Environmental Education

Some Experiences from India

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This Series is an attempt to present the thinking behind, experiences of and learnings from CEE’s programmes and projects. The papers in this Series also mark important milestones in the developments in the field of Environmental Education (EE) and Education for Sustainable Development (ESD).

The papers in this Series were written and presented by colleagues at various seminars, conferences, publications, etc. The papers are reprinted in the same format in which they were presented. Thus, they represent the context and thinking of the time when they were written or presented.
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EE: Challenge for India
India, a country with the seventh largest landmass in the world, is a land of ancient traditions. With over a billion people and at least 17 major languages, the diversity of India in terms of culture and biological wealth is enormous. In spite of rapidly changing lifestyles, the traditions of living in harmony with nature and of environmentally sound practices underpin the lives of most people. It is against this backdrop that the country's EE strategy has been evolved. The Constitution of India explicitly makes environmental conservation a duty. The Central Government and all states within India now have a Ministry or Department of Environment. Education departments recognize EE as an essential part of education. The law courts of the country have been sympathetic to environmental causes. India has a very large number of very active NGOs who are involved in a variety of activities from policy analysis to school programs; from participatory natural resources management to activism.

India continues to be rich in its biodiversity. Agricultural revolution has ensured that food-grain production has not just kept pace with the population increase, but has rather grown faster. With better nutrition and health care, the life expectancy has gone up by almost 3 times since the independence. The per capita income has grown almost 45 times during this period.
But the environment in India faces several challenges too. With poverty and low literacy levels, over 650,000 primary schools and rapidly increasing population, the development and environmental challenges are enormous. India has made considerable strides in slowing down its population growth. But with all efforts, India's annual population increase is equal to the population of Australia. With about 16 per cent of the world population and a little over 2 per cent of its land, there is already enormous pressure on our resources. But while the population increase puts pressure on resources, the pressure of 'development' is perhaps even greater.

The Role of Environmental Education in the Indian Context

Thus there are many challenges for environmental educators in India. Apart from the obvious ones of helping strengthen environmental management and conservation, one of the important ones is to bring about awareness of the need that the country develops in less wasteful ways than is the current paradigm. EE is one of the tools that can help India achieve this goal. There are considerable initiatives in EE in India today. There are also several challenges. Some of these are:

- The challenge, in a large and diverse country, to find the right blend between centralized and de-centralized efforts and approaches
- The challenge of reaching out to large numbers cost-effectively
- The challenge of making environmental considerations relevant and meaningful to various groups
- The challenge of putting EE on the agenda of educational decision makers
- The challenge of putting sustainable development concerns high on the agenda of policy makers, and
- Finding and developing human and financial resources for EE

This paper, through a few case examples, attempts to reflect the kind of environmental challenges India faces, and the wide and rich variety of EE efforts that have been initiated in the country, and also tries to analyze what has worked and why, or for that matter even
Appreciation and concern for the environment are values that need to be inculcated during the early years of development. And thus EE for children and youth becomes an integral and important part of the EE strategy of any country. India, a land of diversity ecological, biogeographical, cultural, social requires efforts which are rooted in the local context, which present a picture to which the child relates, can provide solutions of which the child can be a part. The first case of this paper highlights one such pioneering effort.

1. Tailoring Education to the Context

Almora: Where Nature Bestows its Beauty
Uttaranchal, the 27th state of the Republic of India, is blessed with magnificent glaciers and majestic rivers. In this state of mountains and rivers is situated the Uttarakhand region comprising eight hill districts of the state Uttarkashi, Dehradun, Tehri, Chamoli, Pauri, Almora, Nainital and Pitorgarh.

Famous for its rich cultural heritage, fairs and festivals, and magnificent wildlife, Uttarakhand constitutes a unique and fragile ecosystem. The region represents a transition between the drier west Himalayas and the moist east Himalayas, and is home to unique flora and faunathe Himalayan Tahr, Himalayan Mouse Hare, Musk Deer, Snow Cock, Civet Cat and a number of pheasants, like the Monal Pheasant, Chir Pheasant, and White-crested Khalij. The mighty Ganges and several other important rivers of India originate here. The area, with few developmental pressures, has been declared as the Uttarakhand Biosphere Reserve. The exotic Valley of Flowers (a National Park) is part of the Biosphere Reserve.

Standing at a height of 1638m, in this picturesque region of Uttarakhand, is the district of Almora the district for which once Gandhiji said, "In these hills, nature's hospitality eclipses all men can ever do. The enchanting beauty of Himalayas, their bracing climate and soothing green that envelopes you leaves nothing more to be desired. I wonder whether the scenery of these hills and the climate
are to be surpassed, if equaled by any beauty spots of the world. After having been nearly three weeks in Almora Hills, I am more than ever amazed why our people need go to Europe in search of health."

**Can Almora Take It?**

While not too many developmental activities have yet happened in the region, population pressures (human and cattle) and changing lifestyles pose a threat to the delicate balance of this sub-alpine forest ecosystem. The results of overgrazing and the slow but real change of lifestyles are slowly becoming visible. Several hillocks have become barren, with no trees or greenery left. Landslides too have become more frequent. Human-animal conflicts are also being reported.

**Our Land, Our Life: The Genesis of a New Idea**

The National Policy on Education (1986) of India states that protection of environment is a value which, along with certain other values, must form an integral part of the curriculum at all stages of education. India, like several other countries has taken the route of infusion of concepts and information about the environment into existing subjects/courses beyond the primary school level. It is recognized that the creation of awareness is only the first step in what must be a much more comprehensive EE process. But it is not often possible, through a school environmental program to bring in linkages of the environment with economic and political determinants of the problems, with people's livelihood, or to develop practical skills that will enable students to effectively tackle these problems.

