projects covering 30 and 62 schools. The organization's first experiment was to implement an innovative scheme of collection and separation of dry and wet garbage in a colony for a year. It achieved the objective of making community aware of the problem of garbage disposal and diseases associated with garbage disposal.

Through EOSE projects the BMS tried to reach the municipal schools, covering class I to Class V, in the villages of Nagpur district. After the selection of the schools with the help of Block Education Officer, one teacher per school was called for a 7 days workshop on environmental

education. The content of the training was to show how to impart environmental education to the students during classes. A careful observation and interaction with the students as well as local communities revealed that the teachers-educators as well as the students were not fully successful to take the knowledge gained through EE to the communities. The much-emphasized Solar-cookers, meant for environment friendly life style, turned out to be a failure as few could sit and change the direction of the solar-cookers towards the sun. Beside that it was a time consuming exercise, not suitable for the poor and marginal village people who had to go out for daily work.

The immediate environmental problems were hardly touched upon and people were not meaningfully incorporated in to the programme. This could be proved while it was reported that most of the trees planted were uprooted by the local people and only a few survived. It had also been observed that most of the Sanitation programme remained within the school premises and several of them were washed out during rainy season. As locale-specific issues the teachers were imparting few ideas on garbage disposal and management. Water crisis, water pollution and disease were the two primary issues the teachers were concerned with. It was seen that practical and demonstration is very much lacking in most of the schools.

2.4.2 Vidarbha Nature Conservation Society, Nagpur (VNCS): The organization was working in 52 villages of Chandrapur, Gadchiroli, Gondia, Bhandara and Nagpur district. Here, they had formed '*Tarun Paryavaranwadi Mandal*' (groups of youth in villages) to execute field work which included local environmental Planning and Management, sustainable use of Non-Timber Forest Produce and livelihood issues, soil and moisture conservation, Bio-diversity conservation and sustainable Agriculture and Informal Environmental Education Research and Training for the youth and other stakeholders. Besides, they were also working in the area of Joint Forest Management and the concept of Adarsh gaon in village Walni of Nagpur District.

VNCS collaborated with CEE on environment education (EE) for the year 2000-2001 under the project title "Reaching the Village Community of Pench National Park through Schools". In the programme the organization selected 12 schools near Pench National Park.

It was reported that various programmes were held in the schools to impart environmental

education to students. Through nature games, nature trails and classes on bio-diversity, students were told about their local environment and in few cases students themselves planted trees in the vicinity of their houses. Stress was also put on wildlife conservation and restoration, especially of birds.

Various programmes were conducted in different schools and care was taken to induce local environmental problem in education. For example in Hiwara Bazar, bird trade was in vogue among the local people. The organization has taken up the issue and an awareness camp was organized.

The concerned teachers' opinion was that except in few cases the community participation was very less in the programme. Thus the exposure visits were not satisfactory. There was lack of integrated approach for improvement of environment in terms of afforestation and water conservation and management of grazing lands. A few direct positive impacts of these activities could be mentioned as follows:

- i) 100% stoppage of open bird trades in Hiwara Bazar.
- ii) Plantation in school and within the premises of houses with follow-up activities.
- iii) Increased attendance in schools due to EE.
- iv) Use of latrines by local people to some extent.
- v) Formation of nature clubs of youths through which environmental awareness had been induced among the local communities.
- vi) More numbers of local people turned up during teachers-parents meeting and interest was expressed about the importance of healthy environment.

Certain problems had been traced out by the organization as well as the evaluator which could be summarized as follows:

- i) The extent of interest showed by the teachers and the headmasters of the concerned schools for EE in school was not very promising. Many a time they were not wholeheartedly ready to go beyond regular class schedules due to some constraints or so.
- ii) The teachers could not participate voluntarily in the programme. Thus for participation of teachers the help of BDO or BEO was required and this was done by issuing letters to the school and concerned teachers through them. This sort of administrative work took time.
- iii) As there was no specific schedule in regular course for EE, the teachers found it difficult to adjust the EE activities within it. The

pressure for completing the regular course was immense and teachers were hard pressed to include EE in education.

- iv) It was opined by the organization that one-year scheme of EOSE in one organization was not sufficient to bring the desired results. It could be for a longer duration and there might be assurance of sustainability.
- v) It was also felt that there was need for all the NGO's under EOSE to exchange ideas related to EE in schools after a year or at a regular interval to learn from each other.

2.5 Utilization of EE Materials in NEEP

The CEE Central office was visited and the print materials were seen and related aspects regarding the utilization, disbursement etc were discussed in detail. It was needless to say that materials developed by CEE were products of long standing discussion, review, dissemination and integration. But the extent of utilization of these books was not known.

National Environmental Education Programme (NEEP) is a centrally sponsored programme through which a cluster of NGOs operate in schools across the country to disseminate the EE materials. Though NEEP did not come under the purview of EOSE, a few clusters NGOs were conducted to assess the utilization of EE materials produced using EOSE funds. After visiting the organizations it was found that the programme was not evenly successful in all places. The underlying facts were as follows:

- a) The Grants under NEEP was not continuous and without a proper supervision by a dedicated organization success in EE activities were a remote hope.
- b) Low rate of participation of teachers in NEEP activities.
- c) Activities performed during the phase were not followed up later.
- d) The surrounding Communities and felt environmental needs were not brought within the purview of EE.
- e) Several teachers who were part of EE got transferred affecting the follow-up activities of the knowledge acquired for future course.

2.6 Conclusion on finding

- i) The CEE central seems to be not directly involved in the performance of EE programme

at schools. This is evident while they opined that they were not concerned about the fate of the EE materials produce under EOSE once it was disbursed.

- ii) The NGOs selected for the study were found to be dedicated to their objectives set by themselves. There is no doubt about their commitment level. But there were certain strategic points to be considered.

2.7 Activities of CEE East Regional Desk

CEE's East Regional Desk had its working area in the states of Orissa and West Bengal. Under the jurisdiction of CEE East Cell 16 projects had been undertaken by different voluntary agencies.

