

Ways to Upscale Environmental Education in India



A Report by Earth Day
Network, India
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Summary: India mandates the infusion of Environmental Education in the curriculum of varied subjects taught at schools. The overall aim is to help students become conscious of the need to protect and care for the natural world, stymie pollution and judiciously use energy.

In April 2017, Earth Day Network India (EDN), working with local partners, organized 28 roundtables across the country to examine whether these aims were being achieved. Keeping in mind the United Nations' Sustainable Development Goals, the roundtables also identified teaching practices likely to result in a surge of environmentally-conscious students, inspired by their learning to take green actions. Held in different locations – metro conglomerates, semi-urban cities, and rural areas, small hamlets included – the roundtables saw participation from a wide range of stakeholders: educationists, teachers, NGO representatives, government officials, and sometimes, students.

Several recommendations on methods to help students move from mere learning to environmental literacy and then to stewardship for the environment emerged from the roundtables. Environmental Education must encompass students of all classes so 'begin the study of environmental issues from the day the child enters school (not Class III).' It was also suggested that no child is left out, whether he/she was in formal education or not. After much debate, the majority opinion was to continue with the present system of infusing environment-related topics in the curriculum of major disciplines, as against petitioning for it to be a stand-alone subject. Recommendations to improve outcomes included additional workshops for teachers of major subjects to enable clearer understanding of existing environmental concerns and environmental terminologies. To address the often noticed lack of enthusiasm or disinterest by both teachers and students in project work and other environment-related activities, the view was that each of these should earn the students marks that contribute towards their overall evaluation as against the current practice of awarding grades only.

Participants negate a cookie-cutter approach to teaching Environmental Education and voice support for tweaking lesson plans to incorporate micro-level geographic considerations of the area. Observing growing 'Nature Deficient Disorders', opportunities to be amidst nature and experience it with all the senses must be a definite part of school calendars, was another recommendation. This is particularly emphasized for urban students, who live in overbuilt areas, often bereft of nature. For students living in bio-diversity abundant areas, efforts made to direct their attention to looking at the natural wealth around with fresh eyes, suggested.

Educationists at the roundtable pointed out that the onus for developing environmental consciousness in youth could not be the sole responsibility of schools – the roles of parents, and society-at-large, was equally important. To enable two-way dialogues, create networks and bridges of understanding, tie-ups between schools and civil society organizations, *panchayats*, NGOs and others to enable students to play

an active role in sustainable development activities recommended. It was also suggested that developing communication skills is taught at schools to enable students to disseminate what they learn at school with the wider public.

The consensus was that greater clarity and publicity is needed of the many excellent Government of India and the State Governments programs in place that could be tapped to support one or more of the recommendations. **End Summary**

Background: India has great natural wealth. It is a mega-diverse nation with four of the 35 global biodiversity hotspots of the world. Air, water and soil pollution, on the other hand, is high in the country. Many of India's metro cities have air pollution levels way beyond permissible limits. Just a tiny fraction of waste is scientifically disposed. The major part lies strewn around. There is rapid depletion of natural resources, in particular, water, with the World Bank estimating that India will be a water-stressed country in a few years¹. The green cover is down to a dismal 24%. Species depletion continues. Global warming and the resultant climate change are playing havoc with regular agricultural and fishing practices, while disasters such as floods and cyclones have become more rampant.

Such conditions are unexpected given that India has excellent environment-related policies in place. However, implementation of the laws is hampered, critics say, by an often unenlightened and unconcerned populous. To quote from the report of the Centre for Studies in Science Policy, Jawaharlal Nehru University, 'without pro-environmental behaviour and awareness among Indian citizens, no conservation effort will be entirely successful, no pollution abatement initiative will bear fruit, no recycling activity will reach its potential, no natural or manmade disaster events could be prevented (disaster mitigation measures remain a great challenge), no policy instruments could be satisfactorily implemented, and unplanned haphazard urban development will continue. Therefore, considering the current scenario of the country, involving the destruction of the environment in all possible dimensions, it is high time we realize the true significance of imparting environment education at the school and college level.'²

Taking cognizance of these facts, The Supreme Court of India made 'Environmental Education (EE) compulsory in schools and colleges with the promulgation of the National Policy of Education (NPE) 1986 (modified in 1992), in which Protection of the Environment is stated as a common core around which a National Curriculum Framework (NCF) would be woven.'³

EE was a means to instil in Indian youth consciousness of their roles as stewards of the environment and leading to positive civic action. Given that a third of India's population comprises youth, a major positive impact on the environmental status of the country would result as EE-acquired knowledge is disseminated to families and in wider circles to the public.