Another challenge is how to make EE effective and locale-specific. Generally within a state, one set of syllabi and textbooks are used, though environmental conditions and environmental concerns vary from one region of the state to the other. Since environmental concerns are locale-specific, and therefore do not admit of global solutions, it is necessary to supplement the efforts at national and state levels with a more intensive locale-specific effort.

'Our Land, Our Life' is an experiment for developing and testing a separate course of EE that focuses on the local livelihood aspects of environmental problems, and on developing practical skills for
solving them. The experiment is being carried out in the state of Uttarakhand by the Uttarakhand Seva Nidhi Environmental Education Center (USNEEC), Almora, with support from the Ministry of Human Resource Development, Government of India and the Department of Education, Uttarakhand.

The course, originally designed in 1987, and subsequently revised several times in the light of experience, is currently running in 550 government schools in the state in Classes 6-8 (age groups 12-14). In the year 2001, the Uttarakhand Government has taken a decision to introduce this course in all the schools and intermediate colleges in the state, and gradually to extend it to Classes 9 to 12.

This Course addresses land degradation (deforestation and soil erosion), the chief environmental problem of the state, as well as other problems arising out of village land degradation, i.e. water scarcity, falling crop yields, fuelwood and fodder scarcity, drudgery for women and girls, and the forced migration of men and boys for employment. The course meets the objective of local relevance and focuses on immediate issues of well-being and livelihoods. The local community is involved in the course. Skill development is emphasized through practical work. Whereas an infusion approach seeks to give an environmental orientation to the subject matter of conventional school disciplines, the course approach, as formulated by the USNEEC, draws concepts and knowledge from these disciplines, and brings them to bear on the solution of local environmental/livelihood problems.

The Course Design

The course is designed for Classes 6 to 8. It consists of 36 practical exercises in all. The broad subject-matter themes of these are: land, soil, water, trees, crops, compost, animals, fodder, fuelwood, people and the village ecosystem of which all these form parts of. The exercises are set forth in three workbooks. The objective of each exercise is stated and the methodology to be employed is explained. Spaces are provided for answering questions, doing calculations, making diagrams, maps and notes. Most exercises are accompanied by theory lessons that explain the concepts and procedures needed to do the exercises meaningfully. Students generate their own data for
the most part, but some supplementary data is also given in various theory lessons where there is a need to make a concept clear or make it possible for the students to complete an exercise.

The set of three workbooks is accompanied by a Teacher's Manual. This sets forth the rationale of the course, its objectives, the concepts to be highlighted each year, and suggestions for carrying out the various exercises.

The Course is designed to require five short periods (40 minutes each) per week and one long period (3 hours per month). About half the long periods are spent in nearby study villages making measurements and observations, and talking to residents. The unique features of the course are briefly described below.

*Locale specificity and relevance:* The Course is designed so that it is practical in nature, locale-specific, and promotes a holistic understanding of the Uttarakhand village environment, as Uttarakhand is primarily rural. The strength of the program is the linkages it establishes between the daily life and activities of the students, and their environment.

*Holistic approach:* The students are encouraged to treat the village as a single ecosystem and are taught how to manage this system for maximum productivity. The course content is designed and treated in a manner so as to communicate the concept of ecosystem and other derived concepts like ecosystem evolution, equilibrium, degradation, sustainability, carrying capacity and a number of other critical ecological concepts. But all this is communicated without losing the focus on the village ecosystem. Larger ecosystems are then explained in connection to and in relation to the local village system.

*Awareness and action:* Another strength of the course is its focus on both awareness and action. The course ultimately aims to prepare the children to be effective future managers of the rural environment. The Course has a major component of practical work. This ensures that knowledge gained is applied and practiced. The EE Course culminates in comprehensive afforestation and irrigation plans made by the students, which can be implemented by
the residents of the study village.

Support for teachers: Sustainability of the program depends on its acceptance by teachers and their ability to deliver the course effectively. Teacher training is thus a priority within the initiative. Five-day camps are held from time to time for training teachers. There is also a manual for teachers. To enable them to guide students in the practical work, self-explanatory and self-contained workbooks are also provided.

**Major Outcomes and Lesson Learned**

- The course was initiated on a trial basis in about 40 selected schools. Today, over 500 schools are a part of the program.
- The State Department of Education has made the course compulsory for all government schools in the state.
- The course has been allotted a separate period and is being evaluated too. The status of a separate subject helps the course being taken seriously by teachers and students and ensures a sharp focus on relevant issues.
- Over the years, UKSN activities have grown from an exclusive school-based initiative to other relevant community based programs for women and children. With this, associated changes are also taking place, like women taking charge of community property resource management.

A major lesson learned is that to design an effective course for any particular region, the main problems of that region must be identified and understood. The study of national and global problems alone will not be meaningful to students. It is important to focus on the problems that are obvious, those that are jeopardizing the future well-being of students, because these are the problems about which they feel they need to do something.

**Scope for Replication**

The 'Our Land, Our Life' experiment is a successful example of making EE more effective and meaningful to the learner by making it locale-specific. The experience has much to offer for other areas with fragile environments.
The need for environmental education has been explicitly recognized by government policies of several countries. In many cases, policy directives exist for the incorporation of environmental education and communication (EE&C) into mainstream education. While governments are the policy making agencies, NGOs and CBOs are often the source of innovations. They are close to and responsive to community needs and can effectively implement programs. Thus Government systems and the NGO networks are complementary to each other and a partnership between the two can make EE more effective.