2.7.1 Workings of Cluster NGOs Implementing NEEP Activities: To assess the nature and extent of utilization of EE materials produced by different organizations using the grants under EOSE scheme a few cluster organizations were conducted under the jurisdiction of CEE East Cell. It was also worth-mentioning that some of the cluster NGOs was also receiving grants under EOSE to develop EE materials. In a cluster, an NGO works with 20-25 schools. CEE, Ahmedabad provides training, guidance and resource material support to the NGOs. In each cluster, one of the schools was made the Environmental Education Resource Centre (EERC). The NGOs conducted for the study were:

- i) Kolaghat Science and Hobby Centre, Midna-pur, West Bengal
- ii) Bhalugudi Environmental Integration Project, Jairat, Orissa
- iii) Institute for Youth and Disaster Preparedness, Khurda, Orissa
- iv) Pragati Pathagara, Ganjam, Orissa
- v) Orissa Environmental Consciousness Society, Burla, Orissa
- vi) Himalayan Nature and Adventure Foundation, Siliguri
- vii) ATREE: Eastern Himalayan Programme
- viii) Rural Research and Development Organization, Karanjia, Mayurbhanj

The following organizations were cluster organization and also utilizing EOSE grants to develop EE materials.

- i) Jalpaiguri Science and Nature Club, Jalpaiguri, West Bengal
- ii) Manav Adhikar Sewa Samiti, Sambalpur, Orissa
- iii) Centre for Awakening of Rural Environment, Ganjam, Orissa (CARE)

iv) Khuntia Institute of Social Sciences (KISS), Kamakhyanagar, Dhenkanal district, Orissa:
The summary of the feedback given by the participating NGOs regarding EE in schools were as follows:

- ★ *Lack of Locale-specific Materials in the EERC:* the teacher-in-charge of EERC mentioned that of the materials in the EERC, locale-specific materials were dismal which could otherwise have helped them to conduct the EE activities more effectively.
- ★ *Lack of Co-operation from the State Governments:* Both the NGOs and the teachers mentioned about lack of support from the local governments.
- ★ *Unavailability of Teachers for EE Activities:* Teachers involved in the EE activities were engaged in other government duties like compiling of voters' list, BPL study and examination duties. Due to this reason few NGOs were not able to conduct Teacher Training Workshops. This showed the lack of proper co-ordination and understanding of importance of EE in schools.
- ★ *Lack of Funding:* Lack of funding particularly for the monitoring purpose restricted the NGOs visit to only two to three times per school till then, as mentioned by most of the NGOs. Most of the schools were situated in remote areas and were widely dispersed making the task more difficult

For an in-depth study, few schools in the cluster system under NEEP scheme within the purview of KISS were conducted. The questions asked and the answers received from them are presented in a tabular form as follows (Table 3):

The content in the table above distinctly revealed that the EE materials produced by KISS had been distributed among the schools and the teachers concerned were utilizing them and also most of them were finding it innovative and helpful in understanding and managing a part of environment related issues. The comments of school teachers highlighted the shortage of EE materials of varied interests. They also highlight the administrative loopholes. It was felt that more stress should be put on teachers' training and monitoring. There might be well integrated approach between able NGOs and state education departments which is very much lacking at present. Needless to say that the infrastructures of schools in those areas were very poor and fund allocation for outdoor activities is almost

none. Under such circumstances the sustainability of meaningful programme became doubtful. The government departments and NGOs might sort out such problems to continue EE programme for a better future.

2.8 Activities of CEE North Regional Desk

CEE's North Regional Desk covered a geographical area including the state of Uttar Pradesh, Himachal Pradesh, Punjab, Hariyana, Jammu and Kashmir, Bihar, Jharkhand and Chandigarh. The cell had been involved in EOSE activities since the year 1989. It had undertaken several projects on EE development itself and also assisted some voluntary agencies financially to take up EE activities in concerned areas of interest.

Besides EOSE scheme, the organization was also involved in establishing Eco-Clubs. Till date it had some 36 eco-clubs in Lucknow, 25 in Chandigarh and 35 in Bihar.

The adapted and translated books were disseminated through workshops and training programmes. It had been reported that those books were well received among the teachers and various organizations working in the area of environmental education. As a move to incorporate locale specific issues the Organization had translated and adapted "Joy of Learning" into Hindi and Punjabi and 2000 copies were printed for the first time. Some 13 NGOs were involved with CEE to impart EE in schools. Each NGO had 20 schools within their ambit. Under the framework of "associated NGOs" the CEE was allowing interested NGOs to attend workshops and training programmes and they were provided with resource materials. But, these organizations were not financially supported by CEE for EE in schools.

A few NGOs receiving financial assistance through the Regional Desks were conducted for the assessment. These were

- i) *The Purvanchal Gramin Vikas Sanstha*, Lucknow, and
- ii) *Jagriti*, Lucknow,
- iii) *Dr. Divya Smarak Mahila Shiksha Evam Prashikshan Samiti*, Lucknow:

After discussion with the concerned teachers and the NGOs it was found that there is a lot to do for a sustainable and meaningful EE in schools. Some of the widely spoken problems were as follows:

- ★ The School Principals were found to be half-

Table 3: Responses of school teachers regarding the EE in schools propagated by KISS

<i>Topic of inquiry</i>	<i>Responses of teachers</i>
Any definite course on EE in schools	No definite course on EE. Some hints are given in their text book on Environment only
Usefulness of EE materials produced by KISS	1. It is very useful for the students as they can do some practical works like making compost field for demonstration in school 2. It is used as a guide book by teachers. Some students also use the same book to read.
Usefulness of EE to students	3. It helps students to identify, classify and to utilize the waste. 1. Through their observation and activities they are able to understand the relationship of man with nature. 2. students can practically do Environment related work at home 3. it is seen among student that they are habitually coming to school with neat and clean. 4. They voluntarily clean the entire school premise. 5. They also plant some seasonal plants at their own will.
Content of EE in school	6. They are interest to take part in EE competition 1. Soil erosion, Water and Air Pollution 2. Environmental awareness among the school students 3. Cleanliness and better sanitation for children 4. Plantation
Way of using the materials	1. Encourage students to see the books during leisure, 2. Inside and outside activities are done with the help of students 3. Teachers help them to observe nature 4. Arrange different competitions 5. Using as teaching materials 6. Hanging on the walls of the class rooms
Comments/suggestions	7. Using as a guide book by teachers and children 1. EE materials should be sufficient in quality and quantity, and should be in regional language 2. training should be provided properly and with a regular frequency. 3. The school syllabus should be made adjustable to include EE in regular classes. 4. There is no fund with school to carry out the programme. So some lump-sum amount should be kept for it. 5. Schools should have definite EE course 6. Public consciousness is required to save forest and strengthen it and for growth of population 7. A circular is required from the State Education department to be involved in EE activities like 8. Required TA/DA should be provided to the participating teachers 9. Frequent transfer should be stopped

hearted cooperative sending different teachers for two different programmes which were basically meant for a single teacher. And from the part of the principals it was the administrative problems of adjustment mainly rooted in shortage of manpower and lack of time.

