

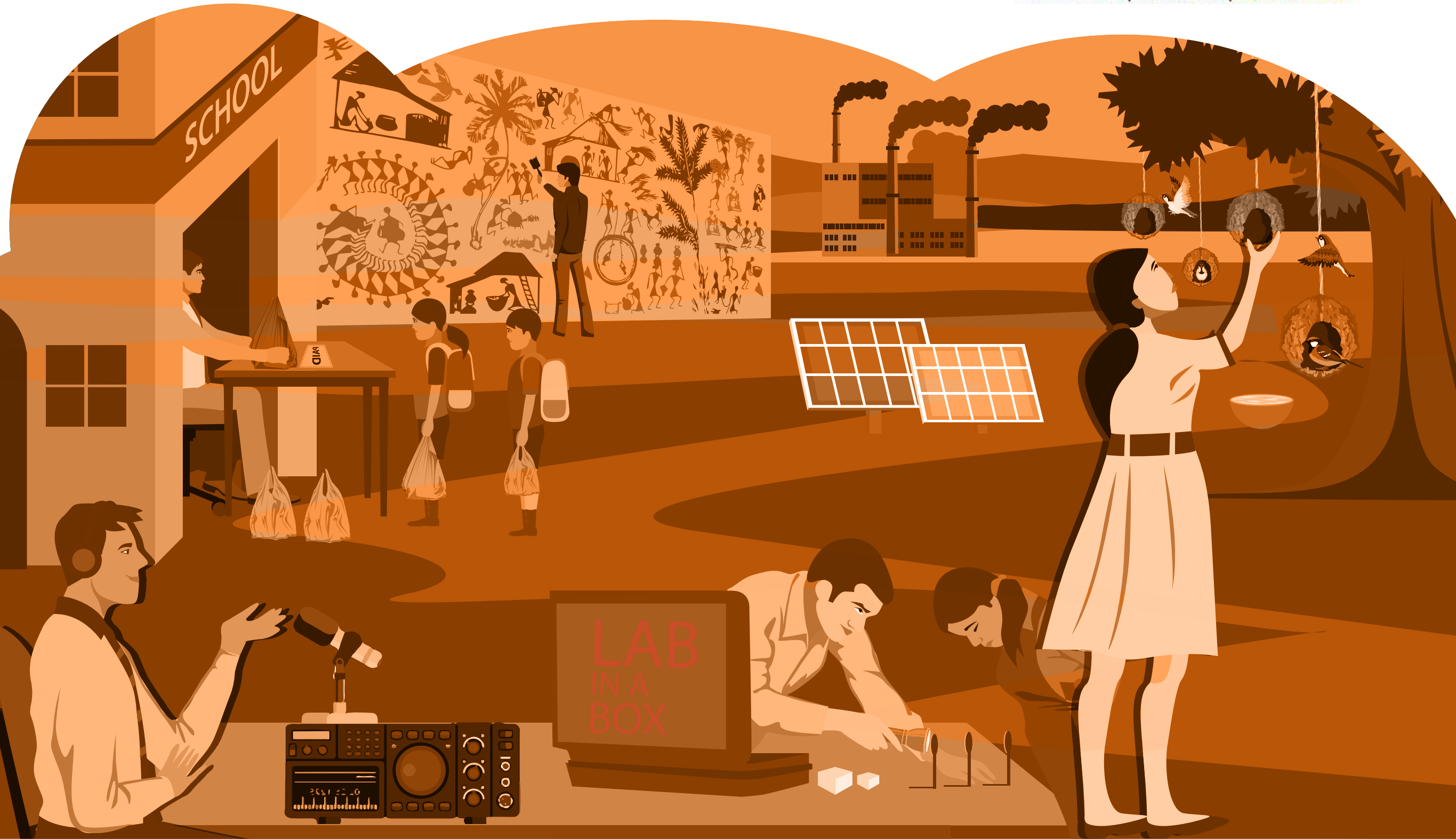
Climate Literacy

Beyond the Written Word



**RESTORE
OUR
EARTH**

1 BILLION PEOPLE | 192 COUNTRIES | 150,000 PARTNERS





Dear Reader,

Earth Day Network-India aims to help Restore Our Earth. Our work is inspired by the global NGO EARTHDAY.ORG™, which grew out of the first Earth Day on April 22, 1970, and today engages with over 50,000 organisations in some 190 countries to take the environmental movement forwards. More than one billion people participate in Earth Day activities each year, making it the largest civic observance in the world.

We firmly believe that the key to Earth's future lies in environmental learning opportunities for youths of all ages and backgrounds to develop them into informed stewards of the environment. Considering the grim conclusions presented by the 2021 Intergovernmental Panel on Climate Change, which prompted the UN Secretary General to announce a 'Code Red for Humanity', we appeal to every country to put in place academic systems that lead youths to climate stewardship and action for the environment.

This necessitates making climate education compulsory from Kindergarten to Class XII and providing an enabling environment to empower climate literacy. Such initiatives will also enhance the skills needed for jobs in the rapidly expanding green economy. For example, those related to conserving our natural wealth; reducing air, water, and land pollution; managing waste; and shifting to renewable energy sources.

'Climate Literacy: Beyond the Written Word' includes contributions from 20 academic institutions that have delineated effective methodologies

to generate concern for our planet amongst their students. These also help build awareness of how anthropogenic activity has harmed our planet (in particular, by increasing the carbon footprint, reducing green cover, mismanaging waste, and increasing pollution). All the innovative methods described in this ebook are replicable. Contact information for each contributor is provided in case you require additional information.

We hope you enjoy reading the case studies. Many more have been submitted, which we will reserve for subsequent volumes. Should you know of other innovative strategies, do send us their details at officeofregionaldirector@earthday.org.

Our thanks to the many people who helped put this ebook together. Thanks to our contributors, those who helped edit, and to Wysiyg Communications for the beautiful design.

Regards,

Denis Hayes
Chairperson
(Emeritus)

Kathleen Rogers
President

Karuna A Singh
Regional Director, Asia

Initiatives in India that focus on climate literacy

Our multiple programmes, campaigns and resources include:

Ebooks: These learning tools aim to inspire individuals and organisations to do their bit to mitigate (and prevent extending) ongoing environmental challenges. All the case studies shared are replicable models, while the ebooks themselves are available free at www.earthday.org.

- [Pathways to Green Cities—Innovative Ideas from Urban India, Volume I](#)
- [Pathways to Green Cities—Innovative Ideas from Urban India, Volume II](#)
- [Pathways to Green India—Innovative Ideas from Students, Volume I](#)
- [Pathways to Green India—Innovative Ideas for Public Spaces, Volume II](#)
- [Pathways to Green India Ways to Protect Our Species](#)
- [South Asia Youth Environment Conclave—From Dialogue to Action](#)
- [Great Taste No Waste](#)
- [Restore Our Earth, Volume I Rejuvenating Water](#)
- [Sayings on Nature from Different Religions](#)

Games: Snakes and ladders, a popular children’s board game, has been reimaged in a fun way to be played in pairs or groups. The themes of the various boards include climate change, energy efficiency, plastic pollution, water conservation and air pollution. Climb a ladder if you land on a square with an act that positively impacts the environment and slide down the snake if you land on a square with a negative act.

Morning Assembly Competition: Launched in 2017, this contest recognises schools that host special programmes to commemorate Earth Day at their morning assemblies. We reach out to about 100,000 schools (urban, rural, government, public, private, and international) each year.

Earth Day Schools: Schools awarded that are successful in turning their campuses green. To participate, schools can register at bit.ly/RegistrationEarthDaySchool

Earth Reel: Launched in 2013, this environment-themed film contest fosters awareness amongst the younger generation by encouraging them to look at nature through the camera’s lens, research and document any environmental issues that trouble what they observe, and then creatively present the ‘story’

to peers and others. Once shortlisted, a third of the marks awarded get based on the filmmaker’s answers to the judging panel’s questions on the film’s subject. Since 2020, Earth Reel has gone online and accepts submissions in several languages.

Earth Murals: Schools ask their students to identify pressing environmental issues in their neighbourhoods. Thereafter, they work with artists to design eye-catching wall murals that encourage people to help resolve these and paint green messages on their schools' outer walls.

Rising Stars: We regularly award youths whose efforts are innovative and effective in helping Restore Our Earth.

My Future My Voice (MFMV): A platform for young environmental leaders from around the world to share their best practices and successes. We have a network of over 180 youth leaders from more than 80 countries, with more joining every day.

IDEAS: Inspiring Dialogues for Environmental Action Series (IDEAS) invites eminent personalities to share their experiences and lessons with our MFMV youth ambassadors and young climate leaders.