2. Strategic Partnership for Institution Building

Protection of the Environment: A Tradition in India
Concern for nature and natural resources is not new for India. Respecting nature and living in harmony with it have long been parts of the Indian civilization. Launching the World Conservation Strategy in India, Prime Minister Indira Gandhi reminded the audience that "the interest in conservation is the rediscovery of a truth well known to our sages. The Indian tradition teaches us that all forms of life: animal and plant are so closely linked that disturbance in one gives rise to imbalance in the other" (Indira Gandhi, World Conservation Strategy for India, March 1988). The Indian tradition emphasizes living in harmony with nature. The Bishnois, for example, followers of a Rajput saint, Jambeshwar Maharaj, who lived towards the end of the fifteenth century, emphasize vegetarianism, non-violence, protection of trees and respect for all living things. In 1730, 363 Bishnois of Khejadli village, mostly women and old men, laid down their lives in an effort to protect trees being cut on the orders of the King of Jodhpur. Sacred groves are a unique tradition that has been responsible for islands of biodiversity in various parts of the country. Ashoka's pillar edict, dating back to 272-232 BC, proclaims protection for plants and animals.

State Support for the Environment
The Indian Constitution laid down the responsibility of the
Government to protect and improve the environment (Constitution of India, Article 48-A) and made it a "fundamental duty of every citizen to protect and improve the natural environment including forests, lakes, rivers and wildlife" (Constitution of India, Article 51-G).

Mrs. Indira Gandhi, the then Prime Minister of India, was the only visiting head of State to attend the Conference on Human Environment at Stockholm, 1972. It is on this occasion that she first brought to fore the connection between environment and poverty. It was following this Conference that a Department of Environment was established by the Government of India in 1980, to act as the nodal agency for planning, promotion and coordination of various environmental programs in the country. Since its inception, the Department has emphasized the promotion of environmental education at different levels, making it a people's movement. In 1983-84, the Department launched a new scheme on environmental education and awareness under which several activities, like seminars, group discussions, refresher courses, multimedia campaigns, eco-development camps etc. to various target groups, such as decision makers, politicians, administrators, teachers and students and general public were undertaken.

**A National Institution is Created**

One of the strengths of India's environmental movements is the vast network of NGOs that it has. Many of these NGOs have been actively participating in the creation of awareness on development and environmental issues. NGOs have brought about many innovations in EE and have been able to reach out effectively to various target groups. The Department, when it was created, recognized that it would have to build a number of partnerships to achieve the huge tasks ahead. New ways of working were being defined--there was openness to experiment.

It was in this spirit that, when the Department, after having seen the exciting work in environmental education being done by the Nehru Foundation for Development (NFD) thought of building a partnership with NFD. NFD was, through its three constituent
activities and institutions VIKSAT (Vikram Sarabhai Center for Development Interaction), VASCSC (Dr. Vikram A. Sarabhai Community Science Center), and CHETNA (Center for Health Education, Training and Nutrition Awareness), involved in environment, science and health education for a variety of target groups, using a variety of media.

"What do you need to do this type and this quality of EE work at the national level?" was the question thrown to the core group at NFD by the then Secretary of the Department of the Government of India. 'Adequate resources, and freedom to work' was the answer.

Long discussions on the vision, mission and mandate of a national center were then discussed between the Government and NFD. A detailed proposal and a plan were developed and subsequently sanctioned. In 1984, a national center for EE, the Center for Environment Education (CEE) was established as a unique partnership between government and NGO, to play a pivotal role in setting the pace and agenda for EE in the country. Built around the core programs and people of NFD, CEE was the first institution to be established under the Centers of Excellence programs of the Department of Environment.

**Strategies to Maximize Effectiveness and Impact**

Recognizing that to fulfil its mandate as a national institution, it would have to develop EE program to address a wide variety of sectors, the thrust areas of CEE's program include (1) EE through schools, (2) EE through higher education, (3) EE through mass media, (4) EE through experiencing nature, (5) EE through interpretation, (6) EE for environment and development, (7) EE for industry, (8) EE for natural resource management, (8) EE in the urban context, (9) training, and (10) networking.

Given the challenges of India's diversity and numbers, CEE's activities and initiatives have been rooted in and guided by certain basic strategies so as to enhance the reach and impact of its programs. These include:

- **People are key:** CEE is built on the belief that ultimately, an organization is as good as the people it is made up of, and that
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people will give their best when they have the freedom to work and dream.

- **Adaptability**: Given the geographical, cultural, social and economic diversity in India, flexibility is an essential basic in the design of programs and materials. Adequate flexibility is built into CEE’s educational programs and materials to allow necessary adaptations.

- **Partnerships**: Recognizing that to be effective in a country of the size and diversity of India partnerships are essential, such relationships to utilize complementary strengths of other organizations are built to avoid duplication of effort and to achieve synergy. The importance of involving concerned GOs and NGOs in strategic partnerships is recognized. One example of such a partnership is the school cluster programs. To this end CEE developed a model of close partnerships between the local schools, local NGOs, State Departments of Education across the country.

- **Multiplier effect**: A multiplier effect is built into the design of strategies, in order to achieve maximum reach and impact. For example, in order to capitalize on the reach of mainstream newspapers and magazines, CEE runs environmental news and features service which feeds into the mainstream papers.

- **Making use of existing opportunities**: The stress is on using opportunities for education and communication wherever they exist. For example, CEE’s interpretive programs at natural and cultural heritage sites and at facilities take advantage of the fact that millions of people visit natural and cultural heritage sites.

- **Use of media and technology**: CEE’s programs aim to use appropriate technology and media to meet the objectives of EE in any particular situation. The importance of using latest technological developments to leapfrog and achieve a wide reach is recognized.

- **Facilitating networking**: In order to facilitate networking, CEE brings out a number of tools including directories, newsletters, bibliographies etc.

