

**What does the Uttarakhand Environmental  
Education Centre do?:  
An American Perspective**

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## Foreward

I first learned about the Uttarakhand Environmental Education Centre (UEEC) in 1999 at a UNESCO Asia-Pacific Environmental Education (EE) Seminar, where the UEEC Director described the Centre's school program. I was very impressed by the program's philosophy and by the instructional materials he displayed.

So, seven years later, when I was awarded a Fulbright fellowship to study exemplary EE for Sustainability Programs in India, I eagerly traveled to the state of Uttarakhand to learn more about the Centre's full array of programs.

In the weeks I was in Almora (the town where the Centre is located) and the surrounding rural areas of Uttarakhand, India, I learned much about the UEEC and its work. As you will see on its website – [www.ueec.org.in](http://www.ueec.org.in) – UEEC has grown to serve people of all ages throughout the state. The website will also give you background about the Centre's origins, location (including a map), sources of funding, staff and partners. It also provides access to many of their publications.

This document summarizes my observations as well as insights and thoughts gained as I visited villages, *Balwadis* (pre-schools), government schools and community-based

organizations (CBOs) involved in UEEC programs; and interacted with staff at UEEC, and with CBO leaders, leaders of women's groups, DIET Trainers (responsible for providing professional development to teachers), school principals, teachers, *shikshikas* (pre-school teachers) and their supervisors.

I have organized my observations and understandings under the headings of the Centre's three major programs that I became familiar with and under some headings that reflect the overarching nature of the Centre's work and the staff's interactions with partnering groups and individuals. I conclude with some thoughts about the Centre's future.

## What does the Uttarakhand Environmental Education Centre do?

When the Uttarakhand Environmental Education Centre (UEEC) staff and I are asked this question, we find it a challenge to answer. My short answer is that UEEC works to develop cohesive communities empowered to create personally and ecologically rich, sustainable lives for themselves and future generations, using “the village as an ecosystem” as an organizing concept. What makes their work stand out is the way in which all the partners do that work and their long-term commitment.

This booklet provides a more substantive answer to the question by describing my perceptions regarding (1) the relationships built among the groups UEEC works with, (2) the programs they develop and implement to meet specific needs, and (3) the supportive networks and relationships UEEC fosters to sustain the effort.

### 1. The relationships among the groups that work with UEEC

It is obvious to me from watching the UEEC staff interact and work with leaders of community-based organizations (CBOs), members of women’s groups and many types of educators that their relationships are built on trust, mutual

respect, and a genuine commitment to their work. In response to direct questions asking why they collaborate with the Centre, people told me that they wouldn’t have an education program without the help and support provided by UEEC staff, said that the Centre makes it possible to do things that they would or could not have done on their own, and expressed a genuine sense of camaraderie and appreciation for the services and support the Centre provides. From the time of their first workshop in 1986, the Centre has listened to and still listens to the needs of the villagers and CBOs. New directions and programs are pursued only when there is a consensus in favor of them. The Centre has worked to enable people in various layers of society to join together as communities and collectively initiate, nurture, and pursue efforts that are critical to meeting their needs and sustaining their environment and livelihoods.

### 2. UEECs programs

I observed and interacted with participants and leaders of three major UEEC programs. Two are grounded in and build on the traditions espoused by Gandhi and others: the women’s groups and the *Balwadis*. The school programs, on the other hand, have been invented by the UEEC and its partners.

### *Women's Groups*

Three types of women's groups are associated with and supported by UEEC: consensus-driven village groups (over 400 with about 12,000 women); Regional Women's Federations (40 of them), that each bring together a cluster of villages; and the state-level Uttarakhand Women's Federation.