- ★ As an institutional system the teachers couldnot be contacted personally for the training etc. One had to go through the management. This makes process lengthy and uncertain.
- ★ It was well established that in many a cases the schemes of EE in schools was not

reaching the government and rural schools. Now, it was basically limited to elite private schools in cities. In rural and Government schools, where the programme had stepped in, transfer of teachers was a major setback to the continuation and follow-up of the programme.

- ★ It was emphatically expressed by different NGOs attached with EE programme that the grants should be made available by the month of June every year to enable them to make plan well in advance and make it convenient for the schools to carry out the scheduled activities well before their

examination starts. Otherwise, it creates problems as the time-table of the year gets disturbed and teachers get less time to devote and provide EE in schools.

3. ACTIVITIES OF THE CPR ENVIRONMENTAL EDUCATION CENTRE, CHENNAI

3.1 Introduction

The CPR Environmental Education Centre (CPREEC) was appointed as the nodal agency for the EOSE Scheme in October 1993. The centre had a network of several NGOs in the states of Andhra Pradesh, Tamil Nadu, Karnataka, Orissa and Pondicherry. It also had programme for Nilgiri Bio-sphere Reserve and Andaman and Nicobar Islands.

Keeping track with the guidelines laid down by the Ministry for the nodal agencies under this scheme, the EEC had, since then, been performing the following functions:

- ★ Acting as a nodal agency for the mobilization, involvement and provision of financial support to NGOs for conducting innovative and experimental programmes in the field of environmental orientation to school education,
- ★ Acting as a resource centre for the production of locale-specific resource materials such as books, workbooks, posters, charts, models, Audio-visuals etc,
- ★ Conducting specific innovative and experimental programmes on environmental conservation for schools in specific ecosystems such as coastal areas, the Nilgiris etc,
- ★ Raising school nurseries, running plantation programmes, gardens, sustainable technologies etc. in and around schools.

To achieve the above goals the CPR EEC performed the following activities:

- i) organized an initial preliminary meeting for the participating NGOs,
- ii) conducted intensive training programmes for trainers and teachers under the participating NGOs,
- iii) thereafter conducted training programmes at each NGO venue. Each training programme included audio and video projections, practical sessions of programme planning, resource material development and a field visit,
- iv) conducted mid-programme review meets, and

- v) evaluated the success of the programme.

As a premier Environmental Education Centre, some of the activities of the organization, as informed by the concerned personnel, have been depicted as follows:

The EE activities of the organization could broadly be divided in to some activity related categories. Those were (i) training and awareness programmes, (ii) awareness through action, (iii) awareness programmes in ecologically fragile areas, (iv) exhibitions, (v) generation and production of resource materials, (vi) research projects and surveys, (vii) EOSE activities, (viii) Courses, seminars, symposia and public meetings etc.

3.2 Training and Awareness Programme

Under this broad category several activities were included:

- ★ Video on Wheel programme used a video van showing posters, screening environment related films to the students as well as to the village people of different states, along with discussion and meetings. The programme had covered 8 districts of 5 states in the south India.
- ★ Training programmes were aimed at educating and sensitizing village youth, local NGOs, teachers and farmers.

Students were integrated into training and education through various means like workshop, camps, awareness programme and exhibitions. Networking with Local NGOs also played important role among the EE activities of the organization. It had a network of nearly 400 NGOs working in this field covering a geographical area including 6 states in the region.

3.3 Awareness Through Action

Under this broad heading the following activities were done:

- ★ Conservation and restoration of Sacred Groves remained one of the strategies of the organization in conserving bio-diversity intact. Several in-situ and ex-situ activities were done by the organization in this regard. Workshops for priest groups were also performed by the organization. The NGOs were also trained to conserve and promote sacred groves,
- ★ Village programmes were conducted to spread environmental awareness among rural people. Folk lore and folk drama, ventrilo-

quism and village meetings were some of the popular means to spread the message to people,

- ★ School programmes included Slide shows, distribution of sapling, field visits competition and prizes,

3.4 Generation and Production of Resource materials

The centre worked as resource centre and published several EE related materials. These included EE manuals, books, work books, posters, journal of EE, Eco news and several other resource materials.

3.5 Courses, Seminars, Symposia and Public Meetings etc.

The organization, every year conducts seminars, symposia on environmental issues including the coastal and forest eco-system, the industrial pollution and water related issues, waste management etc.

3.6 Number of Projects Conducted

Since 1993 till 2000-2001 the centre had funded 125 projects to different NGOs.

3.7 Trainers' Training Programme

Trainers' Training programme for the project coordinators of the NGOs was conducted each year. Some of the major aspects of training were:

- i) Ecology, environment and development
- ii) bio-diversity
- iii) pollution - prevention and control
- iv) rural sanitation and control of epidemic diseases
- v) vermicomposting
- vi) planning for environmental education
- vii) incorporation of environmental education in school curriculum

Basically the training module was prepared keeping in mind the syllabi of standard VI, VII and VIII.

3.8 Preparation and Distribution of Resource Materials

The CPREEC published various books, booklets, posters and also audio visuals on

environment for use by the participating NGOs. Two training kits, three books, four series of posters and two hand outs were developed by the CPREEC.