- **Not re-inventing the wheel**: CEE tries to ensure that its programs do not start from scratch, but rather, that they build on the experiences and learning of other groups. For example
NatureScope India is an adaptation of the American teacher magazine, NatureScope, brought out under an understanding with the National Wildlife Federation, USA.

- **Regional presence**: CEE tries to have a presence at key locations, to ensure the reach of the Center's activities to all parts of the country and beyond. CEE, over the years, has set up several regional cells and field offices.

- **International experience**: Undertaking international collaborations is seen as a way of enhancing the quality, depth and range of programs. Such collaborative efforts include partnerships with agencies, like National Wildlife Federation, USA, State University of New York, US National Park Service, World Resources Institute, USA, Field Studies Council, UK, International Television Trust for the Environment (TVE), UK and UNESCO-UNEP. CEE is one of the subject matter focal points on EE and training of the South Asia Co-operative Environment Program (SACEP).

- **Identifying key entry points**: While CEE's mandate is to reach out across a wide range of target audiences, CEE has strategically selected from within these groups in order to achieve maximum reach and impact. In the case of school programs, it was decided to concentrate on the middle school level, since the barriers to entry to this level are the least, while the possible impact of intervention is very high.

- **Development of EE professionals**: Capacity building in order to develop a cadre of professionals to improve the quality of EE, and its contribution to environmental conservation and sustainable development, is seen as a key activity. CEE conducts a variety of short and long duration training programs for in-service professionals as well as for students interested in pursuing a career in EE. Some examples of CEE's training programs include the training program in environmental education (TEE), internship program in environmental journalism, training in librarianship and documentation (TLD), training for Indian forest officers, and an international certificate course in environmental education (CCEE) to fulfill the requirement of trained professionals in EE in South and Southeast Asia.
• **Non-exclusive organizational structure:** The organization structure encourages initiative, autonomy, and inter-disciplinary approaches. The conscious effort is to develop different ways of doing things, according to interests, opportunities and expertise.

• **In-house infra-structural support:** CEE has built up expertise/facilities, e.g., studios, workshops, printing, editorial services, design services etc., to ensure innovation, research and development (R&D), quality control and excellence.

### The Governance of CEE
Reflecting its unique structure, CEE's Governing Council has eminent persons in the field of education, environment, communication and management, as well as representatives of the Ministry of Environment and Forests, Government of India, and of the Department of Environment and Forests, Government of Gujarat. The plethora of eminent professionals from a wide variety of field gives the Council, which is appointed by the Nehru Foundation for Development, is a unique strength. The Council guides programs, approves budget and designs policy.

CEE is headed by the Director, who is the chief executive of a working team consisting of three sections; program, technical and administrative staff.

### Learning and Achievements
An institution that was set-up by the government with a vision that it would play a lead role in generating awareness about nature and nature conservation and would act as a model institution in EE and communication, has demonstrated that building partnerships is an effective strategy for sustaining EE and communication efforts.

CEE has created many model programs and developed methodologies that are widely used in this country and abroad. It has developed educational strategies that are uniquely suited to a diverse country such as India. It has developed tools and training programs that build capacity and empower many other groups to undertake EE work. Educational materials developed by CEE are being used and adapted by various groups in India as well as other countries. It has built partnerships that are essential for the enormous task before it.
CEE: Some Achievements
India's first Interpretation Program at Kanha National Park, Madhya Pradesh, India was designed, developed and set up by CEE. CEE has developed and brought out over a hundred publications, 36 audio-visual materials and several exhibitions, directories and bibliographies in environmental educational and communication. These are in several Indian languages. Some of these have been adapted for use in other countries as well. CEE, as a part of its regional capacity program, has trained over 120 environmental education professionals from 22 countries. It is the subject matter focal point for environmental education and training of the South Asia Co-operative Environment Program. CEE was awarded the 'Indira Gandhi Paryavaran Puraskar' (IGPP) for the year 1997 by the Government of India, Ministry of Environment and Forests, for its significant contribution in the field of environmental education.

Some of the key lessons include (1) GO-NGO partnerships have the potential for building on the strengths of each sector. Such a partnership has to be based on mutual respect and the two partners have to interact as equals. (2) The relationship needs constant management. (3) Institution building is an ongoing activity and not one-shot effort. (4) Professionals given space, freedom and a challenging environment will give their best.

Scope for Replication
Building partnerships and complementing each other's efforts can maximize output, making efficient use of available resources. Efforts like this one can play a significant role in EE in a country. In India too, several centers of excellence including a second one on EE have been established. It is often assumed that economic, scientific and technological development and environmental concerns cannot go together. However, environment and development need not be seen as contradictions. This is the basis of the concept of sustainable development. EE is one of the tools to help achieve sustainable development. The next example illustrates how EE can help people make informed decisions. An effective EE campaign, such as the Silent Valley Movement can not only help people understand the need for harmony between environment and development but also convince the decision
making authorities that alternatives exist, alternatives that have good economic and social outputs, with less impact on the environment. The Silent Valley Campaign is a landmark in India's environmental movement.

3. The Movement that Saved the Silent Valley

Background
India is one of the 12 megadiverse countries of the world, with three of its regions identified as biodiversity hotspots. One of these is the Western Ghats. The Western Ghats are a narrow but long range of hills running from north to south for about 1600 km, more or less parallel to the Western coast of India. Locally known as the Sahyadris, the Western Ghats are the lifeline of Peninsular India, for it is here that all the major Peninsular rivers have their beginning. The biodiversity contained in this mosaic of tropical forest types, from wet evergreen forest to mangrove swamp, is considered worthy of global protection efforts.

Deep in the Western Ghats is the Silent Valley—a valley of about 89 square kilometers supporting virgin evergreen forests, in the Palghat district of the state of Kerala. It is one of the few forests of India which is not inhabited.