Has this worked? Are students today leading low carbon lifestyles, planting trees, switching to renewable energies, segregating and composting waste, discerningly using natural resources, and sharing green tips with others? Are they taking on the onus of ensuring that the country's environmental concerns get well addressed?

Unfortunately, the answer is 'not adequately at all.'

To find reasons why pro-environment behaviour was not a natural part of youth psyche in India, although all the major school boards – Central Board of Secondary Education, Indian School Certificate Examinations, and state boards – had well-defined curriculum for EE starting from class III till class X, Earth Day Network India convened several roundtable discussions amongst educationists, policy makers, government officials, academics, NGO representatives, students, among others.

Major Observations and Recommendations from the Roundtable Discussions

- a) **A shift in the Philosophy of Teaching:** The participants recommended the need to make a paradigm shift from an emphasis on 'how we teach' to 'how they learn.' Sociologists who attended the roundtables noted that teachers must rethink what makes for effective learning. The suggestion is that innovative methods that keep in mind what is likely to appeal to the young, supplement the traditional method of imparting knowledge – i.e. the chalk and board one. Knowledge retention improves, a participant suggested if there is *Anandam* or enjoyment doing so. The representative from the Centre for Environment Education presented an example of the way they 'taught' through the enjoyment of sport. Realizing that football is a great attraction, they draw on the popularity of this sport by organizing football leagues to get captive audiences. During the matches, messages explaining climate change are flashed and placed around the field, quizzes held on the grounds, and the assembled players and their cheerleaders assigned to specially formed Nature Clubs. While this initiative could guarantee better absorption of information, a caveat came from participants in Ambikapur, who pointed out that the extra finances required for such innovative 'classrooms' might prove a deterrent. 'Look into the possibility of using Corporate Social Responsibility funds to finance such activities' was advised. Participants at Bilaspur showcased how big projects could be implemented economically. Their gigantic canvas commemorating Earth Day 2017 was economically accomplished by small efforts of 3,500 students, each contributing just a little bit of time and talent to produce probably the world's longest canvas painting (Guinness Book of Records certificate awaited). Participants in Mumbai expressed the view that teachers, already overburdened with schoolwork, would be reluctant to take time out from their hectic schedules to plan and execute such novel outreach to students. However, the principal of a well-known school in Kolkata said 'if the principal shows the direction, then teachers will make the time.' Participants in Imphal spoke about relating to the interests of today's youth in social media and electronic applications and delineated the state government's plan to develop interesting mobile Apps to help widen information on biodiversity. 'How they learn' includes what participants in Lucknow said. 'Take advice for developing teaching material from students as they know best what would appeal most to their peers'. To address a common complaint that guardians had about their wards 'wasting their time' with such activities (Nature Club included) 'allot marks to students who take part in all such programs' is the suggestion from Hyderabad.

- b) **Across the board inclusion of EE in different subjects:** There was a debate about whether it would be more beneficial to have EE as a separate subject or keep it infused as it is at present, in major subjects' syllabi. The majority voted for the infused approach, but cautioned that the present levels of informal inclusion were inadequate. 'Specific chapters need to be devoted to environmental education and titled, for example, Environmental History, Environmental Science, Environmental Chemistry, etc' was the recommendation from Hyderabad. At Bengaluru, the participants also spoke about the need to design projects that bring in multiple disciplines. As for example a pure science subject can bring in mathematics for measurement, drawing for documentation and language skills for reportage. A focus on the analysis of lake waters (science) could lead to understanding soil types (geography), the biodiversity in and around the lake (botany and zoology), and even anthropogenic activities in the vicinity (civics).