3.9 Teachers' Training Programme at the Project Areas

A Model Teachers' Training Programme was usually conducted by the CPREEC's staff for the participating NGOs at their venues. After that the concerned NGOs conduct teachers' training of their own. It was observed that usually the individual NGO targets 5 teachers' training programmes each year.

3.10 Innovative Programmes

The participating NGOs were expected to do some sort of innovative work in EE in schools. Under innovative programme the NGOs performed Environmental notice board, Exhibition, Computer-aided dissection floppy, Exhibition of reptiles, Exhibition on Wealth from Waste, Medicinal Garden, establishment of cultural troupes in schools to promote environmental awareness, Puppetry workshops for Environment education, Vermicomposting and Schools gardens, Tree plantation etc.

As a part of innovative programmes the live demonstration of reptiles were conducted by Chennai Snake Park Trust. It was learnt that these demonstrations were very effective in eliminating the students' fear and conceived myths about the reptiles. The Blue Cross of India gave out computer-aided dissection floppy to schools helping avoiding reckless killing of animals for mere purpose of study.

3.11 Information from NGOs and Schools

Twelve NGOs working on environmental education programme and utilizing the funds from EOSE scheme were conducted for data collection. The response of these NGOs incorporated in this paper. These 12 NGOs were TASA, Indian blue-Cross, SEEDS, SEVA Bharathi, SCHWEP, Mother India, Social Service Society for Poor People, Native Medicine and Environmental Protection Charitable Trust, Movement, VIDIYAL, CENTREDA and ECHO Trust.

The NGOs' points of view on environmental concern of their area were cited as water crisis,

tree felling and denudation, air and water pollution by factories (ground nuts and Brick) soil erosion etc. Most of them pointed out that environmental degradation was development induced one. The NGOs had been using different strategies to involve local people to arrest environmental degradation and make people aware of it. Special attention had been paid on safe sanitation, plantation and maintenance, rallies on afforestation and plantation and pollution control etc. Regarding water availability and safe drinking water, the NGOs were involved in awareness building about water pollution, contamination by different means, water conservation and management. The NGOs mentions that due to rapid growth of industries, vehicular traffic air and water bodies were getting contaminated. Chemical use in agro and other industries leading to contamination of ground water bodies.

The most common constraints faced by the NGOs in imparting environmental education in schools was the non receipt of timely permission from education department for teacher training and environmental education activities. For some, it was the lack of proper infrastructure and equipments.

Some schools were conducted for data on impact and implementation of environmental education in schools under EOSE scheme. It was found that the immediate environmental problems and issues incorporating in EE classes encompasses impact of deforestation, desertification, air-pollution, soil erosion, water stagnation, water shortage, industrial wastes and water contamination, smoke from fire wood in kitchen etc.

4. ACTIVITIES OF UTTARAKHAND SEVA NIDHI UNDER EOSE SCHEME

4.1 Introduction

The Uttarakhand Seva Nidhi was a public charitable trust founded in 1967. In 1987 it was appointed a nodal agency by the Department of Education, Ministry of Human Resource Development, Government of India, to undertake locale-specific environmental education programs both in rural schools and villages in the hill district of Uttar Pradesh, now Uttarakhand. Subsequently, a research and resource centre, the Uttarakhand Environmental Education Centre (UEEC), was set up in 1993. Considering the growing nature of activities, a separate organi-

zation, the Uttarakhand Seva Nidhi Paryavaran Siksha Sansthan (USNPSS), a registered society, was set up in 1999 to handle all the environmental activities of the Nidhi.

The organization supports the educational activities or rural schools, NGOs and community based organizations throughout the Uttarakhand. This support takes the form of training programs, discussion meetings, supply of teaching/learning materials, village and school visits for on the spot guidance and problem solving, honoraria of pre-school teachers and small project grants.

4.2 The Background of the Activities

The entire area is a fragile ecological zone where human activities cause extensive land degradation in the form of deforestation and soil erosion, if not carried out in an environmentally sound manner which ultimately give rise to problems like water scarcity, falling crop yield, fuel-wood and fodder scarcity, drudgery for women and children, poor nutrition and the forced migration for men and young generation for employment.

Here in Uttarakhand, village forest comprises a major part of the total village land area, and is shared by the entire community. Livelihood resources were very much dependent on these forest lands. As a result of colonial forest policy and now, post independent modernization and development activities had weakened the village community in terms of land and forest management, its regeneration and proper exploitation. The organization's aim is to help village communities, particularly the women, organize to tackle the land degradation and the problems that arise from it.

An environmental education course, focusing on village land rehabilitation and sustainable management, had been designed and introduced into the regular school curriculum in class 6, 7 and 8 with the cooperation of the state Department of Education. The course reflects the environmental and livelihood issues that had been raised by women's groups in the area. Local community participation in the activities of the course is a specific feature. The organization also train the in-service teachers for the course, supply workbooks and tools to the students, and undertake school visits to give on the spot guidance and evaluate progress.

The organization also supports several NGOs to run pre-school centres, the Balwadis, in villages and also to conduct other related environmental friendly activities. Women groups had been formed under the supervision of the local NGOs and lots of activities related to environmental issues were in progress in the entire state.

4.3 The General Achievement Trend

A careful observation showed that the Uttarakhand Seva Nidhi had been able to register its achievements in two broad spheres of its activities:

- i) *Environmental education in formal school system as a separate subject, and*
- ii) *sustainable community participation and development centering round Environmental education and environmental awareness activities.*

4.4 The EE Course in Formal Schools

Till the year 2000, the basic activities undertaken by the organization are as follows:

- ★ Introduction of Locale-specific curricula in formal school system
- ★ A holistic approach to environmental education and awareness building by incorporating the immediate community in every sphere of its activities.
- ★ Inclusion of outdoor inquiry-based practical orientation to environmental education in schools and pre-primary education centers relevant to the immediate environmental situation of the children concerned.