The Silent Valley fauna include five endangered species—the Lion-Tailed Macaque (one of the most endangered primates of the country), the great Indian hornbill, the Nilgiri Tahr of which only 2000 remain in the world and the tiger. Wildlife of Silent Valley also includes over 100 species of butterflies and birds. Besides these, the thick undergrowth and foliage provide a suitable habitat for a number of small animals.

Today Silent Valley still exists—but it came within a hair's breadth of being dammed and deforested. The saving of Silent Valley is one of the success stories of the environmental movement in India.

Electricity vs. Environment: the Conflict!
In this remote valley of the evergreen forests flows a river called Kuntipuzha. The river runs southward through the heart of the
valley, at a height of over 1000m. A proposal to build a dam on the Kuntipuzha for hydel power generation became the subject of an environment-development dispute. The proposed 130m high dam was to be built between two hillocks, in a natural gorge through which the river runs. The Kerala State Electricity Board (KSEB) started work on the proposed hydro electric project in 1973, but due to shortage of funds, the work stopped till 1976.

It was during this time that a popular local magazine in the state of Kerala published articles on the valley and its significance. In response to these articles, KSEB gave several counter-arguments, and with this started a conflict. It was at this time that India re-committed itself strongly to environmental conservation, when Mrs. Indira Gandhi, the then Prime Minister of India, attended the Stockholm Conference. Eventually this issue came up before Mrs. Gandhi. She ordered the constitution of a committee that would evaluate whether building the dam would have any impact on the ecology of the Western Ghats.

The Committee pointed out that Silent Valley was one of the few systems in the world where wildlife and the trees and plants had evolved to the fullest possible extent in a rainforest, undisturbed by human interference. It further pointed out that it was an "environment of a very special category. It is the richest expression of life that has evolved on this planet. In some areas, there has been continuous history, on much the same site for about a million years since the flowering plants began to evolve." Were the dam to be built, the region might be lost to succeeding generations. This is why the Committee suggested that the dam either be dropped altogether or, if it had to be constructed, it be completed with certain safeguards. The State Electricity Board readily agreed to the Committee's suggestions for following all necessary safeguard mechanisms.

**Save the Silent Valley: The Campaign**

It was around this time that an NGO, the Kerala Sastra Sahitya Parishad (KSSP) got involved in the Silent Valley. Initially some of the KSSP members thought that it would be a good thing to dam Kunthipuzha because the electricity produced would help the State
to develop. At the same time, some members of the Parishad had begun to understand and realize that many of the state's problems were being caused by cutting down trees on the Western Ghats. Eventually, KSSP not only established a consensus among its members, but was also able to rouse public opinion on the need to save the Silent Valley. KSSP did its own independent study to show why the Valley should not be disturbed and how the same amount of electricity could be generated in other ways. KSSP worked towards persuading KSEB to reconsider its decision to clear a large tract of forest in the Valley.

The Parishad conducted a concerted drive to create public support for saving the Silent Valley. Because of KSSP's strong association with young people, college students in major cities of Kerala joined this campaign. They made their own contribution by carrying out protest marches and demonstrations, chanting slogans and carrying placards. It was probably the first time that teenagers came out on the streets in such numbers to protest against the destruction of the environment. Their act helped the 'Save the Silent Valley' message reach almost all the residents of the state and inform them about the importance of the Valley for the people of Kerala.

A note by Dr. Salim Ali, the 'birdman' of India, on the Silent Valley played a significant role in gaining support for the movement. Dr. Salim Ali wrote, "This is among the most significant forests that I have seen in my life." Coming from someone who had spent a lifetime wandering through the forests of India, this was a very significant statement. At this juncture, several other scientific bodies also lent their support to the movement. The Bombay Natural History Society, the oldest environmental NGO of India, came out in support of the campaign. Similarly, IUCN asked the Indian Government to conserve more effectively the forest areas of the Western Ghats, including the undisturbed forests of the Silent Valley, as this was a habitat for the rare and endangered Lion-Tailed Macaque. This and pressure from several other agencies like WWF played a key role in making the movement stronger.

On the other hand, KSEB tried to counteract these by telling people about the benefits of the dam such as extra megawatts of electricity,
jobs for people living in close vicinity to the Valley etc. The other question that they put up was “What is so special about the Silent Valley?” The argument was that several other good forests existed in Kerala and many of these were right next to some hydel projects, so how could the proposed dam and cutting of a few trees pose a danger to the Silent Valley? Then, with regard to issues like the rare Lion-Tailed Macaque, there were arguments like, Are monkeys more important than men? 

The KSSP’s campaign was a tough fight because of the fact that the services that forests provide are difficult to quantify and many of the plants and animals do not seem to matter for everyday life, whereas electricity has immediate practical use. Thus, convincing people and decision makers about the value of conserving the Silent Valley and its long-term benefits, both ecological as well as economic, was a challenging task. After considerable study, research and thought, KSSP had several convincing arguments, e.g. that while the benefits of generating power would go to industries and a small number of people, the conservation of the Silent Valley would benefit not only the people of Kerala but of the world, through its rich biodiversity, gene pool, as a habitat of rare and wild varieties of crops, influencing the micro-climate etc.

Finally, these arguments on the various costs and benefits of the Silent Valley Hydroelectric Project resulted in the Central Government under the leadership of the then Prime Minister of India, Mrs. Indira Gandhi, putting pressure on the State Government. This led to the final decision of abandoning the hydro-electric project. Later in 1985, the Silent Valley was declared as a National Park, which implied that no project can ever take place in the area.