Green Environment Monitors (GEMS): The GEMS programme, conducted in partnership with the National Council of Science Museums (the largest umbrella organisation of science museums anywhere in the world), educates and helps students adopt leadership roles. Each school appoints pupils as GEMS to ensure that the campus is a microcosm of sound environmental practices. On Earth Day, schools compete to be selected as the most effective in their endeavours.

Great Global Cleanup Heroes: These are youth-run campaigns to help reduce waste generation while scientifically managing existing levels.

Say No To Plastic Bags: Schools are encouraged to ask their students to make paper bags from old newspapers, decorate them and distribute them to shopkeepers in the vicinity, using the occasion to reiterate that single-use plastic is harmful.

Bags 4 Earth: On a designated date, students bring old clothes and/or discarded fabrics to school and tailors stitch them into handy totes.

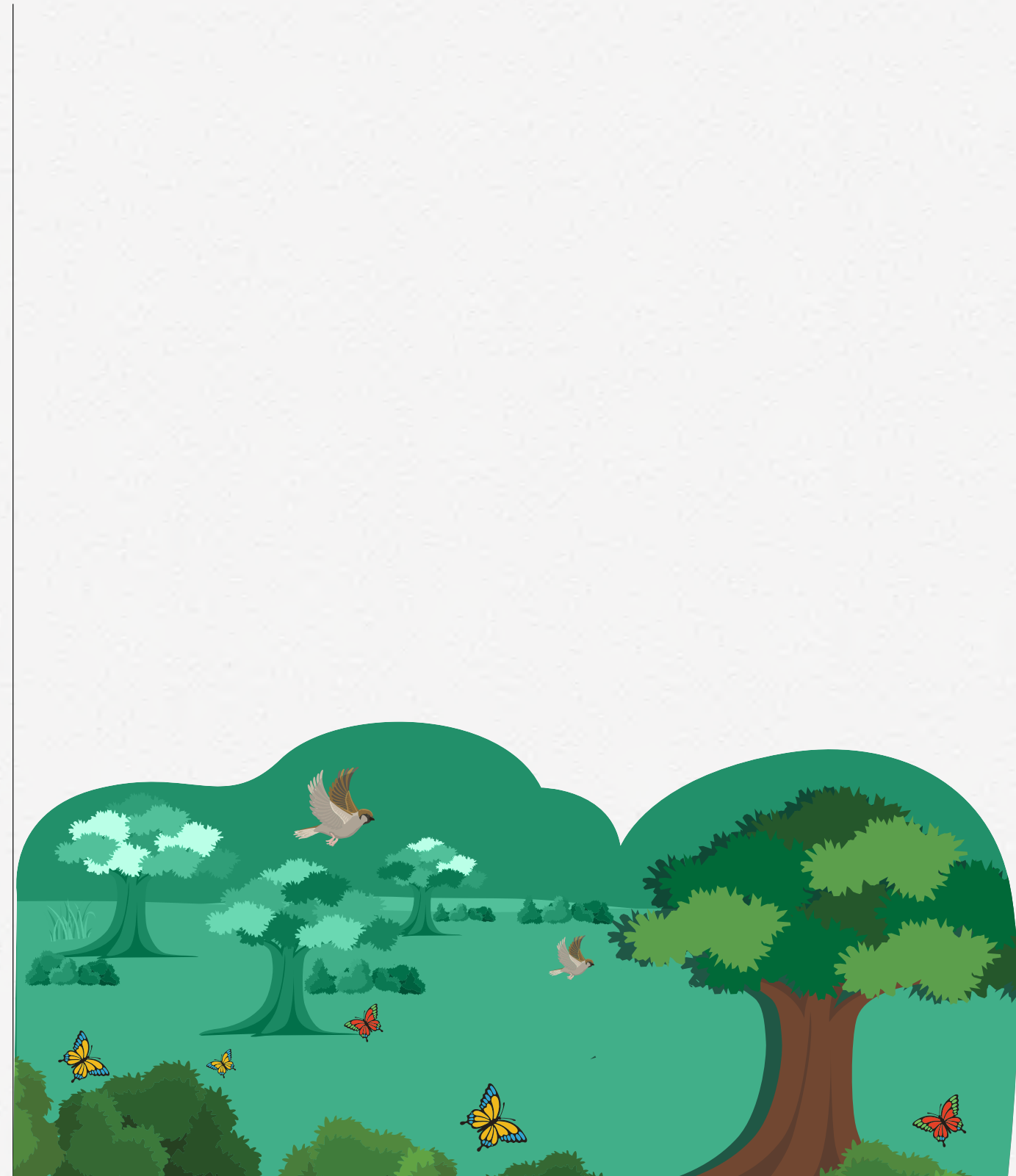
Low Carbon Lifestyles: Focused on making the urban youth aware of their carbon footprint and ways (many as simple as reducing the brightness of their computer screens) to lower their energy consumption.

Global Earth Challenge App: Allows citizen scientists to document pollinators, plastic pollution and air quality. The app also features quizzes, lesson plans and suggestions for civic engagement.

Youth Environment Conclaves: Our first South Asia Youth Environment Conclave was supported by the US State Department and held at the American Center in Delhi to engage, empower, and encourage youths to take climate action. Each of the participants from Bangladesh, Bhutan, India, Nepal and Sri Lanka demonstrated successful ways to build awareness about environmental issues in their educational institutions, homes and communities. This conclave helped establish cross-border bridges of friendship. An ebook [South Asia Youth Environment Conclave –From Dialogue to Action](#), which documents some of the best practices, was created to inspire others to follow the participants' examples.

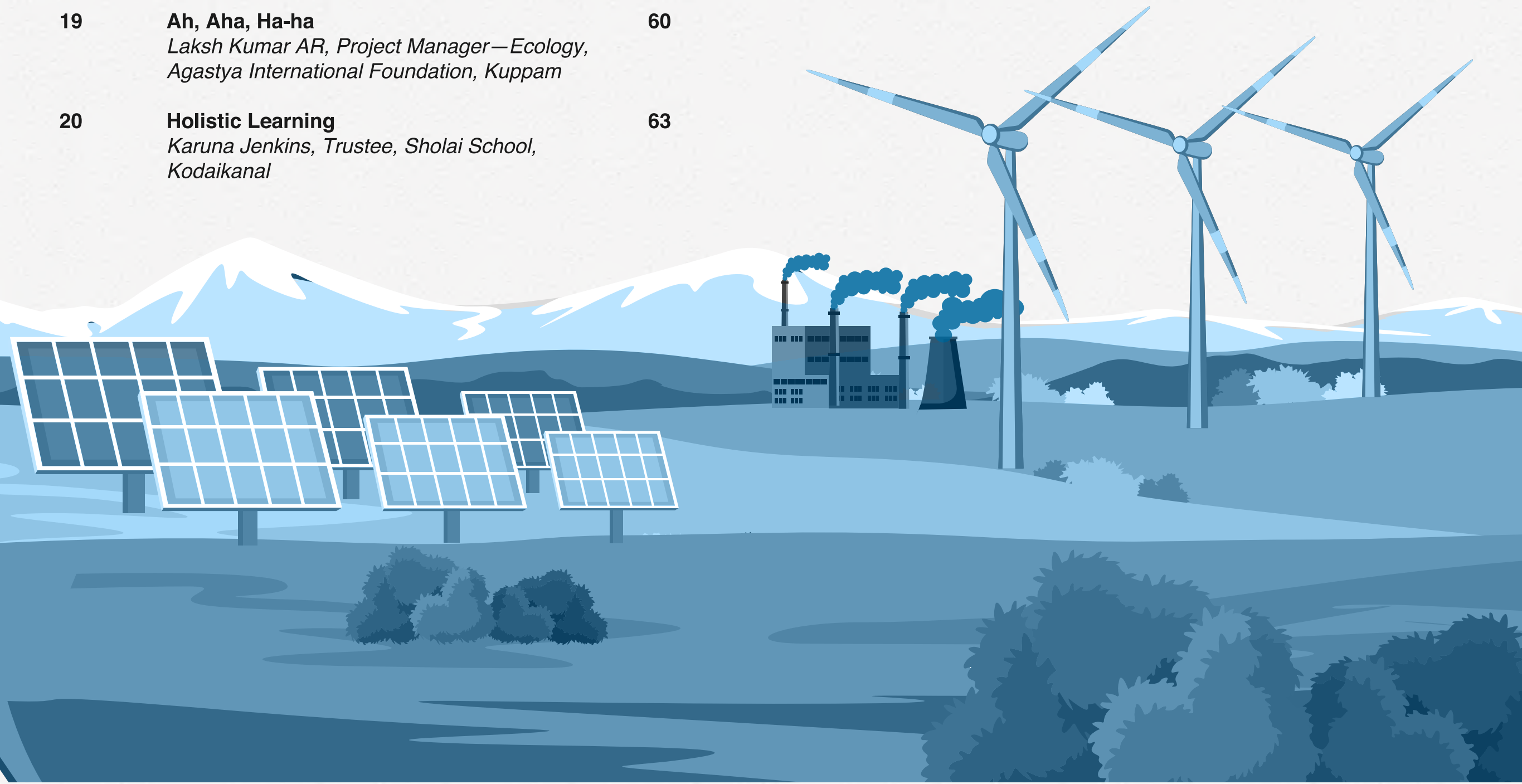
Backseat Buddies: This initiative uses music and other art forms to have students persuade their guardians to transport them to and back from school not in individual cars but as Backseat Buddies in car shares.