4.4.1 Requirement of Skills in the Course

The course on village ecosystem rehabilitation and sustainable management required a range of new skills along with a new set of concepts. The course content tried to impart these through the following ways:

a) *Methods of Data Collection and Interpretation:* this includes the application of known mathematical concepts and operations to a new area of activity. Data interpretation included an ecosystem analysis which was done by quantifying the basic components of an ecosystem: the land areas, population size, productivity etc.

b) *Accumulation of Ideas about Traditional*

Management Practices from Villagers: The underlying principles of traditional practices were evaluated on the basis of present day scientific knowledge drawn from other subjects, within the framework of ecological concepts.

c) *Methods of Support-area Rehabilitation:* these included walling, gully-plugging, tree plantation and care and production of tree seedlings.

d) *Tree Management for Fodder, Fuel-wood and Stem-wood Production:* It was shown how far careful and planned and scientific exploitation of these resources could increase potential sustainability and productivity.

e) Formulation of comprehensive and detailed village support-area rehabilitation plan. Including a village water management plan.

f) Organizing and conducting village meetings to discuss and finalize draft plans.

g) The course encompasses methods of building irrigation tanks, fuel-efficient *chulhas*, sanitation facilities, composting and feeding managers. Though the students do not build these as a matter of course, their teacher could take them up as extra-curricular activities.

4.4.2 Operationalizing of the Course

In Uttarakhand a slot for the course had been found at the middle school level (grades 6, 7 and 8) in the optional list of subjects. Schools/intermediate colleges were selected for the programme by the USNPSS and the District Inspector of Schools on the basis of interest shown in the course by a teacher of the schools/college or the principal.

A teacher from a selected school/college was given an initial training by the USNPSS. This consisted of a general orientation plus specific training for the sixth grade component of the course. The same teacher comes back at the beginning of each subsequent academic year for two further years for training in the 7th and 8th grade components of the course. As the number of grades of the course at a given school/college increased from one to three, a second teacher was also trained. Teacher training courses were of 5 days duration. One-day orientation meetings were held for principals and for Education Department officials and supervisory staff. Copies of student workbooks and teachers' manuals were supplied free of cost of participating schools/colleges, as well as a set of tools and

instruments required for the practical work.

It had been observed that visits were made by USNPSS staff to participating schools/colleges during the school year to monitor progress, help sort out problems and clear up doubts teachers might had. One or two one-day meetings of teachers with the project staffs were held during the school year to discuss progress and solve problems that had arisen.

Examination papers were sent out for half-yearly and annual examinations for each class, and the answer books, after being marked by the teachers themselves, were sent in for evaluation by project staff.

As the course designed, a village was seen as a laboratory for students to experiment with and learn from the community. As per statement made by school teachers and concerned villagers it had been revealed that over the years, there had been improvement in the quality of teaching. Teachers were taking children to the study village and interacting with the communities. The study reveals that Almost 1/5th of the schools were regularly visiting the study village whereas half of the schools were doing some of their exercises in the village and completing other works in the schools. Eighteen percent of the schools were confined to school exercises only whereas 11 percent of the schools did not do anything of that kind. Interviews and questionnaires were used to assess the teachers' awareness and attitudes towards Environmental Education in schools. Among them some were trained teachers undergone three times training for EE whereas some were trained once or not at all trained. There was a significant difference in awareness and attitudes regarding EE among these two groups of teachers. This comes from the memory of trained teachers that while untrained a teacher visualize EE as a less important subject in terms of future career development and academic achievement. For them, EE was about tree plantation, wildlife protection, and such distant and abstract problems as air pollution in cities and global warming. Thus they were initially surprised to learn that the course was about rural livelihoods and it was all about helping a majority of students to provide them the knowledge and skills necessary to achieving at least a modest standard of living in the village.

The ideological change among the teachers before and after training in EE could be depicted in figure 1.

4.5 The *Balwadi* and its Significance in Uttarakhand

4.5.1 *Balwadis: the pre-Primary Centres*

One of the primary achievements of UKSN in terms of environmental education in the region was the establishment and smooth running of *Balwadis*. This very institution had created several positive consequences towards the betterment of people of this hilly area, specifically the children and women — their life ways and confidence building process. Responding the interest of the mothers (adults) who wanted the NGO to do something for their children instead of trying the adults' live, two *Balwadis* were started in 1987. That was the beginning of a remarkable event in the area.

The importance of *Balwadi* lies in the very specific life-ways of the people of Uttarakhand. Besides being situated in steep mountain ranges, the villagers had been facing problems due to deforestation, soil erosion, leading to fast disappearing of fuel and fodder. The adverse geographical condition of the area, rapid urbanization, opening up of tourism industry etc had attracted the village male folk to come out of traditional livelihood domain and rush towards urban areas. This had significant influences on villages' economic scenario as the staying back female members had to take the burden to run the family. The famous saying of the people here in Uttaranchal "*pahar ki pani aur pahar ki jawani pahar ke liye nahi*" (water and youths of hills are not for hills) reveals the untold tragedy of the women of the area. It was well known that the very economy of Uttaranchal was known as "money order economy" as most of the male person stays out and send money order to their families in lieu of their physical presence.

In such a situation caring and caring of children, producing consumables, collecting fuel and fodder from far away places becomes an official assignment for village women. The forest had been fast reducing and so also the lifeline — the fuel wood and fodder. Women now had to go to far away places on foot to collect their daily requirements spending half a day or more. What happens to the small children leaving behind at home? No wonder, the usual practice was to tie the child with a rope on its feet and tie it to a pole of house — the way people use to tie a domestic animal. Sometime the child was kept inside a

basket-like place till its mother comes back from a day's work. The child was exposed to all kinds of hazards till then.

Introduction of Balwadi in these areas had been hailed as a boon for the children and the mothers as the mother now could keep their children there with assured care and hygiene and also quality knowledge. The *Balwadi* runs for four hours a day. In these four hours, through

being given the freedom to play and explore uninhibitedly, the children learn about the world around them. A special emphasis was given to environment, helping the children to relate to their immediate surroundings. As the children learn through play, a searching and questioning mentality was induced through this openness.