**Lessons Learned from the Silent Valley**

- Unlike many other dam construction projects, the Silent Valley did not have any issue of peoples’ displacement, as there were no communities living in the forests. Thus the movement was fought primarily on environmental grounds and mostly at an intellectual level, instead of on social grounds. Did this make it easier or more difficult?
Most often, benefits from development projects are quick, very visible and short-term, while those of environmental conservation are not. Thus for any environmental movement, it is important that people are not only informed about the importance and benefits of environmental conservation but also understand the linkages that nature and its conservation have with the various other dimensions of their lives—social, cultural, economic etc.

One of the major considerations while planning a development project or while resolving conflicts such as this one is, to look at advantages and gains that would come to the masses as against benefits for a select group of people or agencies. The other factor is to not just oppose the development project, but provide viable alternatives e.g., several small dams to a big one.

Analyzing each option scientifically is necessary not only to understand impacts of a project on the environment, but also helps in building a strong and accurate background for the cause.

One of the strengths of KSSP, the major force behind the Silent Valley, were its members—teachers and students. The student community gave a new strength to the movement by acting as spokespersons of KSSP and helping it reach out to common people. In this whole process, a lot of environmental education at various levels—of KSSP members, student groups, decision makers, general public—in an informal manner, happened. Thus EE can play an important role in accomplishing the larger task of environmental conservation.

Establishing and highlighting linkages that the natural environment has with the various other aspects of human society—culture, tradition, economic development—is important as it helps build up support from a number of sectors.

**Scope for Replication**

The approach that was used to save the Silent Valley worked successfully for Bidhy Project IV in the state of Karnataka. This was proposed to be a hydro-electric project. A similar movement resulted in an order being given by the Government of Karnataka for an Environmental Impact Assessment. For the first time, a cost-benefit of any hydro-electric project was done in the country, a
public hearing was conducted and the project was abandoned.

A question put very frequently to most environmental educators by their audience/communities/individuals is ‘what can I/we do for the environment?’ There is a perception that environment is someone else's responsibility. There is also a strong feeling of 'what difference can individual action make to such a large problem?'

Environmental educators have to be able to empower people to undertake environmental action. The bridging of this gap between environmental education and environmental action is the challenge today. The next case presented here is a story of a group of people who, determined to do something for their village and their environment, could bring about a change in their lives, their communities and their environment, demonstrating that each one of us can make a difference, and collectively, we can make a huge difference!

4. Rules for the Green Hills

A Miracle Happens

Dead rivers begin to flow, agriculture becomes possible round the year, nutrition levels rise, public health improves, people come together and discuss issues of life, like education and local governance... Utopia?

Bhaonta-Koylala, twin villages, are nestled in the Aravalli hill ranges in the Alwar district of Rajasthan, India. The Aravalli range stretches from Palanpur in Gujarat to Rajasthan, to Delhi. The Aravallis are a unique amphitheater of biological diversity. In the early part of this century, the Aravallis were well wooded, with waterfalls and a large number of wild animals. The wildlife included the Tiger, Panther, Leopard and Sloth Bear. Mid-sized carnivores like the Jungle Cat, Civet, Caracal, Wolf, Jackal and Mongoose were found in abundance. Large mammals like the Wild Boar, Sambhar and Spotted Deer were plentiful. The Chinkara, Blackbuck and the Blue Bull were found in the foot hills.

Over a period of time, the scenario changed. The nearby forests,
technically Reserved and Protected Forests, degraded due to a number of factors. They disappeared under railway tracks, charcoal contracts, excessive fuelwood extraction, and overgrazing. Wildlife populations substantially declined. The region experienced severe water shortages, and inadequate supplies of fuelwood and fodder.

The effects of disturbances in the Aravallis were felt in the district of Alwar also. Several other factors, like the disuse of old water structures traditionally maintained by the village community also added to the crisis. With agricultural production at an abysmal low, emigration of men-folk in search for employment became common. For forty years, a whole new generation did not know that there had once been hope and fertility around them.

Reviving the Past to Secure the Future

However, in the recent past, an economic and ecological miracle has been taking place in the twin villages of Bhaonta-Koyalala. Over the last decade and a half, forests have started to regenerate, rivers have started to flow again and a number of other associated changes are happening. Replication of the efforts in over 700 villages of the district of Alwar, speaks volume about the success of the Bhaonta-Koyalala saga.

What has made this transformation possible? “Remarkable work on water harvesting structures and forest conservation measures, coupled with a strong village-level organization which tackles all issues through collective decision-making” is the answer!

While the answer seems very simple, the journey for Bhaonta-Koyalala to revive their past has not been an easy one. It has been a struggle over 15 years to revert what had one wrong in the villages.

This miraculous journey started on the evening of October 2 (the birth anniversary of Mahatma Gandhi), 1985 with five young men coming to the villages from the city of Jaipur. They were from the Tarun Bharat Sangh, (TBS), a voluntary organization set up in 1975. Among them was Rajendra Singh, whose one line agenda was to clean the society of all evils and who had quit a government job and also left his family behind to fulfill his agenda. On realizing that
something was wrong in these villages and that the people of the villages were willing to bring a change for betterment in their lives and their villages, TBS—undertook this challenge.

Their work started with research to understand the problems prevailing in the villages, and to identify what factors caused this. In 1986, after a preliminary analytical study, the first realization came for TBS rapid deforestation on the hill slopes and disuse/failure of traditional water harvesting system were the two main reasons leading to several other linked problems. At this juncture, they realized that water and fodder were the key to reviving rural life in Bhaonta-Koyalala.

Raising Awareness to Raise People Power
The basis of the solution that TBS developed was that people's fullest cooperation is essential for improving the socioeconomic status of the villages. Following this, TBS organized a *padayatra* (foot march) covering Bhaonta-Koyalala and other villages. The March carried the message of harvesting rainwater and saving forests, by using the local system of *johads* (checkdams). During this event, several of the villagers expressed their desire to participate in the water and forest conservation work.