Each One Save One: This campaign showcases ways individuals can pledge to save 1 unit of energy daily by adopting 9 simple mantras. These were identified through extensive research by our partner, The Institution of Green Engineers. For every 10 pledges Earth Day Network receives, our partner Sustainable Green Initiative pledges to plant a tree. Visit www.eachonesaveone.com and pledge your units of energy saved.



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Sparrows Come Home





Sparrows Come Home

Upon hearing the term 'Endangered Species', wild creatures facing extinction immediately come to mind. Who could imagine the common house sparrow (*Passer domesticus*) placed on the International Union for the Conservation of Nature (IUCN)'s 'Endangered Species' list in 2002?

Unlike many of the other avian species, the house sparrow happily coexists with humans. The ubiquitous chirping of sparrows, which are usually found in groups of 8–10, is the sound people woke up to in the mornings. Nowadays, over-construction, the felling of trees and a burgeoning human presence leave little to no space for sparrows to nest in urban areas. Harmful radiation from mobile phone towers, air pollution and the proliferation of cables strung all over have also contributed to the disappearance of these birds from Indian cities.

The challenge to bring back the sparrows was taken up by the Ahlcon International School, New Delhi. In 2012, they addressed the decline in house sparrow populations in the city and its impact on our environment. As a first step, the School arranged sessions for the students to learn about the little bird (which many had not seen) and understand its importance. The School helped its students understand that sparrows play an important role in the ecological cycle. Primarily seedeaters, the birds feed on insects

such as caterpillars, beetles, and aphids, thus protecting plants from destruction. Sparrows also eat fruit and berries and, in the process, transport seeds away from the mother plant. This simple action obviates competition between saplings and the mother plant, vastly improving the likelihood of their survival.

As a next step, the students spent hours researching the reasons behind the decline of sparrow populations. They concluded that one of the primary causes was the lack of nooks, crannies, trees and other vegetation in which to nest. After that, an Eco Club was formed to help repopulate cities with sparrows. It was decided that nests be built to attract sparrows back to urban spaces. Rakesh Khatri, Director of the Foundation, popularly referred to as the 'Nest Man of India', provided students of Classes VI to VIII hands-on training at workshops he conducted. Rakesh says: 'It takes around half an hour for children to make a nest. Whilst doing so, the children understand how birds weave their homes.'

At the workshops, students learnt to make nests out of green tender coconuts, dry grass, cooler pads, thin rope, old newspapers, twigs and other natural materials. The beautifully crafted nests were hung from trees in the school garden, with the hope that sparrows would come to these. Students ensured minimal use of chemical pesticides, both in the school compound as well as in their homes, as these could harm the sparrows. Furthermore, they placed vessels of cool water outdoors for the birds to quench their thirst, particularly during the hot and dry summer months. As a final step, nature walks were organised to observe local sparrow populations and determine whether they are arboreal or terrestrial, the kind of nests they make, and the materials they used for these.

Initially, very few sparrows swooped down to inspect and inhabit their ready-made homes. However, after a few days, they flocked in numbers, leaving the children spellbound. The experience of seeing the birds safe and comfortable in their new dwelling was uniquely enjoyable to the students. The comfortable accommodations enabled the sparrows to hatch their eggs, sometimes even four times a year. The students documented observations such as colour, size, shape, feeding habits, behaviour, songs, and calls of the birds that came to reside.

The sensitisation programme helped the students develop compassion for birds, even inspiring their local communities to establish similar nest-making initiatives. It also helped them appreciate that humans are just one of the species on Earth and that we need to live in harmony with others.

In 2013, Ahlcon International School was identified by the Delhi Government's Department of Environment and Forests as one of the nodal schools to monitor and conserve sparrow populations in the city. The Chief Minister invited school students to the release of a book to commemorate World Sparrow Day, thus honouring the State Bird of Delhi. At the release, sparrow-related posters were displayed as also crafted nests and poems recited.

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Captain Cool is Here





Captain Cool is Here

It is estimated that coal-powered thermoelectric plants generate 60–80% of India's energy requirement. This places the CO₂ emissions per unit of energy in the range 0.82–1 kg per kilowatt-hour (kWh). Apart from polluting the land, water and air, the use of fossil fuels increases global warming. The 2021 Intergovernmental Panel on Climate Change findings warn that average global temperature could rise by over 1.5°C in the next few decades unless there are immediate, large-scale, all-out efforts to reduce greenhouse gas emissions.

Switching entirely to clean and renewable energy sources such as solar or wind is a viable solution. However, this will likely not get implemented in the short-term. In the meantime, the only effective way to lower the global carbon footprint is through reduced energy consumption. Mr Panu Halder, a teacher from Bilaspur, Chhattisgarh, worked with students of the local Nature Bodies Eco Club (Himangi Halder, Poonam Singh and Uttam Kumar Tamboli in particular) over many months to develop an easy-to-use app they named the [Captain Cool App](#).

Captain Cool documents the units of energy needed to run appliances used in everyday life. For instance, one can calculate how much energy

is expended to watch one's favourite TV shows. Similarly, it also records the energy consumed while charging devices, working on a computer, running a washing machine, heating food in a microwave, and cooling a room with an air conditioner. The app is extremely user-friendly. All a person needs to do is select the appliance(s) to use, enter its wattage plus the hours they use it daily. The app calculates the carbon footprint immediately.

The team is used to the look of amazement on people's faces when they realise how large their carbon footprint is. 'Don't worry,' they reassure the shocked person. 'Green Hacks included with the app, will help you lower your carbon footprint. Buy appliances with a high Star(*) rating. Reduce the brightness of your computer screen to 70% and save energy use by up to 20%. Switch from incandescent bulbs to CFLs (Compact Fluorescent Lamps) or LEDs (Light Emitting Diodes) and see the savings. One 100-watt incandescent bulb replaced with a 20-watt CFL one gives the same illumination. Doing just this will do away with annual carbon emissions by 84 kg. Similarly, reducing TV usage by 2 hours a day lowers energy consumption by 75.2 kWh over 12 months'. These are some of the recommendations they offer.

To calculate emission savings from reduced energy use, one can total up the estimated reduction in wattage and multiply it by 0.82 kg of CO₂/kWh. And there are financial savings too. At ₹4/kWh, the annual savings from watching 2 hours less of TV every day is ₹301! Turn off appliances at their sources to prevent energy from draining out in standby mode. A TV set, set-top box, and DVD player in standby mode use 19.7 watt per hour. Switching these off will amount to a whopping reduction of 106.1 kg of CO₂ and ₹4,517.70 in annual savings. Replacing a desktop computer with a laptop also cuts down annual CO₂ emissions to around 279 kg and annual electricity bills by ₹41,000.

The team initially tested the app by sharing it with a sample group of about 1,300,000 students, all of whom are members of the approximately 7,000 Eco Clubs across the state. The feedback was encouraging. Users found it easy to use as the app works in both Android and iOS environments and is available in Hindi and English.

Using the Captain Cool App continues to be an eye-opener for many. The shocking energy-use figures that the app brings to light has enthused people to implement ways to reduce their energy use. On Earth Day 2021 (22 April), a pledge taken by the students of the Eco Clubs of Chhattisgarh helped save 90,000 kg of carbon from being emitted into our atmosphere.

Presently, the app is accessible at naturebodies.in. The [Nature Bodies](#) YouTube channel features videos explaining the Green Hacks in greater detail. The students hope that people will regularly use the [app](#), reduce their carbon footprints and help keep global warming within manageable limits. Captain Cool has certainly helped students and others understand, research, and take on environmental stewardship.

Panu Halder

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A New Currency





A New Currency

Pamohi is a village in a mining area of India's north-eastern state of Assam. The abject poverty around results in children deprived of education. Instead, they have a life of labour and drudgery as their families compel them to work in the nearby quarries. In this depressing scenario, the Akshar Education Model, founded by Mazin Mukhtar and Parmita Sarma, has a unique policy that makes quality education available to students from less privileged families and simultaneously develops in them, environmental stewardship, and entrepreneurship skills.