The women's groups work to identify and address both practical needs and strategic interests of women & girls. Members of women's groups, most of whom are illiterate, play an important role in the education of their children (as described in the next sections). In addition to advocating and promoting change through public non-violent demonstrations/agitations and direct actions (as Gandhi did), these women's groups organize and take on practical work to improve their lives. Many have created funds that are used to purchase things for the village to share (like cooking equipment for large gatherings) or to temporarily help village women financially (e.g., by providing an interest-free loan for a daughter's wedding or family illness). In one village I visited, a group's project involved re-building terraces that had fallen in disrepair, thereby increasing the amount of tillable, productive land.

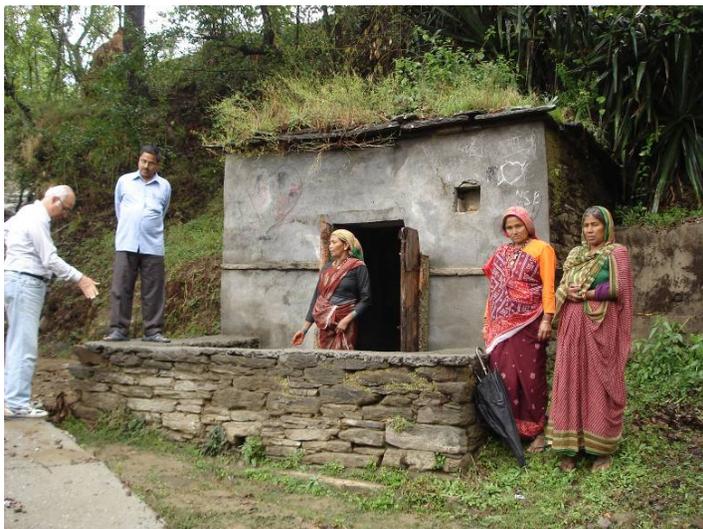
The most ambitious women's group project I saw was the water and re-forestation project in Bitholi village (located in

the Dwarahat block of the Almora district). Villagers dug 500 trenches or tanks, each 1 meter X 2 meters X 4 meters – i.e., about 4,000 liters capacity – on a hill immediately adjacent to the village. The trenches filled with rainwater and recharged the aquifer so that the village's drinking water source (a spring) was full once again in 7 years. In addition, they proudly showed off the 1,000 + seedlings in their tree nursery that they plant on the hill each year to reestablish the native forest (their former and hopefully future sustainable source of fuelwood and fodder). The thousands of new trees will also enhance the soil's ability to absorb water and recharge the aquifer. This group's actions have also gotten



Bitholi village women and children

the government to reestablish a pond in the village that had been bulldozed to prepare the land for some other use.



CBO leader and Bitholi women show village's reinvigorated water source to UEEC donor

More than 350 women's groups sponsor *Balwadis* in their villages by finding and taking responsibility for maintaining the building/room for the pre-school, selecting and sending to a UEEC training session a teenage girl or woman to become a *shikshika*/teacher, and participating in periodic meetings to support the teacher and her work with their children. In some villages, the women's groups also support the school program, and have more long-range goals for their children. For example, in Bitholi village, I asked the women (some of whom had their teenaged daughters with them)

what their hopes were for them. The answer: "I want my daughter to have the knowledge and be able to make decisions on her own – not to have to depend on a husband."

### ***Balwadis (pre-schools)***

Although *Balwadis* were advocated by Gandhi and there are both public and private *Balwadis* throughout India, they did not exist in all villages. They were especially inaccessible to women with young children in the more remote villages of Uttarakhand prior to 1986. With UEEC support *Balwadis* have been started in rural villages and now exist throughout the state so that women can be confident that their children are learning and cared for while they fetch water, fodder and fuelwood and tend to their crops and livestock. I was able to see *Balwadis* from four perspectives: as a participant observer of the training session for new teachers at UEEC, as a visitor in four different *Balwadis*, as an observer of a *Balwadi mela* (a celebratory gathering of mothers, aunts, grandmothers at which children perform to show what they have been doing and have learned), and in conversations with women and men in villages. During the 10-day training session, new *shikshikas* (pre-school teachers selected by their villages) live in UEEC's dormitories and learn through active participation the songs, stories, activities and teaching strategies that they will use with their children in their *Balwadis*. It is clear from their joyous sounds, enthusiastic