A subsequent series of discussions within the villages resulted in a decision made by the people of both villages, to collectively protect forests and construct johads. The first result of a joint action of TBS and villagers was the constitution of Gram Sabhas (Village Councils—informal bodies which address the common needs and aspirations of village communities) in the year 1987. It was decided that all decisions, with regard to water/forest resources, would be approved by the Council.

Rules for the Hills
The Village Councils framed what are known as 'Rules for the Hills'—not allowing grazing by cows for three years, goats for five years and camels for seven years. This agreement led to a form of virtual fencing, known as social fencing. This form of fencing was respected by villagers for two reasons; 1) they were a part of the decision making process, and 2) by now, they had realized the links...
between healthy ecosystems and their livelihoods—absence of forests, leading to runoff, soil loss, siltation, and inadequate water for agriculture and low fuel and fodder supplies. Eventually, the results of social fencing started to show.

The next step was to revive the traditional water harvesting structures, locally known as *johads*. A *johad* is a dug-out pond, created at a place chosen based on traditional knowledge. A *johad* prevents rainwater from running off, allowing it to percolate into the ground, recharging aquifers and improving the water balance. In 1988, the first *johad* was constructed. In this process, more than three-fourth of the expenses towards constructing the *johads* were borne by the villagers in the form of voluntary labor and local materials. Even the engineering knowledge to build *johads* was entirely local and no outside expertise was utilized.

**A Greener Picture Today**
These and many such efforts have been successful in reviving the natural heritage of Bhaonta-Koyalala. After decades of aridity, heat and infertility, the basin of the Aravari has rediscovered water, prosperity and abundance, other rivulets have also become live. Abundant water means better agriculture and animal husbandry. Today, all the agricultural area is under cultivation, a figure five times higher than that in 1985. Milk production has increased up to 10 times. The return for every monetary unit invested in a *johad* is about 4 times.

**What has it Yielded?**
What does this all mean? It means a better quality of life for the people of Bhaonta-Koyalala. Impoverished villagers, working as laborers in the city, staying away from families in slums, are returning to a better and prosperous life in the village. Hills, which were once barren, have now become a favored home for wildlife. With raised awareness and confidence levels, people have entered into micro-credit schemes, enabling small enterprising ventures and building self-sustenance among the villagers. Villagers, with more time for social activities, turn to crafts reviving folk practices. Travelling through Alwar district one can observe stark barren hills contrasting with those beginning to turn green. One begins to
believe that more hill slopes can turn green!

**Some Lessons Learned**

- Involvement of local communities from the beginning of a conservation initiative helped instill a sense of ownership among local people. In one case, the consensus about the construction of *johad* took five years to arrive at. From the engineering point of view, the time period might seem too long, but once such consensus is reached, the constructed structure becomes *everyone's*. They value it and maintain it. Communication, dialogue and negotiation are key to this process.

- A key reason that made people feel a need for, and become a part of such an initiative, was bringing awareness among the communities. What was different in the awareness initiative in this case was the holistic view in which the need for conservation was presented. It helped place human needs and human roles within the larger ecological framework. The perception of nature here was not of wilderness but that of the continuum of man-made systems and the natural ecosystems.

- A model such as this successfully demonstrates that economic wellbeing is a by-product of ecological regeneration.

- An effort such as this requires an organizational arrangement. Constituting Village Councils helped fill this need. The rules formulated by the Gram Sabha are simple yet effective, and have been mindful of the need to balance village needs with conservation priorities.

- The efforts made by the Tarun Bharat Sangh have brought in a sense of collective and individual responsibility towards natural resources. This can form a basis of conservation. Further, this has been the process of empowerment of the villages.

- The example of Bhaonta-Koylala, and those of many other villages in India, point to the need for an urgent shift in conservation planning. These examples show that, given a chance and appropriate policy support, communities can achieve conservation and some form of sustainable development. They also show that the government's own efforts at conservation and development can be made significantly easier and more effective.
if communities were to be given a central part in decision-making and implementation.

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<tr>
<th>Rajendra Singh Gets the Magsaysay Award</th>
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<td>Rajendra Singh, a moving force behind the Bhaonta, was named the winner of the Ramon Magsaysay Award for Community Leadership, 2001. The Magsaysay Award is widely seen as Asia's version of the Nobel Prize.</td>
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**Scope for Replication**
The story that started in the two villages has already spread its roots to over 700 villages in the state of Rajasthan. The approach of community and citizen action, one of the factors responsible for the success of the Tarun Bahrat Sangh and their efforts, have and are being applied to several such initiatives including not only in India but also in countries like Bangladesh for watershed management and mangrove regeneration.

Media has an inherent power to influence people. Can this power of the media be used for communicating environmental messages, for sharing environmental concerns and for building a concern for them? The case given below is an example of one such successful effort of using the print media for making environment everyone's concern.

**5. Environmental Magazine**

**Background**
In India, the media play a great role in influencing people their behavior, choices and opinions. With about 40,000 newspapers (of which over 33,000 are published in 18 local languages) and about 8,000 periodicals, the impact that media, especially the print media, exerts is enormous. The reach and influence of newspapers and magazines in the local languages is huge. For instance, the readership of one of the periodicals in a local language (Malayalam) is over 11,00,000.
Popularizing Environment the Down to Earth Way
In India, by the beginning of the 1990s, media coverage of environmental issues had increased. However, the Center for Science and Environment (CSE), India, an NGO working to raise awareness about issues of environment and development, felt that while these issues did get media coverage, the whole process of reporting was event-oriented and lacked depth and analysis. Another problem was that adequate coverage was not given to grassroots efforts, where a lot was actually happening.