The school in Pamohi accepts just one currency to pay school fees—plastic. No, not the credit card type, but hold your breath, plastic waste! Each week, as payment for tuition, pupils need to deposit a minimum of twenty items of plastic waste collected from their homes or environs. The genesis of this unique currency use developed out of requests to parents to have their wards carry to school, plastic waste collected at home. 'Almost none complied. So we offered a choice: pay school fees with regular cash or pay with plastic waste. Now we have 100% compliance from parents to this alternative fee-paying method,' the authorities explain. What a masterstroke of an idea! The fee waiver makes for a sense of pride in the students for doing their bit to help reduce, reuse, and recycle plastic waste. They are compensated for their efforts, not given charity. Before lockdown, Akshar collected about 10,000 plastic packets each month.

Mazin and Parmita say, 'The use of single-use plastic is rampant in and around Pamohi as it is cheap, durable, and light. In addition, discarded thicker plastic packets that popular consumer snacks get sold in, take the quantity of plastic waste generated to alarming amounts. Some of the plastic waste is collected and shipped to landfills by local municipal authorities. This doesn't fully address the problem as most of it will take centuries to decompose. Aside from what the municipal body gathers, tonnes more are found strewn in the area. During the harsh winter months, many locals warm themselves by bonfires ablaze with plastic waste, adding vast quantities of carbon emissions to the already polluted air. Children can often be seen coughing and wheezing as their lungs react to the toxic fumes. Furthermore, plastic can convert into microplastics that absorb toxins and continue to pollute the environment, choke landfills and leach out to contaminate soil and water.

It was to address these issues that the Akshar Education Model instituted the plastic waste currency policy. While collecting plastic waste from their homes and localities, the students make use of communication strategies taught to them at school to encourage people to change their careless plastic use habits. They explain that burning plastic and strewing it is harmful to the environment and to all species that exist on the planet. The collected plastic is cleaned and upcycled into sturdy building materials called Eco-bricks—plastic bottles stuffed with plastic packets and wrappers. The students are currently also installing in the school, plastic shredders as well as injection and extrusion machines based on designs from Precious Plastic, Netherlands, to convert plastic waste into manufactured products.

The co-founders of Akshar hope that many government schools in India will adopt this system. A beginning is made with the government of Assam implementing the Plastic School Fees Policy in 100 state government schools. Each is mandated to set up a Plastic Recycling Workshop where students recycle the plastic collected. 'Wouldn't it be wonderful if all the 45,000 schools in Assam replicated the model?' the couple muse.

Akshar also blends academic learning with vocational training and acts as an employment agency, business incubator and developmental organisation. Students are paid with tokens that can be exchanged

for essentials such as clothes and shoes. Older students earn by teaching the younger ones, which reduces dropouts, as all the students have gainful employment. 'We thus inculcate responsibility for the environment and stewardship to support a better community,' says Parmita.

Considering that India generates around 26,000 tonnes of plastic waste every day, Akshar's simple and effective model for managing plastic waste needs to be widely and swiftly replicated across the country.

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Pre-Loved





Pre-Loved

The most environmentally friendly product is the one you didn't buy says author and philanthropist Joshua Becker. With a belief in the ethos of this quote, Garbage Free India (GFI), a non-profit and the eco-preneurial venture Gift Green India, initiated [ElseWear](#), a campaign to help impede the rapidly intensifying climate change. It was supported by students from the College of Social work Nirmala Niketan (CSWNN). The campaign aimed to revive the practice of hand-me-down clothes, something usual in joint families, particularly with older generations.

The idea behind the campaign was to awaken an interest in youth about reusing and repeating clothes as youth today tend to live a life of wear and discard. Additionally, they also wanted to create awareness about the need for sustainable fashion. In the process, the role of students from CSWNN was significant to bring the two organisations' goals to life. The students were part of the core team of the Elsewear campaign. They creatively developed awareness-generating content to help their peers and others focus on important facts and ensured that these reached out widely so that more and more youth got engaged and participated in the ElseWear campaign.

The ElseWear campaign team was aware of the startling factual information about fashion's enormous impact on natural resources. Take its water consumption and the pollution of water, for instance. An estimated 1.5 trillion litres of water are used by the fashion industry each year. Chemicals get added during dyeing, bleaching, and wet processing of fibre and textile production. Up to 20,000 litres of water is required to produce just one kg of cotton, accounting for the shocking statistic of 2.6% of global freshwater consumption.

Other negatives documented are 10% of the global carbon emissions coming from the textile industry—thanks to off-the-hook, cheap garments produced in countries that essentially use coal to fuel energy generation. 52% of our clothes contain polyester made from fossil fuels. 72% of clothing is synthetic, and these can take up to 200 years to decompose. One hundred ninety thousand tons of microplastic textile fibres go into our oceans every year. 5.2% of the waste in our landfills is textiles. Every year, thousands of hectares of endangered and ancient forests are cut down and replaced by plantations of trees used to make wood-based fabrics such as rayon, viscose, and modal. This loss of forests threatens the ecosystem and indigenous communities.

With multiple outreach methods, the entire Elsewear team helped educate youth about the significant impact of the fashion industry on our environment. 'It is not for nothing that it is named the second largest polluting industry,' they explained. 'To wear clothes is a universal need—the world's population of 7.8 billion humans all wear clothes—from poor to rich and infant to old. Our choices of clothes can have a significant impact on climate change. Think of the heaps of discarded garments that land up in landfills and the enormous amounts of natural resources in their making that thus go to waste. Every piece of clothing has a carbon and water footprint. Take, for example, a staple garment for youth—a pair of jeans. It is estimated to consume 7570 litres of water for its production and more for washing. Through the campaign, the team encouraged youth to make the most of their wardrobes and buy more only if it is essential. They wanted people to be able to distinguish between their needs and wants. They also wanted to enable the revival and reuse the unused clothes that people already have. The term Pre-loved brings a positive connotation to the concept

of hand-me-downs. Team ElseWear believes that every piece of clothing has a story to tell. Promoting pre-loved clothing helped them share these stories along with the love that went into outfits people used.

The [ElseWear](#) campaign helped individuals find new homes for their pre-loved clothes and educated them about the fast fashion cause. To attract youth (the target audience), the campaign was run through the social media platform Instagram. Twice a week, friends, family, and followers shared images of outfits put up for 'adoption'. Anyone interested in receiving an outfit displayed reached out via Instagram or email. Team ElseWear was the bridge that connected donors to the receivers. Additionally, it provided a platform for discussions around the campaign.

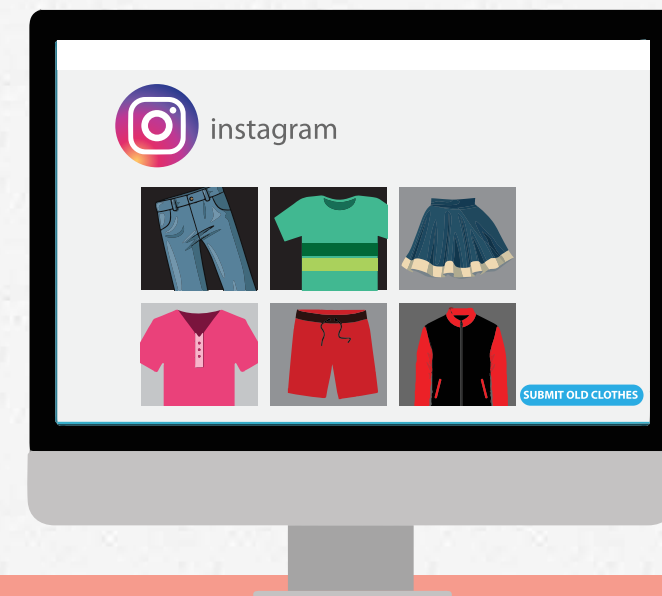
A webinar was conducted on starting the sustainable fashion journey, the obstacles faced, and the process to identify environmentally friendly fabrics. The students of CSWNN actively mobilised their batchmates and other students from other batches to join this webinar. With the support of GFI and Gift Green, they independently conducted the webinar and explained why it is imperative today to consider what you buy and rethink our discarding practices. 'For one, fast fashion has led to a drop in garment prices over the last twenty years, making designer clothes more affordable to many. Estimates indicate that, on average, a person has five times more clothes than their grandparents had. It has become easy now for youth to buy the latest trends every time a design season changes. However, these clothes are not made long-lasting. An average lifetime of a garment is estimated at three years before it gets thrown away.' They shared these startling facts through an interactive presentation and by playing 'Myths and Realities', a game about the fashion industry.