Participants at Pune, however, were vociferous about keeping EE as a separate subject. To ensure its learning was effective, they opined, the present system of assessing students with credits and grades replaced by a system to marks, as otherwise there is a casual approach toward the subject since all the student needed to do was 'pass' the subject, not strive to get high marks. They also emphasized that teachers of 'Environmental Science' receive regular training, to keep them abreast of latest findings. Different government departments and agencies, it was suggested, could be approached to undertake these.

- c) **Relate curriculum to immediate environs:** In Ranthambore, students in the roundtable discussion stressed the need for environmental topics taught to connect to the environs. The students were disappointed that even though they live in the periphery of one of India's major tiger reserves, lessons about the sanctuary are sketchy. The thought was echoed in multiple roundtables. Before conducting the roundtable at Raipur, volunteers formulated a street-side survey of the pedestrians to get a better understanding of how well versed the public was about environmental issues that majorly impact the city. 'The results were dismal' said the convenor of the roundtable who was surprised to find that people were unaware of pollution levels in the city, ignorant of the consequences of continuing to breathe in noxious air and apathetic to doing anything about it. The group at Raipur has decided to train students to scientifically test air pollution levels in the city and comprehend the results drawn from the data. As a next step, build on this assimilation to be effective communicators for the citizens of the city. 'Hands on activities to study what is in your vicinity, rather than something imagined, is far more effective a road to comprehension' the convenor said. Participants in Kolkata echoed a similar thought. They say 'it makes more sense to teach climate change by focussing on rising ocean waters in coastal areas than teaching them the same subject by focussing on the melting glaciers in far away mountain ranges, and vice-versa'. At the roundtable in Limber, a remote village in the northern part of India, army personnel joined the discussions that focussed on the necessity for students being aware of poaching. The roundtable in Bhubaneswar added that students get taught about the surrounding wildlife and given information on threatened species to enable a focus on saving these. In Vadodara, the focus shifted to flora, in particular, ways to grow and use plants as efficacious health remedies for common ailments.

Suggestions particularly for State Education Boards so that the curriculum they developed inculcated local issues.

- d) **Connect youth to nature:** Participants at the Bengaluru roundtable spoke about the urgent need for opportunities for urban students to use their senses to see, feel, touch, smell and listen to the sounds of nature by spending time in its ambiance. 'If they haven't experienced nature, how can they appreciate it, and if they don't do that, how will they care for it' was what they said. Participants at Bhubaneswar suggested that teaching of all environment subjects must include a significant segment that is practical and experiential so that children can unravel the miracles of nature first hand – how trees bloom, significance of butterflies as indicators for air quality and dolphins for water, and the natural chain that helps pollination of plants, for example. A government official in Kolkata also recommended creating Eco Urban Village and Eco Park (such as the excellent one in the city) and Catch-and-Release angling as well as rooftop farming as bridges between youth and nature.

To address what has today become known as 'Nature Deficient Disorders', officials from Agastya International Foundation showcased their Kuppam Project, where a forest stands today on erstwhile barren land. Camps in this sylvan area that teems with little and big creatures, is the 'classroom' for students from urban conglomerates such as Bengaluru. 'Here, the youngsters touch, feel, smell, see, wonder at and grow to love nature.' For students fortunate to live in areas where the biodiversity is rich (such as Northeast India), the participants at Guwahati suggest developing methods that help them open their mind's eye and appreciate what their visual sense sees so regularly that it is taken for granted, as for example, the unique biodiversity. To enable this, 'have the students maintain biodiversity registers' suggested participants at Imphal. Participants in Coimbatore spoke about the 'Eye on Nature' project, an initiative of the Indian Institute of Science and the Karnataka State Council for Science and Technology where, environmental education is 'taught' by making students observe the nature around them – not just plants, birds, and insects, but also the condition of the soil, changes in water quality, etc. At the Chittoor roundtable, teachers spoke about imparting knowledge to students on the need to conserve indigenous species of the close-by *Eastern Ghats* and the ways to avoid man-animal conflicts. 'Treks to the *Ghats*, outdoor camps to enable students witness first-hand, as against

bookish learning, are strongly recommended'. While all agreed that nature clubs are good, many expressed the view that these must hold regular meetings and run definite programs. The advice to those who complained about the lack of adequate funding to run such clubs is 'if there is a shortfall of what the government provides, reach out to local organizations to make up the deficit'.