It was at this time that CSE published a book titled, *Global Warming in an Unequal World*. The response to this book strengthened CSE's belief that there was an urgent need for a Southern perspective on global environmental issues and a need to develop capacities in the South to produce and disseminate information that would reverse the one-sided flow of information and facilitate the flow of information and experiences of the developing world in managing natural resources to the developed world. To facilitate this process, a magazine *Down To Earth* was initiated.

Why this Magazine?
'Down to Earth' was launched as a science and environment fortnightly news magazine. The magazine aims to cover both national and international policy issues at the macro-level, and to document innovative efforts at the micro-level so that these get incorporated in policy making. The agenda is to facilitate the two-way flow of information between the 'Southern' and 'Northern' worlds. The aim is to bring all this information to the policy makers and to the public quickly and accurately.

The magazine aims to reach out to a wide spectrum of interest groups—politicians, policy planners, government officials, industrial captains, environmental activists, academics, teachers, students, professionals—anybody who has an interest in the country's future. The magazine covers the latest developments in the fields of environment, science and technology. The spectrum of issues includes anything that will impact development and sustainability—environment, energy, health, population, forestry, pollution, habitat degradation,
wildlife management, water management, traditional knowledge, women, tribal people, nomads and other marginalized groups, agriculture and animal care, community participation, legal and financial institutions and others.

The main sections of the *Down to Earth* include news and special reports (reportage), life and nature (feature), analytical articles (analysis and critique of policies), grassroots section (community action), crosscurrents (opinion pieces), interviews, news reports on science and technology (environmental science, health & medicine, agricultural science, physical science, industry and technology), book reviews, letters, statistics, snippet of news etc.

The process of deciding what goes into the *Down to Earth* takes into account two factors. One focus is major issues that need to be looked at in-depth and analyzed, and the other focus is reports of on-the-ground events and stories. The CSE library receives more than 80 newspapers and news magazines that are scanned, classified and key-worded daily. This is the major information source for the *Down to Earth*.

**Major Achievements**

The *Down to Earth* has been able to put environment and sustainable development on the agenda. The reach in India is vast. In terms of numbers, as compared to mainstream and popular periodicals, the readership might seem small, but for a magazine focused on something that is not an issue for most people, it is very high. Readers are spread all across the country and thus it reaches beyond the mainstream media of national newspapers and television. This is the strength of the *Down to Earth*. Serious and committed readers are its assets.

It also contributes to capacity building of media professionals by training journalists in reporting on environmental issues. Several people who have worked with this magazine are today environmental correspondents with leading newspapers.

**Some Challenges**

Despite these achievements, the task of being able to sell this magazine to the public in a big way still remains. Environment is, even today, not perceived as a national issue of importance to citizens across the country.
Creating consciousness among the public, especially the urban, educated public on the need to understand the linkages between environment and development is a complex task and needs a set of pre-conditions.

Increasing the subscriber base requires constantly making efforts to understand the Indian market and experimenting with ways to exploit it. There are two major challenges in this—the Indian market is an extremely difficult, cost-conscious market, and CSE does not have enough resources to influence the market through standard techniques, like the use of expensive advertising strategies.

The recent boost in information technology is both challenge as well an advantage to the *Down to Earth*. The challenge is how to take advantage of the technology. A part of this is also to analyze and see if there is justification for the big jump in cost of going online to subscribers. The advantage is that information technology (IT) can help the magazine reach out to international subscribers in a quicker and more cost-effective manner.

**Major Lessons**

One needs to first sell the idea of environment and sustainable development before one can sell the magazine. Therefore, CSE now uses the *Down to Earth* as a major outreach for its advocacy work.

The *Down to Earth* is not a 'news-stand' type magazine and therefore competing with the mainstream media in terms of circulation or marketing is challenging. It is thus required to constantly experiment and innovate in order to reach the target groups.

**Scope for Replication**

The *Down to Earth* has been approached by several NGOs to replicate or produce regional language editions. CSE is already helping a French NGO to produce its French edition. However there are several issues that need to be looked into before initiating such a venture. These are costs and returns, availability of skilled staff etc. One of the tasks that CSE has set for itself is to initiate an environmental media training program. Such a program, it is hoped, would produce
journalists good in environmental reporting and analysis. This will be a help to those who want to initiate similar efforts.

CSE has been able to sustain this movement of popularizing environment through the *Down to Earth* because of its firm conviction for the need for such a magazine to fill a critical information gap. The magazine *Down to Earth* is unique as it looks at all aspects of life from the scientific as well as environmental perspective.

India has to seize every possible opportunity to grow and develop, and at the same time it will have to make bold efforts to hold on to its soil and roots. Information is a critical determinant in this process.

Information, education and communication (IEC) are essential parts of any environmental management strategy. This is often not recognized and IEC are seen as optional activities. A failure to recognize the importance of IEC can jeopardize the whole effort. At each stage in a strategy, IEC has a specific role to play and needs to be integrated correctly.

As we close this experience-sharing note, it is desirable to mention that the examples discussed here are only a small, illustrative sample of the EE efforts in India. The selection of these examples has been through an informal consultative process involving eminent environmental educators from around the country. The attempt has been to share the wide range of conservation initiatives of India and to illustrate the wide scope and the variety of roles and responsibilities that education and communication entails with regard to these activities.
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Centre for Environment Education

Centre for Environment Education (CEE) is a national institute established in 1984. It is engaged in developing programmes and material to increase awareness and concern, leading to action, regarding the environment and sustainable development. CEE is a Centre of Excellence supported by the Ministry of Environment and Forests, Government of India. CEE has, over the last two decades, explored the emerging models of development to identify and promote those which are contextually sustainable.