Though initially the idea of Balwadis was an imported one, at present the very existence of the

Areas for assessment	Situation before training	Situation after training
Hope for better future	No definite ideas on outcome from the subject they taught in schools	Positive hope from EE in schools for better living within traditional village settings
Community participation in EE in schools	Usually perceived education as classroom issue away from community life	Strong feelings for positive community participation in EE in schools for its sustainability and building an integrated future oriented programme
Problems faced by villages at present	Poor roads and transportation, unemployment, health care and lack of educational facilities	Added the dimension of man made environmental degradation leading to deteriorated life support components--- fuel, wood, fodder and water
Relation between village forest and spring flow	No definite or proper ideas about interrelationship between forest (trees) and water conservation and spring flow	Definite ideas on the necessity of regeneration of forest and improvement of preservation of ground water and subsequent increase in spring flows
Means for higher yield in cultivation	Use of Chemical fertilizer, irrigation, new crop varieties and use of machineries	Clear about non-suitability of such means in steep hilly areas and emphasizing on development of support areas and bio-fertilizers etc within the village
Means of development of villages/rural areas	Setting up industries by government, computer training etc	Community involvement in planned village management of support area and related resources increasing self sufficiency
Conviction on outcome of EE	Non, think it as unimportant subject, not much help for future career and academic life	A larger part of them are highly ambitious about the positive outcome whereas, some still think that EE in education alone cannot bring changes as the problem has many faces deeply rooted into our present-day political and social environment

institution was a community decision. It was not just like a baby sitting place. Through certain aspects of its operation, it draws the village together into a cohesive and active community. This was visible from the very set-up of the *Balwadi*. It was started in villages where it was asked for. In addition, the place where the *Balwadi* will run was decided upon and organized by the villagers themselves. The villagers and local NGO also choose whom they want as the *Balwadi shikshika* (teacher), a girl usually above 18 years old. The village women decide the daily timings of the *Balwadi* in accordance with their seasonal workload. The general overseeing of the *Balwadi* was done entirely at the local level. This results in a strong sense of responsibility towards the *Balwadi* among the villagers. This very nature of community involvement was a unique one in the sense that the sense of necessity come from within and concept of belonging was well present. At the time of the study there were 355 *Balwadis* with 6529 students, 421 teachers and 39 supervisors.

The role of *Balwadi shikshika* (teacher) was very important as she was the primary source for the village women to be exposed for new ideas, strategies for the betterment of their life-ways in several important spheres. These dedicated girls were further trained and helped by the *Margdarshikas*. The *Balwadi shikshika* holds regular meetings with mothers, showing them their children's work and outlining their progress. In many villages, the mother of the child brought a little *gurh* (jaggery) to distribute to the other children and women on the occasion. It becomes an event, an opportunity to assemble and the sense of community was intensified. In this manner, *Mahila Mangal Dals* or Women's Groups were formed. The *Balwadi's* role in creating these Women's Groups was easily discernable: the interest in their children's education securing them as a strong entity, with the ability to do great work.

4.5.2 Effect of the *Balwadi* on Children

The *Balwadi* curriculum was firmly founded in the idea of learning through play, which recognized to be the most efficient way of promoting a child's eagerness and interest in learning at the pre-school age. *Bhav-geets* (songs accompanied by expressions) were also an important means of allowing children to express themselves. Children ceased to be inhibited, their

enjoyment furthering their desire to learn more *bhav-geets*. Working with soil was an important *balkarya* (practical). The importance of these children working with mud was invaluable – it meant that from a young age a link was made between their soil and themselves: soil that was the centre of the agrarian life.

Paryavaran or environment was the most important topic included in the *Balwadi* syllabus, and one which was integrated into every aspect of the course. The acute urban migration from Himalayan villages was a reminder of the issue that people were dissatisfied with their agrarian life. This had led to immense contradictions being embedded amongst the people. '*parhe-likhe log mitti mein hath nahin dalte*' (educated people do not put their hands in mud) was a refrain well versed in the villages. Thus, from a young age children were taught not to get their hands dirty in mud. This was especially true for the male, for whom a job in the city was vital if he was to be considered a success. This had resulted in a generation of youth with a condescending attitude to their soil. By emphasizing the value of *Paryavaran* in the curriculum, the organization was trying to bridge the gap between land and life — to instill in children from a young age a love and respects to their surroundings. *Bhav-geets* and stories even games taught the children and help them relate to their environment. The songs and stories were not simply about trees, but animals, the seasons, the growth and cycle of crops, and their own health/cleanliness amongst other things. Many games and *balkaryas* addressed similar themes.

Naashta (breakfast) was an important aspect of the *Balwadi* curriculum. Children brought their own food from home. Often children simply brought *roti* (unleavened bread) with *gurh* (jaggery). However, it was the *shikshika's* continuous effort to convince parents to send more nutritious food making the change in them. In several *Balwadis*, the *shikshika's* effort had been rewarded and children brought vegetables with their *roties*. A significant attitudinal change was also noted, where the village women had actually begun to grow different varieties of vegetables.

There was also great social significance in children bringing their own *naashta* and sitting together to eat: *the loosening of caste divisions*. The *shikshika*, the *margdarshika* and the local NGO invested considerable effort to counter caste barriers. The necessity of *naashta* was

bought up in *Abhibhavak Goshthis* and reiterated constantly.

In the meetings of the NGO personnel and in the training session for *Margdarshikas* and *shikshikas*, it was highly emphasized that there was marked difference in the attitude and behavior between children attending Balwadis and those not attending it. The children from Balwadis were more disciplined, well versed and assertive, constructive and they do very well in primary and upper levels of their study. There was huge demand to continue these programs in primary standards also as there appear a gap between Balwadi and Middle school standards in environmental education.

4.5.3 Mahila Mangal Dals (MMD)

Formation of Mahila Mangal Dals was one of the direct positive impacts of Balwadis. The village women silent and non-assertive as a single entity, gathers momentum of expression about their problems and hard life while forming a group. The informal discussion at Balwadis while taking back their children home many a time led to an organized form of entity - the MMD. Thus they addressed the very basic things of their lives in the meetings. The *Balwadi shikshika*, and Local NGO provide the *Mahila Mangal Dal* with support at the beginning, by coordinating discussions and meetings and as the *Mahila Mangal Dal* becomes stronger, the *shikshika* and local NGO cease to play an important role.

Out of operating areas of 125 assessed Balwadis there were 104 MMDs formed after it. These MMDs were working on several issues where the Balwadi *shikshikas* and *Margdarshikas* had direct bearings.