- e) **Inculcate responsibility from a young age:** 'Just as important is the need for students to learn to take responsibility from a young age', noted participants at Gorakhpur. Hands-on care for nature could develop this as it is alive and vulnerable to neglect— a child sees a plant die if not watered, for example. Participants at Kolkata spoke about the need to 'promote responsible consumerism from a young age if we want to see a reduction in carbon footprints. Should management frown on students bringing expensive stationery to school and instead, teach the students that richness of ability counts and not the material wealth you have, it would go a long way in reducing over-consumption.' Another suggestion from Indore was for students to learn how to recycle, as for example by saving and binding unused pages into useful notebooks.

EDN's eBook, **Pathways to Green India, Innovative Ideas for Students** features 22 case studies from across the country of students taking the initiative for a more environment-friendly India. The eBook was released to coincide with Students' Day, 2016. It is a learning tool that aims to inspire the youth of all ages and backgrounds to take a leadership role in solving pressing environmental challenges, while at the same time providing replicable models for addressing problems, such as e-waste, noise pollution, water shortages and more. The e-book can be viewed online. The pdf-version can be viewed by clicking [here](#).

- f) **EE to include a major component of practical work:** The roundtable in Bhubaneswar says it is essential to increase the time set aside for environment-related activities and a major part of these needs to be practical work. 'Teach them not just about the benefits of trees, but get them to plant these as well. Let them learn to do physical Energy Audits. Get them to put in a hand to compost waste. If land is available (or even rooftops) develop kitchen gardens. Grow things in pots where space is limited. The produce can serve as ingredients for school mid-day meals. Encourage students to be a part of the *Swachh Bharat Mission* (Clean India Mission) programs promulgated by the Prime Minister. Composting, rainwater harvesting, recycling are all activities that students can undertake in their schools' it was suggested. The participants at Lucknow wanted students to learn to test not just the water quality of the close-by Gomti River, but also conduct awareness drives to keep garbage free, the several *nalas* (runnels) that feed it.
- g) **Regular Teacher Training essential:** 'Empower one teacher, and you empower thousands of young minds at once' said a participant in Mumbai. 'Teachers are the best resources to turn environment destruction and climate change around on its head' he opined. To enable teachers to admirably play their roles, it was essential to provide them training on a regular basis. Teachers from different disciplines needed to receive basic knowledge about environmental issues and special training on ways to include environment-related topics in their teaching. For EE teachers, training to upgrade their knowledge is essential. Organizations such as the State Environment Science Technology and Environment Councils could be approached to provide this.
- h) **EE to encompass all:** It was suggested that EE is directed to encompass all. 'It should begin from the Nursery Classes and not wait till the higher ones' was a major point made by teachers in Delhi who were of the opinion that toddlers also have an absorbent mind so it would make sense to sensitize them. 'Catch them young if you want responsible citizens' was what one teacher advocated. It was suggested at the Bhopal roundtable that efforts be made to reach environmental education to all youth (even those who might be school dropouts) via programs such as the Children's Science Congress.

- i) **EE to go beyond school precincts:** The participants at the roundtable in Imphal recommended that environmental awareness is extended beyond the school precincts to cover the general public. In particular, this would be significant, they suggested in rural areas where there was likely to be limited knowledge about Sustainable Development. 'Take the case of farming and fishing communities' the participants said. 'How beneficial it would be to enable these people to understand the effects of climate change on crop patterns, how polluted rivers adversely affect aquatic species, etc. Even take the case of commonly-used plastic bags. The students could run a community campaign to build awareness about the negative effects of doing this and showcase alternatives available as also recommend a switch from fossil fuels to renewable ones. To support such work, the participants at the roundtable in Kozhikode said that training to develop communication skills be included in school curriculum – not just for those who are star debaters or elocutionists, but for all nature club members. All students be taught various communication strategies and encouraged to think out-of-the-box to identify which would work best for a target audience.