participation, smiles, serious questions and careful note-taking that they are internalizing the learning-through-play philosophy. By visiting well-run *Balwadis* and interacting with their experienced teachers and through the encouragement and guidance of the Trainers and their supervisors, the young women develop ideas and prepare materials for their *Balwadis* and gain confidence in their ability to take on their new roles. Watching this transformation over 10 days is like watching a time-lapsed movie of an inexperienced teenager growing to become a



Pre-school teachers-in-training visit *Balwadi*

self-confident, responsible young person.

Each *Balwadi* looks different because it depends on the particular building that the village has allocated for the pre-school and it reflects the ideas and resourcefulness of the teacher. But in each one I visited, I saw colorful student work, happy children engrossed in what they were doing, and a teacher enjoying her work. And the villagers were like proud parents showing off what they had accomplished in establishing their *Balwadi*. The UEEC publication, The *Balwadi*: Binding the Himalayan Village<sup>1</sup>, reinforced my observations and perceptions.

### ***School Program***

The grade 6-8 program that UEEC and its partners have created over the last 20 years is unique. It is currently being used in 2,900 schools, and will be in 4,500 schools by 2010 because the Uttarakhand Department of Education now requires the course/program in all government schools. I was able to spend time learning about this program from four different perspectives: reviewing the printed instructional materials, Our Land, Our Life; visiting schools that have been using the program for years and talking with students,

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<sup>1</sup> This and other UEEC publications can be accessed at [www.UEEC.org.in](http://www.UEEC.org.in)

teachers, and principals at those schools; observing a training workshop for teachers learning to implement the program for the first time and talking with the teachers; and co-planning and co-leading a workshop for the state's DIET Trainers (professional development providers from districts throughout the state).

**Our Land, Our Life** is an exceptional instructional program. It has many of the characteristics of the most well-developed, National Science Foundation-supported instructional programs published in the United States. It:

- is constructed to develop student understanding of big, important scientific concepts: ecosystems, materials cycling, plant growth, biodiversity, agricultural production and application of those concepts to improve people's lives and sustain their villages.
- provides students with numerous, rich opportunities to explore these concepts in the context of their immediate world, by coming to know their village as an ecosystem. The student investigations build on one another -- e.g., students learn characteristics and uses of different tree species by talking with their elders, then quantify the total number of livestock and the amount of fodder harvested for them from trees surrounding the village, and extrapolate those quantities to get a sense for the total number of trees and amount of forestland needed by the

village's livestock, and then grow seedlings and experience the amount of time and water needed for tree growth.

- enables students to develop practical skills – i.e., mathematical, writing, speaking and analytical skills, individual and small-group work and interactions with adult community members.



School girls working in small groups

- includes a manual with background information, suggestions regarding the major concepts and pedagogical strategies to be used, and aids to help teachers in planning and organizing equipment/supplies.

- has been developed by experienced ecologists and educators with input from teachers and villagers, and each edition has been field-tested and revised and has benefited from the input of outside evaluators.
- includes a well-developed series of implementation workshops for teachers, to enable them to become familiar with both the content and teaching strategies needed for successful implementation and to provide them with materials/equipment needed.

The products or artifacts that are created through the use of this curriculum are numerous: large models of the agricultural terraces and wooded areas surrounding the village that's being studied; large, covered reservoirs that store harvested rainwater on school campuses; areas of the schoolyard planted with a diverse array of native trees; students interacting with their peers and teachers (rather than quietly sitting in rows) and confidently speaking aloud to the class or larger school-wide audiences. Students readily explain what they learn from this course, including, the importance of learning geography and understanding their surroundings, learning how to measure the amount of water from rain and other sources and how to calculate the amount of compost needed for their fields, knowing what benefits they get from their environment, and knowing how to identify and analyze problems so that they can solve them



Principal with student model of study area

and contribute to the sustainability of their villages' productivity and way of life. Teachers and principals were as proud to talk about what they have achieved using Our Land, Our Life, as the villagers were of their

*Balwadis*. As one principal put it, "This course is different. It is not information. It teaches how to survive at the local level."