The discussions during the campaign have even inspired young GFI interns, the students of CSWNN to set up thrift shop ventures in their hometowns (some of them were small satellite towns) when they graduate. The startling facts about fashion also led Garbage Free India to create an entirely youth-focused learning module on Sustainable Fashion. They aim to reach much more youth in the future and inspire people with different ideas such as garage sales and flea markets to look at fashion from a sustainability lens.

A significant obstacle the campaign faced was its timing. Some hesitated to partake in the exchange due to COVID. The shipping restrictions also delayed the process. Nevertheless, in 2 months 5,000 people interacted and responded to the campaign, more than 60 outfits were offered out of which 5 outfits received new homes. It enabled participants to 'reduce carbon footprint' and 'shop guilt-free' as one of them quoted. ElseWear would like to reach more audiences in future and document all the positive effects of using pre-loved.

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From the Known to the Unknown





From the Known to the Unknown

St Paul's International Academy, Sonwar, is in Srinagar, Kashmir, an area referred to as *Jaanat* (paradise on Earth), thanks to the abundance and beauty of its natural wealth. Its vibrant ecology, multiple water bodies, and mountains (repositories of pre-historic marine fossils as these once formed the seabed) combine to make it worthy of its nomenclature. The Academy is located at the foothills of the Shankaracharya hills. From here, one can view the towering Zabarwan mountain range.

Grace Paljor, the Principal and Chairperson of St Paul's International Academy, grew up here. It is second nature to her (as to all other inhabitants) to respect the idyllic environs and coexist in harmony with it. She is not sure if youth today will be fortunate to live a similar green life. 'Do they have the same inherent reverence and concern? Will unregulated development harm the environment?' she wonders. To address her concerns, she opines that, 'Environment Education today is more important than ever before to create awareness of impending calamities due to ignorance and apathy. All humans need to begin at this very second to do something about it.' She firmly believes that schools need to incorporate environmental education into

their curricula to develop climate literacy and stewardship for the environment in their students. Her lament is that prescribed textbooks for Science, Social Science and Environmental Science, with their nationally standardised syllabi, fail to provide information relevant to the unique flora and fauna surrounding students in each of India's varied geographic regions. To fill this gap, Grace implemented a process of alternative learning. It begins with providing students in-depth understanding about their immediate environs and thereafter, expanding their knowledge to fields afar—'a journey from the known to the unknown' as she terms it.

The extended curriculum also incorporates topics contextualised to the particularities of the region. All school issued notebooks have pictures of local birds on their covers to awaken curiosity, appreciation, and knowledge, which likely gets translated into concern for the environment. Along with India's national tree, the mango, the Kashmiri child now learns about region-specific ones. The mighty Chinar (Maple), Apple, Walnut, Pine or Poplar—trees frequently seen in the region. It's the same with flora and fauna. The students learn about birds such as the Kingfishers skimming over Dal Lake and animals such as the majestic Markhor (*Capra falconeri*). In addition, the Hangul (Kashmir Stag), an endangered species with just around 200 individuals left here. The species are extinct anywhere else across the globe.

The school's Outdoor Science Education Camp is organised in summer at a sylvan spot in the valley. Students learn hands-on about dragonflies, trout, pine trees, wild and seasonal flowers, and migratory birds. They are also taught about the heavenly bodies as they stargaze at night. Art and craft activities that follow are based on the images of constellations observed as a way to etch these in the young minds firmly. Pond specimens are studied and water tested on field trips using scientific equipment and methodologies. On treks, students take on the onus of caring for their environment and collect litter from mountain trails and meadows. These outdoor experiences effectively teach the students as their curiosity is piqued in real-world settings. They are also taught the names of local flora and fauna in the native Kashmiri language to enable them to share their learnings with others. Once the urgency of responding to our planet's challenges is ingrained in the students, they are given special school badges to wear, stating 'I am a Seed of Change'.

Grace says her efforts are just a drop in the ocean, but she is hopeful that the ripples they create will lead to a better world.

Here is a poem she wrote for children about birds:

There is so much more than Mynahs

Do you know? There's so much more
Than Mynahs, Crows and the House Sparrow
A flock of Starling herald Spring
At dawn Whistling Thrush begin to sing

Bulbuls, Thrush, Pigeon and Wren
Eat berries and insects in the garden
The Hoopoe too comes along
Shrill Cuckoo calls echo around

Finches feed on thistle seed
Parakeets on fruit trees feed
Golden Orioles are a pretty sight
Black Drongos catch bugs in flight

Swallows build nests of clay
Woodpeckers peck on trees all-day
Pariah Kites circle in thermals warm
Chukars call in sun and storm

Moorhens and Herons watch and wait
Kingfishers dive and catch their bait
Little Grebe and Coot, dive and dip
While Ducks and Geese swim and nip

Paradise-Flycatchers are a rare sight
Migratory Geese form a 'V' in flight
Blue Magpies mimic, chase one another
Jackdaws flock in snowy weather
Now I know, there's so much more
Than Mynahs, Crows and the House Sparrow

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Green Labs

RECYCLABLE



BIOMEDICAL



COMPOSTABLE





Green Labs

Educator, author, climate leader and mentor Nita Ganguly believes that mentoring takes precedence over the mere transmission of information. 'There is a critical difference between acquiring information and understanding it. I firmly believe that educators must inculcate self-directed learning, expand critical thinking, and encourage young minds to be curious. Students need to be challenged to go beyond textbooks and stretch their imagination,' she says.

To help her students acquire first-hand experience of exploring the natural world, she urges them to feel nature's pulse, live with its every breath, and understand its thoughts. They are encouraged to share their understanding of nature with others. With these ends in mind, Nita helped design and build a low carbon footprint laboratory in Sanskriti School, Delhi, where students are exposed to an astonishing array of activities. Each class develops its list based on interest and local environs. These include solar concentrators, ways plastic weaving looms convert the discards into cash, innovative methods to increase the green cover through bottle drip irrigation, recycling used notebooks into papier-mâché products, and turning wet waste into compost. She also encourages students to conduct quality monitoring analysis, audit energy use, regulate pollution causing activities, among others.

Students are introduced to the 'dry garden' concept at their school campuses. Since urban constructions occupy areas once teeming with flora and fauna, school gardens are developed to sprout microcosms of original biodiversity, leading to a greater appreciation by students of the importance of the ecological cycle. Dry gardens are designed. These require little or no irrigation in their later stages and typically consist of rocks and stones and native plants that thrive in dry conditions. All the plants in the dry gardens are naturally acclimatised and allowed to grow uncultivated. Drip irrigation is also showcased. This method works wonders in the initial nurturing stage. Over time, many avian species visit these habitats, especially during the migratory season.

The next step is moving out from the confines of the campus to the outside world. From anti-tiger poaching campaigns to raising awareness about the diclofenac-induced deaths of vultures, mentors guide the students, encouraging them to research and gather factual information to help design eye-catching communication campaigns. Meetings with grass-root workers and eminent environmentalists help students understand that waste management goes far beyond garbage collection. 'Students need to recognise the social contribution of those who work to collect garbage in order to reduce its impact on our environment.' Films shown to them include, [Each One, Adopt One](#), which follows the life of a young ragpicker she worked with. 'A collaboration between the academic institutes and these 'green heroes' creates mutually beneficial alliances that develop students' desire to help achieve 'Zero Waste' targets,' she says.

Ideally, schools should earmark at least one teaching period per week for students to learn practically in the lab. The teachers can develop a well-structured activities calendar with a syllabus based on important environmental dates and festivals. Nita also recommends that students be provided with platforms to express their curiosity without hesitation to discover what mundane textbooks might not present. As environmental stewards, they widely disseminate information through oral and written presentations as well as by creatively using varied art forms. To enable this, their communication skills are enhanced with special coaching classes.

In response to the COVID-19 pandemic, Nita has taken her lab online. She created a video called [Hole\(y\) Bin](#) to explain issues regarding the handling of household waste. Students confined to their homes were taught to identify biodegradable waste and use recycle bins to collect items that can decompose into compost. Nita's poem [All We Need Is 2 Hole\(y\) Bins](#) makes learning composting fun. Her bio-enzyme poem is a rap DIY, [All We Need Is Magical Peel!](#)

'We need to recognise that today's students are tomorrow's leaders and should be encouraged to take a firm stand against the rapid deterioration of the environment. May all schools become green havens that provide an enabling atmosphere to widen environmental stewardship from a young age,' is what Nita recommends.