Severe deforestation and degradation of the land had created an extreme shortage of fuel-wood and fodder. This issue was one that had been raised in *Mahila Mangal Dal* meetings throughout Uttarakhand. As a result, determined action had been taken – not only the plantation of trees, but also the protection of the jungle, which requires long-term perseverance. Cleaning the village paths and springs was another responsibility that many *Mahila Mangal Dals* had undertaken. Collectively organizing and cleaning the village on a regular basis had also resulted in instances of disease and illness diminishing. Likewise construction of toilets and building awareness among people was also primary

concern of the MMDs. In this manner, *Mahila Mangal Dals* took steps for betterment of their lives in the village in one or the other way. According to their varying circumstances, these women had embarked on many different tasks.

It was quite evident that the NGOs had created a space for the women in society and through this platform, they organize themselves, make their voice heard and take up activities for self development as well improvement in the quality of life in rural areas. It was evident that in rural development work, men and women had different needs and aspirations. Women felt that formation of a group had given them status, pride and confidence to talk and most important was the fact that the group was socially acceptable and provides a forum in which people make themselves accountable to each other. It was however cautioned that inadequate training and follow-ups, money, village politics and inability of women to cope with certain situations could harm the growth of women's groups. Thus the UEEC had provided a meaningful guidance to MMDs in the state through training and workshops.

Besides these the NGOs were involved in improving sanitation, nursery raising and plantation and water source management in the villages.

The chained interaction and effectiveness of Balwadis and its subsequent impacts were shown in figure 2.

The diagram above tries to establish the effectiveness of simple activities through an institution called Balwadis in Uttarakhand. It was worth-mentioning that environment and women had critical relationship in terms of development and livelihood. It was evident that at national and international level lots of work had been initiated and innumerable amount of money had been spent in the name of betterment of environment and gender. Compared to the achievement of those big ways the UKSN's efforts seems to be cost effective and efficient. Their effective way of involving people at grass roots level in the process of making life better and making the people feel and act for own betterment had been gaining positive results.

5. CONCLUSION

It was seen from the discussion that the UKSN had been successful to a great extent in

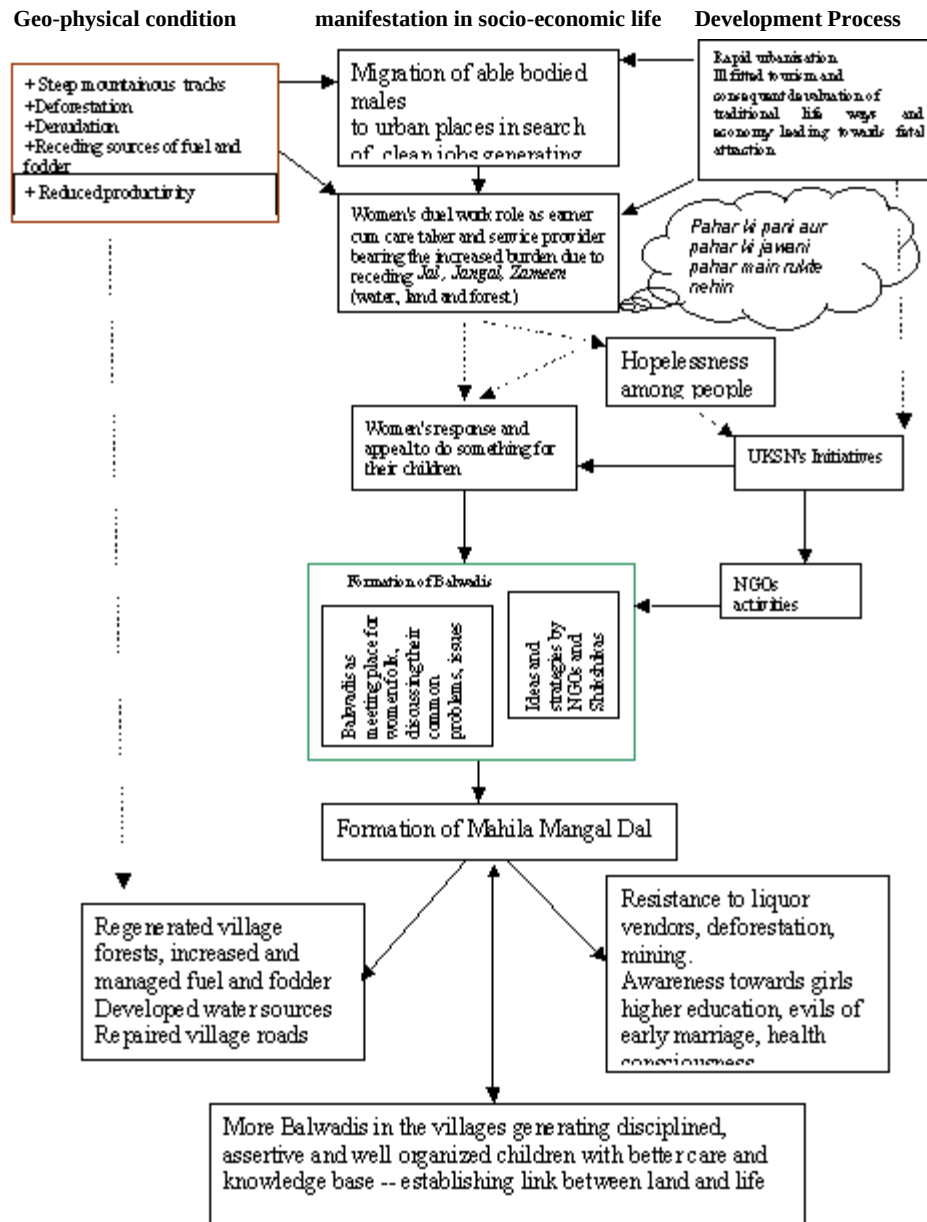


Fig. 2. The chained interaction and effectiveness of Balwadis in Environmental activities and Community Development.

imparting Environmental Education in schools as well as among the communities. The course on EE developed by the centre was intimately related to the life-supporting natural environment of the region. The students of different standards were

given the very basic ideas of their land, plants, animals and utility and production capacity in a very simplistic manner. It was also found that the students were very much adept with such kind of information. As has been mentioned by various

authors, the immediate environmental concerns that are related to day-to-day life of the concerned population should be the core of EE. The Centre has taken into account these issues in the course. The involvement of surrounding communities in the framework of EE in schools was seen fruitful in most of the cases which was one of the strategies of the centre. Nevertheless, the study reveals certain strategic constraints of the EE course prevalent in the schools.