The teachers participating in the workshop to learn about the program for the first time were also aware that it is different. I sensed in them both eager anticipation and a bit of wariness about what would be required. Based on their interest in the subject matter, and in fact, their interest and awareness of even global environmental issues (like the practices of multi-national companies and the contamination

of water with pesticides and other petrochemicals), it seemed that appropriate teachers had been identified to take on this teaching assignment. The DIET Trainers seemed to understand both the philosophy of the curriculum and the purpose of this workshop, explaining to me that the teachers need to be “facilitators” and that if they “go through the training properly, their world view can be changed.” While these Trainers had been trained in the implementation of the materials for grades 6-8, they felt at a bit of a loss because a colleague who they depended on had retired. Consequently, they asked UEEC staff to come to the training to take over the class for the last couple days.

The DIET Trainers who participated in the professional development workshop (that I co-planned and co-facilitated with UEEC staff) were eager to learn, gain new skills, share ideas and plan with one another. They seemed to feel a need for more support for their work and acknowledged that to enable all teachers (or at least a majority) to implement Our Land, Our Life as intended, the teachers, their principals, and parents/community members needed both a clearer vision regarding what the program should look like, what it can achieve, and how it is different plus ongoing encouragement and assistance in implementing it.

My sense is that as with most programs that I’ve been associated with, as the program’s reach expands, many more



DIET Trainers during professional development workshop

people become involved, and staff turnover occurs, new structures and learning opportunities for both the new leaders and the classroom teachers will need to be created to support them in taking on their new roles and to sustain implementation of the program as intended.

### **3. Support structures and relationships**

For over a decade organizations throughout the U.S. and Canada have been working to become “learning organizations” – that is, “organizations that are continually

expanding their capacity to create their future.”<sup>2</sup> As Senge states in his best-selling book, “systems thinking is the fifth discipline” because it “integrates” the other four disciplines of learning organizations: personal mastery (or proficiency), mental models, building shared vision, and team learning. In UEEC, I see a learning organization that uses systems thinking (that the UEEC leaders developed from working for years in the fields of engineering and ecology) to conceptualize, develop, integrate and support their endeavors. I have not found anywhere a nonprofit organization that does this so well – operating as a learning organization in multiple program areas and linking multiple, interconnected layers within those program areas in a supportive way! The entire organization (UEEC and all its partners) has the complexity of interrelationships and feedback loops that are found in healthy ecosystems.

While I am not capable of describing all these interacting relationships either in prose or by using a diagram (because of my limited acquaintance with UEEC and my lack of computer graphic skills), let me try to describe some of what I saw by focusing on the interrelationships and feedback loops among the women’s groups, *Balwadis*, UEEC, and CBOs. UEEC facilitates dialogue with, stimulates thinking

and motivates the CBOs, which in turn support the work in each of the villages by building the capabilities of the women’s group, enabling them to make decisions by consensus and act collectively in a way that will enhance their way of life. Among other things, the women’s groups each find and *maintain* a place for their *Balwadi*, and select a young woman to become a *shikshika* (teacher). UEEC provides training for the *shikshikas*, pays them a small honorarium, and provides experienced supervisors to help guide and support them in their new role. By meeting regularly, the women’s group, *shikshika*, and supervisor, and the CBO as needed, discuss issues that need to be addressed to help the children do their best and the *Balwadi* to flourish – and where needed they act collectively to improve the *Balwadi* and the village. The women’s groups are inspired and encouraged by their achievements and their interactions with the groups from other villages through regional women’s federations; and similarly, the supervisors and *shikshikas* learn from and are encouraged by their achievements and their interactions with counterparts from other villages at UEEC meetings and on-going trainings. Within each village, the children, *shikshikas*, supervisors, women’s groups, CBOs, and UEEC all increase their capacity as they work together to create their collective future.