Nita Ganguly

Educator, Author, Climate Leader and Mentor

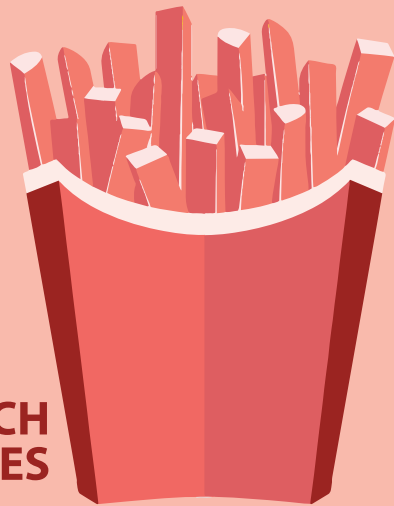
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The Slow Food Movement



AERATED DRINKS



FRENCH FRIES



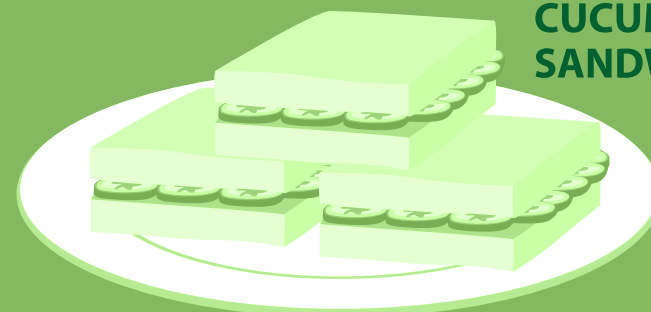
PROCESSED SNACKS



GRANOLA BARS

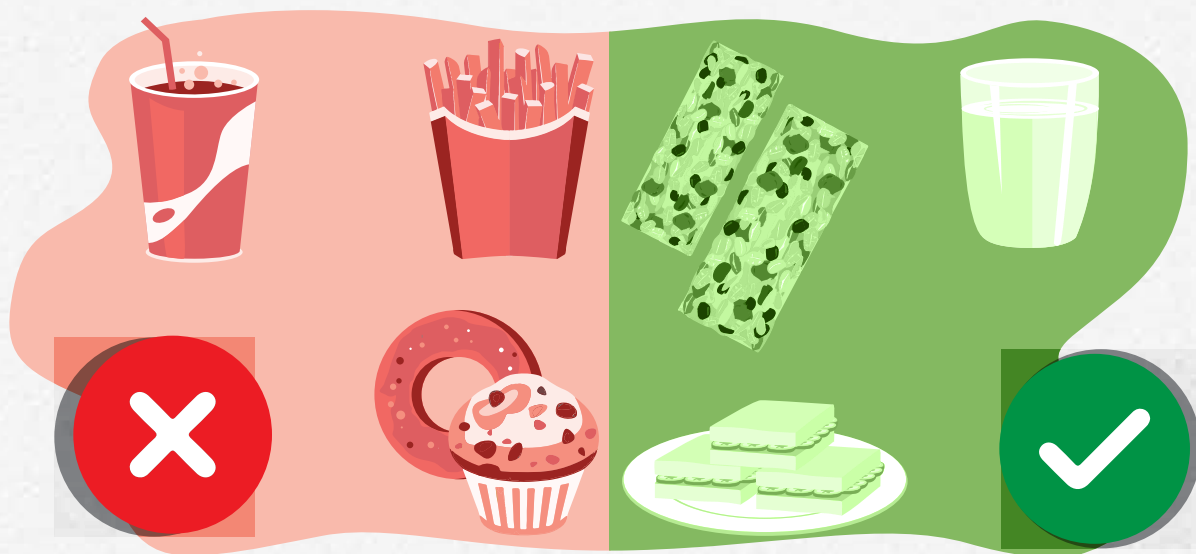


HOMEMADE BUTTERMILK



CUCUMBER SANDWICHES





The Slow Food Movement

Will you teach your children what we have taught our children? That the earth is our mother? What befalls the earth befalls all the sons of the earth...

This quote from Native American Chief Seattle's speech in 1854 made Bincy Mary George, a teacher at The Shriram Millennium School, Faridabad, Haryana, reflect on whether her teaching addressed these vital concerns. Her city-based students live in concrete structures, eat packaged food, and converse electronically instead of face-to-face. They are well-versed with data about climate change and can rattle off statistics on species extinction. However, she notes, 'They are far removed from the feel, smell, sound and sight of nature and consider the environment a geopolitical resource or decorative element.' As a teacher of environment and ecology, she was determined to help her students re-imagine and re-define the planet's flora and fauna as one family!

In 2019, Bincy, an amateur chef, was placed in charge of the school's Culinary Society. She augmented her limited cooking experience with her passion and knowledge of ecology to adopt the Slow Food Movement as a

key focus for the Society. A score of enthusiastic students signed up, perhaps drawn by the thought of sampling tasty food! In her own words, 'It was an adventure to redirect them beyond outcomes to each ingredient's journey from farm to fork.'

Sessions with presentations and stories on the Slow Food Movement and its history in Italy were the starting point. The movement promotes local and traditional gastronomy and the processes of food production. Brainstorming sessions helped define ways in which to adhere to the aims of the movement. Quizzes on colloquial names of vegetables and spices added a fun element to the learning sessions. The students replaced aerated drinks and processed snacks with homemade buttermilk, granola bars and cucumber sandwiches. Bincy advised her students to cook flavourful and healthy food prepared with ingredients that had low carbon footprints so as to minimise the negative environmental impacts of growing, producing, transporting and storing food—from the natural resources used, to the pollution produced and greenhouse gases emitted.

The students watched the 2014 documentary 'Cowspiracy', a film directed by Kip Anderson and Keegan Kuhn, to understand the benefits of a vegan diet and how food choices contribute to climate change. The students took up the challenge to go vegan during the Diwali festival. They turned the traditional gifts of dry fruit and nuts into delicious Walnut Halwa, much like their grandmothers used to. 'The challenges posed by the COVID-19 pandemic are no deterrent for the enthused students, who continue their hunt for traditional recipes, which they then share online,' Bincy happily reports.

The school set up *Shri Vatikas* (kitchen gardens). Each class was assigned a patch once its students understood seed cycles for seasonal vegetables such as spinach, radish and gourds, and ways to increase yields. They were encouraged to prepare the soil for sowing. 'Dirtying your hands while digging is good,' Bincy told them. She mandated that each class observe and document the growth taking place on their patches. The squeals of delight at seeing a vegetable pop out continue to be joyous to her ears. Harvested vegetables sold by the school brings revenue for the Culinary Society to purchase resources.

Over time, the students comprehended the advantages of cooperative farming, learned about harvest cycles, and marvelled at the link between seasons, festivals and traditional dishes. The adventure of farming and cooking enthralled the students and culminated at year-end with them preparing a local confectionery made from millets, *Bajra Ki Laddoo*. The school officially participated in the global Slow Food Movement Festival of Spain in the [Regional Indian Recipes](#) segment. The students showcased *Dalma* from Odisha (lentils slow cooked with vegetables), *Elleyappam* from Kerala (pancakes steamed in banana leaves) and *Puzhukku* from Kerala (boiled seasonal root vegetables).

One of the challenges faced by the Culinary Society was the school's 'no cooking on fire on the premises' policy. Another constraint was the limited time students could spend farming. An hour per week allotted for the Culinary Society was not enough, bemoaned the students. True, natural ecological cycles do not follow school timetables!

'The Slow Food Movement reinforces the core values of sensitivity and pride in their heritage,' says Bincy. Moreover, students are exposed to farming, a significant source of livelihood for millions of their fellow countrymen. By understanding how the cultivation of each ingredient contributes to greenhouse gas, they know how to reduce their carbon footprints. This leads them to make green choices such as between wheat and millet, as the cultivation of the latter ranks lower on the emissions scale. Thanks to the many natural pollinators, the symbiotic nature of Earth's ecology became self-explanatory to the students as they watched vegetables grow.

To take this pilot project further, Bincy has developed a curriculum that incorporates ecological sensitivity. 'I firmly believe that the future of education is interdisciplinary, with ecology omnipresent,' she says.

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The Power of Theatre





The Power of Theatre

While climate education is vital for youth to understand the challenges posed by climate change and urge them to adopt appropriate behaviour and practices, helping them absorb knowledge about these often calls for non-formal, non-direct ways.

Banglanatak dot com is a social enterprise that is an advisor to UNESCO. It works across India to foster inclusive and sustainable development using culture-based approaches. Ananya Bhattacharya, Director of banglanatak dot com, opines that 'Young people today are growing up in a fast-paced world empowered by technology. They respond well to participatory, image-rich exploratory approaches.' Her team's method is to work with a wide range of folk and modern art forms.

'Reviewing our organisation's success stories, we concluded that theatre is a powerful tool to encourage self-reflection and dialogue in young minds. Drama engages, challenges, stimulates thoughts and inspires children to focus on the issue depicted and make appropriate life choices. It creates a platform to give voice to their concerns' Ananya says. She elaborates

that drama is not merely a product but also a process that builds new skills and motivates change in students at all levels. Those that script, enact, produce and even view are impacted, as their attention is directly engaged.