The grades/marks obtained in EE class were not counted in final examination and it was found that due to this reason the course was not taken seriously in some schools. But there was no sufficient number of monitoring team across the region to monitor the progress of the course. Given the prevailing geo-physical condition of the region, the strength of monitoring team might be increased. The course defined some concepts based on practical aspects of EE which could be observed in the field. But some of such observable entities like "support areas" etc was hard to develop in practice. There were model villages where the students could see the positive outcome of sustainable development. But these villages were scanty. Another technical aspect was the availability of land and related resources to start up such activities. It has been stated elsewhere in this writing how the training on EE has made most of the teachers concerned towards meaningful environmental education in schools as well as at community level. It was felt that there was more scope for discussion oriented programmes creating a platform for exchange of ideas, constraints among EE teachers in running the course. It was also found that in some areas the interaction between EE teachers and the surrounding villagers were not up to the mark. As the active cooperation of village communities was a primary need for the success of EE in schools, there might be some sort of arrangements to increase the cordial relation and cooperation.

The need and importance of well-integrated network of women's groups at different levels of society was felt from the fact that the environment and women's life was very much related to each other. The effect of denudation and plantation of non-traditional trees has been surfaced in a deeper way in the region. Women were seen quite active in environmental concerns. They have started to raise their issues and some local level organizations have helped them to organize in groups. Thus it was felt that the NGOs should be more

innovative in terms of utilization, management and regeneration of livelihood resources. There should be a holistic approach to promote the market for village level agricultural and cottage industry products for economic development of village people.

The evaluation of activities of CPREEC made it clear that the centre has taken up several aspects of environmental concerns in their EE programme. It was seen there were regional variation within the areas covered by the centre. Thus the immediate environmental concerns were also different in those places. There was a tendency among the NGOs involved in EE to depict environmental concerns as imbibed from the CPREEC in training that they attended, irrespective of regional variation in environment. This had definite bearing on selection of locale-specific EE in schools, which was the primary concern of EOSE Programme. Several authors have put their emphasis on identifying the locale-specific environmental concerns while taking initiatives in EE in schools. The study also revealed that the NGOs involve in one aspect of EE in one year and its duration is for one year. In terms of sustainability of such programme this is a very short duration and this resulted in failure of the programme in making long time impression on target population. It was also revealed that many primary environmental concerns specific to a particular area were not included in their programme. Issues like water conservation and different ways of water management, sanitation and health aspects did not find place in many of the NGO's programme lists. There were no model laboratory (model village or area) for the students to get firsthand practical idea about such issues. There was hardly any link found among the schools, the concerned NGOs and the surrounding communities in terms of EE had to be made primary concern of the NGOs' agenda in one way or the other. It was also found that different NGOs take up different issues for every year and there was no uniformity in standards of EE in schools.

Considering the situation it was felt that intensive training for teachers, imbibing some core locale-specific ideas and, imposing some sorts of accountability on them would help EE in school proceed in its right direction. There was need to address the issue of co-ordination between State Education Department and NGOs' working regarding EE in schools. The most important task required to do by CPREEC was to

formulate a master-plan for its working areas indicating.

- ★ locale-specific environmental concern of each specific area,
- ★ probable remedial activities,
- ★ formulating specified area wise teaching and learning materials based on the plan,
- ★ establishing a network of EE teachers and a common platform for them to exchange ideas and required skill formation.
- ★ Formulate plan for capacity building among teachers and to develop sustainable motivation for continuation of programme after the NGO ceases to work.
- ★ Establishing a meaningful cooperation between EE teachers (Schools) and surrounding community domain,
- ★ Intensive interaction with state education department in formulating EE for schools harmonizing it with other regular courses.

The most wide spread and well equipped among the three nodal agencies was the Centre for Environment Education (CEE). CEE was quite successful in bringing out EE resource materials acceptable in almost entire country along with several locale-specific print materials and training modules etc suitably developed to local and regional level use for EE. But the utilization of such materials by target groups was far from satisfaction. Its administrative coverage was wide whereas, coverage of implementation of programme through which the resource materials could be used was not well established. Despite the fact that a good many of the associated NGOs had been showing efficient implementation of projects, given the vastness of the target groups and limited tenure of grants for projects, the activities were so far unable to show desired effect up to satisfaction.

The points mentioned above give rise to a requirement of a strategic plan formulation for further improvement of EE in schools. Given the understanding that the CEE had developed enough of materials related to Environmental awareness and education, methodology of teacher learning, training and experimental kits etc, now there was need to formulate an "Environmental Cluster Map" of its covered areas. This may be done by collecting data on common and unique feature of "Environment Unit" categorized on the basis of some selected criteria. Then data on locale-specific environmental concerns of those areas could be collected

and analyzed. Using the advanced interpretive technique, similar areas could be identified and, keeping the current standard of school syllabus in mind the EE materials could be developed. While common chapters may be meant for a wider area, locale-specific items may be supplemented to those EE materials.

The Role of NGOs may be of Two Folds

First, after getting information on specific local characters, the NGOs may be asked to develop relevant materials giving them some standard guidelines regarding the specific characteristic features of the particular area. Secondly, the NGOs might take the responsibility of intensive training to teachers and monitoring of activities on EE. CEE may form a network of locale NGOs in its working areas with a common agenda to make local communities environmental conscious and cooperative towards EE activities in schools near to them. The monitoring and follow-up activities might be controlled by a centralized team at different administrative levels.

By now, the EE has become a regular subject in formal school system in the country. But there is doubt as how far the locale-specific materials have been included in the respective syllabus. Lakhs of rupees have been spent so far on EOSE and a good deal of information and techniques have been accumulated. A logical and meaningful inclusion of those resources can make EE even better and successful in the country.

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