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<sup>2</sup> Senge, Peter, The Fifth Discipline: The art and practice of the learning organization, (New York: Currency Doubleday), 1990.

I was impressed by the way the UEEC staff facilitates and nurtures all these interactions and believe that it is the key to sustaining this work and enabling all participants to individually and collectively “continually expand their capacity to create their future.” Of course, these interactions and multiple levels of support also apply to the work of the women’s groups, schools, CBOs, and UEEC staff as they tackle natural resource, health, economic, and education issues and work to build villagers’ capacities to learn and to secure the agricultural and forest products and the water essential for sustaining their livelihoods, health and well-being.



UEEC Headquarters

## **Sustainability and Change**

The 200 year old traditional home in which the UEEC offices are located epitomizes both the environmentally, economically and equitably sustainable goals of its programs as well as the enduring relationships with all communities involved. The structure will certainly be as functional and attractive 100 years from now as it is today and so will the combination of partnering relationships and programs it embodies.

That sustainability is built on the assumption that everyone involved will continue to be supported in learning and in meeting new challenges and exploring new directions. A current example of this kind of change is the way the concept of youth groups is being explored. UEEC staff, CBOs and villagers have been discussing with youth (in their teens and early 20s) ways to create opportunities for youth to join together and collaborate on work that’s meaningful to them. The elders want to help them navigate the transition from childhood to adulthood. Some meetings have been held and options for entrepreneurial ventures (such as growing and marketing saffron) are being explored. I am confident that those who visit or read about UEEC’s work 5 or 10 years from now will see vibrant, productive youth groups springing up across the state.

In addition to such programmatic changes, the UEEC staff in collaboration with the region's CBO leaders regularly meet to ponder what's needed to address societal and larger institutional changes. One of the changes underway for UEEC itself is the effort to generate more financial support from private foundations while continuing to build additional support from departments within state government and ministries within the Government of India.

As part of the Centre's ongoing efforts to reflect on and improve what they do, the UEEC staff asked me for my thoughts and recommendations about what they should be doing differently or in addition to what they are now doing.

### **My Suggestions and Recommendations**

My suggestions are, of course, based on my work in the U.S.A. and my knowledge of research done largely in the U.S.A. So, what I have written needs to be filtered for cultural appropriateness and any suggestions that are not appropriate need to be set aside.

There are two things that I suggested as top priorities:

- An Evaluation of the Impact of *Balwadis* on the Educational Future of Rural Girls

I suggested conducting an investigation to address this question: Do girls who have participated in *Balwadis* stay in school longer and have greater academic success (e.g., as

measured by the marks they receive) than girls who enter school without such preparation? I heard anecdotes and comments indicating that the answer is yes. However, based on the kinds of evidence that foundations and funding agencies seek in the U.S., I think such a comparison could be valuable in learning about the impact of and in acquiring funding to support and continue to expand the *Balwadi* program.

- Revising the support structures for the state-wide implementation of the grade 6-8 School Program (especially to deal with staff turnover) and adding a component that will enable UEEC in collaboration with the DIET Trainers to monitor the degree of implementation being achieved

Since the state government has mandated implementation of UEEC's school program, challenges of scale have emerged as many new state-employed professional developers are expected to provide training and support to teachers. My visits to and interactions with those working to implement Our Land, Our Life indicated that UEEC has started to experience problems associated with this large-scale implementation -- such as adequate professional development for the Trainers and staff turnover.