'Theatre builds environmental awareness on any subject. Teachers can highlight ways to adopt sustainable lifestyles. For example, in the history class, students can think about how traditional indigenous societies protected and revered nature. When they learn philosophy, they can be encouraged to reflect on the values of being in harmony with nature' Ananya says. She explains the methodology they use. 'The first step is to train the students to develop stories.' She shares a few effective approaches to achieve this. 'Organise a story circle with young people sitting together. Urge them to discuss and select a climate-related topic of majority interest. Each member is asked to think about ways the issue could affect human life and the biosphere at large and what steps should be taken at the individual, community, and national levels. This process of ideating and reflecting is crucial for them to develop the story. Merely enacting pre-written scripts is not as powerful a methodology. Let their imaginations translate into imagery. For example, if one wants to explain a particular species's plight, let them design productions that showcase this—perhaps birds lamenting their homes lost to deforestation or polar bears frightened by the melting Arctic ice. Another approach is to discuss the plot's characters. While the protagonist gives direct messages, the characters need to showcase behaviour and attitudes that need to change subtly. If the character's behaviour is made to appear too negative, it might be counter-productive as people may identify themselves doing the same. The embarrassment of that might make them shy away from it.'

In interactive theatre, children get trained to understand the importance of body language and eye contact to create powerful moments. These are useful in engaging the audience in dialogue by asking questions at high points in the drama. Another way is a style known as 'Forum Theatre.' Augusto Boal, a Brazilian theatre practitioner, drama theorist and political activist, created this. Here, the spectator becomes the spec-actor. Viewers are invited to change how a character should respond. For example, if a character is shown littering, someone from the audience is asked to identify the behaviour that needs to change.

'Image Theatre' is another powerful way to develop skits. Children are encouraged to create images of various scenes individually and then in groups of two, three or more. Next, they add movement and dialogue. The end product is a finished skit. As the children reflect and communicate, they gradually become champions of the cause.

Climate education programmes at schools can also connect students to their heritage and bring traditional arts and practices to the fore. In the mangrove forests of the Sundarbans delta, communities enact a folk drama form called *Bonbibi Pala*. Bonbibi is the forest deity, and the drama is built around her blessing Dukhu, a young boy who stands up against destroying forest resources and disturbing wildlife. Fine arts and music can further support the drama. For example, *Patachitra* is a storytelling tradition in Bengal. Stories are painted on long scrolls, and the *Patua* (painter) unfolds these and sings to describe each scene. Banglanatak dot com organises workshops where children are taught how to mix the natural dyes traditionally used in the scrolls and then develop their own on environmental issues. *Patachitra* serves to build interest for the drama by attracting people's attention—whether this space is in the open or the foyer of a built theatre.

'The beauty of theatre is that it is effective across populations—from urban to rural, rich to poor, young to old. I strongly encourage all schools to assign time for this thought-provoking activity,' Ananya recommends.

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Reviving the Disappearing





Reviving the Disappearing

In today's world of disappearing greens, environmentalists say they continually encounter an increasing disregard of nature conservation by humans. Bamanghata High School, a school in the East Kolkata Wetlands (EKW), decided to rectify this by encouraging environmental stewardship in its students from a young age. The method they adopted is one of culture-related, community participation. They noted that this helps local youth retain information longer than learning from prescribed curriculum texts that are often not relevant to their immediate environs.

The school is situated on the fringes of the EKW, a geographic area recognised as an important Ramsar site. The 12,500 hectares of the site are referred to as 'Kolkata's Kidneys', as they act as natural water filtration plants. The water-saturated areas and dry banks that make up the wetlands are favourite habitats for waterfowl and other flora and fauna. Over the years, the wetlands have fallen prey to land sharks who hope to drain them and erect multi-storeyed constructions on the valuable land. Manas Haldar, Bamanghata High School's Headmaster, believes his students could play an important role to help avert this. 'Locals are

critical stakeholders in any attempt to save the wetlands, which in turn contribute to maintaining a desirable climate. Therefore, year after year, our school's faculty works painstakingly to help 11-18 years old students awaken to the importance of the biodiversity hotspot around them. Once they comprehend this, they get transformed to be messengers who take ecological awareness to the wider community,' Manas says.

The initial impetus came thanks to [Disappearing Dialogues Collective](#). The Collective is a collaboration of minds whose vision includes adding value and preserving vanishing environmental regions. Their work symbolises hope by focusing on local community engagement through art, pedagogy, and examples from everyday life. The Collective works with young learners to build awareness about conserving their unique environment and appreciating traditional knowledge. The team commenced engagements, spearheaded by its Founder-Director Nobina Gupta and with funding from the German Consulate, Kolkata. Schedules comprised immersive research work, continuous dialogues with the community, mentorship and workshops to co-create an interdisciplinary exposition that focused on activating environmental awareness, leading to active community participation. The team included students who received training to respond to questions about their surroundings. Pictorial mapping worksheets depicted the wetlands' conditions in various wetland villages from which these students came.

Workshops were also conducted for the students to learn ways to turn locally available natural resources into useful objects—for example, handmade paper out of banana fibre. Emphasis was placed on recycling and reusing organic and inorganic materials to create a greener planet and thus help stymie climatic shifts. Manas Haldar was happy to note that the students participated with great enthusiasm. Their creativity was encouraged, as they produced some uniquely beautiful artworks and artefacts. Plastic bottles strewn around that take a toll on the environment were reused as planters to make a herbal garden. 'Our pupils also ingeniously created musical instruments from domestic inorganic waste,' Manas Haldar says.

Several strategies and innovative methods adopted inspired the local youth to take on stewardship for the environment. The most familiar with every nook and cranny, the youth, became citizen scientists to help

document the flora, fauna, and avian species particular to the EKW. The data, drawings, and observations are recorded through group activities to reiterate the benefits to individuals and the community. The findings get documented in a journal that is regularly updated. This developed in the students a sense of ownership and concern to preserve the delicate ecological balance.

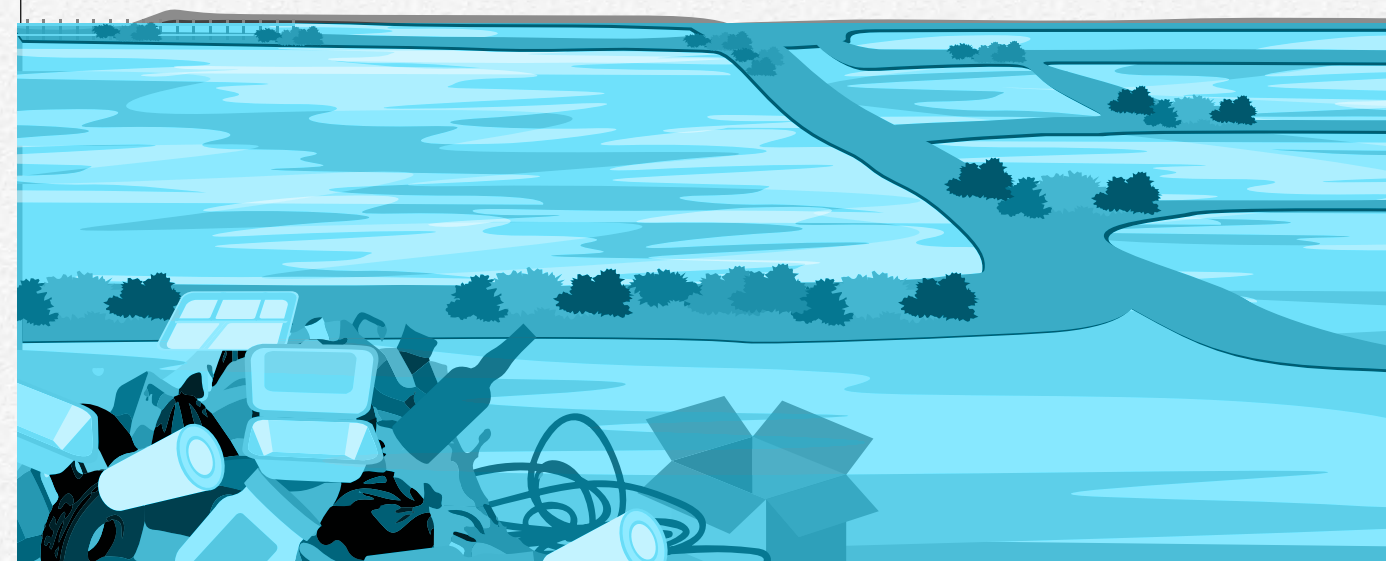
‘The project witnessed the dawn of a new consciousness and the emergence of a nature-loving society,’ Manas says. The Collective curated an exhibition for those living away from the wetlands to help them appreciate the ecosystem's value and impact on them. Visitors viewed artworks and inputs from students of the school and the EKW community. Interactive installations shared the discovery of new species in the nature-rich wetlands, as also products upcycled from waste. Dance and theatre performances on environment-related subjects scripted the unique story of wastewater management and the circular economy. All this combined to become a one-of-its-kind art space fashioned among flora and fauna. Nobina proudly says, ‘The public engagements have been, and we hope continue to be, moments that drive forward a participatory movement to create lasting, positive changes that protect our environment and culture. The most satisfying moments in our work are when students lead us to explore, share, observe, interact and create.’