Expand outreach by building **channels for communication and partnership:** Teachers were unanimous in their view that the onus for encouraging responsible behaviour in the students toward the environment is not the sole prerogative of schools. It had to be continued at home also, and supported by society at large. 'Efforts must be made by all, to avoid acts of environmental degradation. If students see the people around them continue to act irresponsibly toward the environment, then what is learned in school remains just learning for marks and doesn't become a part of their natural reflexes and traits' is what educators said. Participants at Chandigarh said that keeping this in mind, they encourage parents to accompany their wards on nature walks, and also organize special sessions for parents to learn about environmental issues for as they said 'if parents are not open to implementing green acts, what can the student do?' The participants at the roundtable in the village of Edavannappara suggested joint programs with organizations that work with traditional folk arts. The artists could learn about environmental issues, and then use culture to disperse green messages to the farming community around.

Participants at Patna suggested that once small steps of responsibility have been made in campuses, students could be encouraged to widen their area of operations by working alongside college students who are part of the National Service Scheme, by supporting the water and sanitation programs that *panchayats* conduct, volunteering with local NGOs and even government departments such as the forestry one. Participants in Bhubaneswar recommended that students be a part of wildlife conservation efforts. Thus recommended that schools establish channels of communication that allow two way dialogues: students sharing what they learn with their families and others, and locals conducting sustainable development initiatives encouraging students to join these and get hands-on experience.

- j) **Campuses to go green:** The Ahmedabad roundtable recommended that school administration be sensitized to environmental issues so that they also practice what is taught to students. For example, turning school campuses 'plastic-free', not-burning leaves, but composting these, recycling used paper, fixing leaky taps, etc. Administration leading the way puts a compulsion on teachers as well, and we well know how students take the lead from what teachers do. Participants at Panchkula emphasized that school calendars need to include the commemoration of different, environment-related days of which there are many: Earth Day, Water Day, Forestry Day, Parrot Day, *Jamun* Day, to mention just a few. They went a step further to say 'declare one day each week to be an environment day.'
- k) **Knowledge to Environmental Literacy:** The participants at the roundtable in Ahmedabad emphasized what they considered was a very significant point – 'In India, there is limited understanding of the outcomes expected from Environmental Education. The understanding is limited to inputs and activities and not Environmental Literacy that Environmental Education should help foster.' Others had also spoken of this necessity to ensure that environment

education is up-scaled to inspire students to take civic action. Learning, leading to consciousness, was what should be the aim was the general consensus. 'For, that was the whole point of teaching environment subjects' they said. India needs environmentally-conscious students who take on the task of taking positive actions for a greener, cleaner, less polluted environment, who learn from a young age to lead lifestyles that conserve natural resources, see the disadvantages of using fossil fuels, and not only inspire their peers, but 'educate' their elders as well? Mere rote learning was useless.

- l) **Take advantage of existing, government programs:** All agreed that hearing from government officials (both central and state) about the many programs already in place to support environmental education in schools was excellent. The consensus was that greater exposure needed to be provided to these so that many more schools can benefit from these.

The way Forward: It was suggested that Earth Day Network continues with these multi-stakeholder roundtables and hold these on a regular basis. Furthermore, networks be formed of like-minded organizations to collaborate and conduct research to identify critical gaps and synergise so that best practices as well as information on what doesn't work is shared. It was also suggested that findings from the roundtables be presented to the major educational boards in India and to the relevant government departments as well.



Citations

- 1 *Briscoe, John; Malik, R.P.S. 2006. 'India's Water Economy: Bracing for a Turbulent Future.'* New Delhi: Oxford University Press. ©World Bank.
<https://openknowledge.worldbank.org/handle/10986/7238> License: CC BY 3.0 IGO
- 2 *Report of the Centre for Studies in Science Policy, Jawaharlal Nehru University*
- 3 *Pramod K Sharma 'The Approach to Environmental Education in Schools- India' Centre for Environment Education*

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It is based on roundtables conducted by our partner organizations:

Agastya International Foundation, Centre for Environment Education, Contact Base, Environment Society of India, Friends of Nature, Gorakhpur Environmental Action Group, Kids for Tigers, Sawai Madhopur, National Council of Science Museums, Nature Bodies, North East Diocesan Social Service Society, Ranthambhore Tiger Reserve Sawai Madhopur, Sanctuary Nature Foundation, Ahmedabad, Sanctuary Nature Foundation, Mumbai, Tarumitra, Terre Policy Centre, Wild Orissa, Wildlife Conservation Fund.

Our grateful thanks to the many experts that spared their valuable time join us at the roundtables

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