In U.S. school systems, we are now acutely aware of the problems created by staff turnover due to the fact that about half of our teachers are retiring. Based on our experiences in

trying to deal with this problem systemically, I think it may be wise for UEEC in collaboration with the state's Department of Education to begin planning and implementing programs and strategies to provide new teachers, principals, and DIET Trainers with the professional development and support that will enable them to successfully implement Our Land, Our Life.

Shirley Hord and Gene Hall's research in the U.S. on implementing new programs in schools<sup>3</sup> may provide some ideas for the Department of Education, DIET Trainers and UEEC staff to use in identifying teachers' needs, monitoring their progress, assessing the degree to which the school program is being implemented as intended, and deploying resources to schools based on identified needs.

Because the UEEC staff members are intent on continually learning and improving, readers who have the good fortune to visit or in other ways interact with the Centre will most likely be asked, as I was, for their observations and recommendations. I hope each of them will engage with these dedicated professionals and will find their interactions

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<sup>3</sup> Hall, G. & Hord, S. (2001). *Implementing change: Patterns, principles, and potholes*. Boston, MA: Allyn and Bacon. For a brief overview of this work, see [www.k12coordinator.org/onlinece/onlineevents/changeagents/id48.htm](http://www.k12coordinator.org/onlinece/onlineevents/changeagents/id48.htm)

to be as enjoyable, memorable, and thought-provoking as I did.

I believe the work of UEEC and the way it is being done provide a model for environmental education centers/institutions in the U.S. I hope some will emulate and benefit from this ground-breaking work. I am confident that UEEC's learning organization with its extended family of groups throughout the state will continue to improve and influence more and more communities so that, as they envision, "sustainability will become a way of thinking and living throughout the region."

## Acknowledgements

I am genuinely grateful for the time I was able to spend at the Uttarakhand Environmental Education Centre, Almora, India and appreciate the tremendous amount I learned with and from the entire staff and the Centre's partners. As I've tried to express here, I have the highest respect for the work you are doing and the way you are pursuing it! I hope that my reflections presented here will help introduce your work to others and will be of some use to you as you continue your important holistic approach to achieving long-term sustainability by building up communities throughout Uttarakhand. I look forward to following your progress.

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## BIOSKETCH

Karen S. Hollweg, 2008-9 President of the North American Association for Environmental Education, has worked in science and environmental education throughout her 40-year career. She began as a classroom teacher in public middle schools and senior high schools in Massachusetts, California, Colorado, and in the United States' Department of Defense school system in Germany. She served as a district curriculum and instruction specialist in Jefferson County Schools, Colorado. As Principal Investigator for seven different National Science Foundation-funded Elementary, Secondary and Informal Education (ESIE) projects, she led nationwide teacher enhancement, curriculum development, and community-based projects. At the National Academies' National Research Council she was responsible for the dissemination and implementation of the *National Science Education Standards* and led professional development initiatives on inquiry and on the use of formative assessment for state and district leaders, and classroom teachers. As a Fellow with the Institute for Learning at the University of Pittsburgh, she collaborated on the design and implementation of professional development with urban school district leadership teams. She also worked at Biological Sciences Curriculum Study (BSCS) developing and field-testing instructional materials that were published by Addison-Wesley's Innovative Division and has authored and edited books on team-based professional development, understanding urban ecosystems, program evaluation, and the influence of the national standards. Karen has served on advisory boards for several national organizations (such as the Chief Council of State School Officers, the American Institute of Biological Sciences, and Ecological Society of America), regional 4-H projects sponsored by Cornell University and the University of Oregon, as well as the boards of state and local organizations, and has extensive experience recruiting and training volunteers for local projects. Much of her career has been dedicated to bringing together the resources and expertise of schools, community-based organizations, scientists and higher education institutions to support teachers, students, and citizens of all ages in pursuing inquiry-based learning and addressing real-world issues. She holds a Bachelor's degree in Biology (1964) and a Master's degree in Science Education (1966) from Stanford University.