According to Manas, ‘It was a vibrant and innovative platform of learning, exchange and communication, which will hopefully bring sensitive minds together for further collaboration and positive action.’ He also adds, ‘This could also be an exemplary method to motivate urban populations to be more proactive and help protect and preserve heritage, not just for ourselves, but also for the future generations.’

Nobina strongly recommends the approach adopted by the Bamanghata High School, particularly for those at the grassroots level, who are much more likely to face the brunt of climate change than their city cousins.

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School Radio





School Radio

As per the Government of India census and National Youth Policy Document, children and youths aged 5–19 constitute 340 million of India's total population. The majority of them have limited opportunities to participate in decision-making or to take up leadership roles. There are limited platforms for them to express their views, share ideas, or be part of the solution, resulting in the younger generation relegated to passive listening rather than active participation in the decision-making process.

To promote out-of-the-box thinking about everyday issues and the events witnessed by children routinely, Aruna Gali and Udaya Kumar Gali initiated [School Radio](#) on World Radio Day (February 13), 2015. Aruna, Co-founder of School Radio, opines that: 'Parents, educational institutions and society tend to condition young minds to think in a particular way. Traditionally, the young are not encouraged to speak in front of elders, let alone voice their opinions, resulting in young minds developing a fear of public speaking, lacking confidence, and suppressing their abundant inherent talents. It is no wonder they commonly suffer from stage fright. The exceptions are the fortunate few who study at institutions that implement curricula for holistic development, not just excellence in exams.'

School Radio promotes the voice of the youth as change makers who transform themselves and their societies by providing an avenue to project their solutions to problems through content that showcases these. It serves as an online platform for educational institutions at all levels to address the Sustainable Development Goals and promote Education for Sustainable Development, keeping local conditions in mind. This helps bring about regional transformations that impact the world.

Based on needs, charges to initiate School Radio at an organisation may vary from ₹50,000 to ₹180,000. Multiple School Radio Clubs, each with 10 students and 1 teacher as members, can avail a radio station. The equipment required includes a broadcast mixing desk, computer playout system, microphones, speakers, headphones, and a 'mic live' light. Additionally, a method of transmission needs to be decided on beforehand. Workshops to orientate individuals with radio production processes range from ₹345 to ₹3,000 for 12 workshops for 12 months.

Radio programmes developed by schools are broadcast on the various channels of School Radio at predetermined time slots. Residential schools prefer their broadcasts at morning assemblies, lunch breaks, evening recesses and dinner times, while day schools limit the timings to within school hours. There are several ways in which a School Radio system reaches its listeners. These include the internet, speaker systems installed on school campuses, smartphones, tablets, and other devices. A more wide-reaching system is to use FM slots so that local residents can also listen in. It is the school's choice to use a single system or a combination of more.

Programmes put together are varied. These could be skits, talk shows, interviews with experts, Q&A sessions, concerts and more. Training to anchor programmes as radio jockeys, develop scripts and produce and direct broadcasts is also provided. Once consensus is reached on a topic, a time slot is reserved. Intensive research is conducted to understand the topic well and to isolate solutions that are most likely to be effective in that particular area. In the process, youths learn ways to audit water and energy, scientifically collect and manage waste, simple systems to calculate carbon footprints, etc. Students are encouraged to include special programmes for days such as Earth Day. The next stage

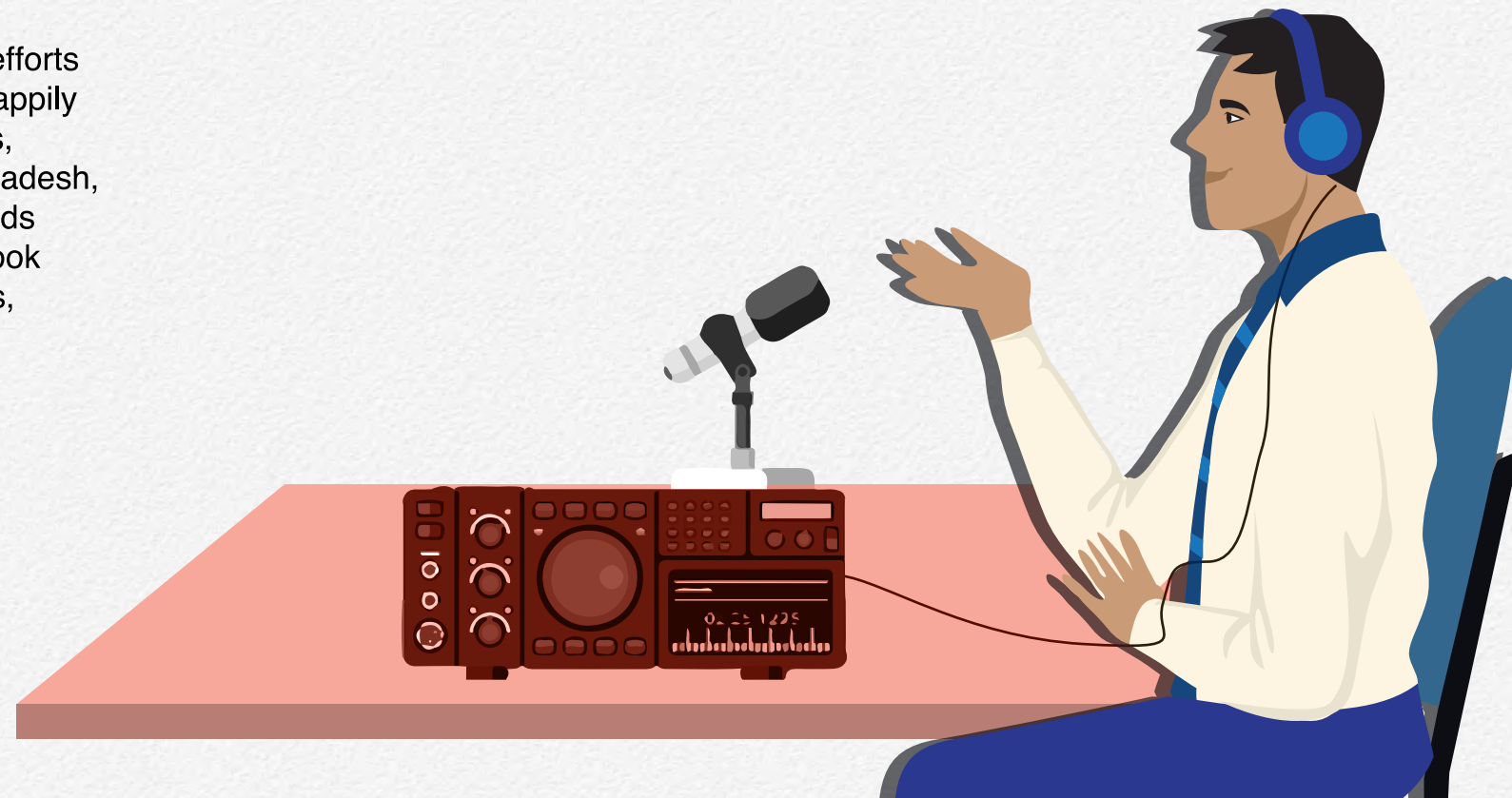
is designing the programme. As a broadcast needs communication skills and technological know-how regarding recording and airing episodes, these skills are also enhanced. Thus, the youths go through an experiential learning process with hands-on training that includes applying a Systems Approach, 21st Century Skills, STEM (Science, Technology, Engineering and Mathematics) mindset and STREAM (Science, Technology, Reading, Engineering, Arts and Mathematics).

Developing radio content makes youths critically analyse issues from their root causes. Students are responsible for every step, from pre-production to broadcast. All can avail the opportunity to speak up. So far, programmes are conducted in seven languages: Telugu, Hindi, English, Tamil, Kannada, Malayalam, and Gujarati. Currently, School Radio is incubated at the Nadathur Sarangapani Raghavan Centre for Entrepreneurial Learning at the Indian Institute of Management in Bengaluru, and the Indian Institute of Management of Visakhapatnam.

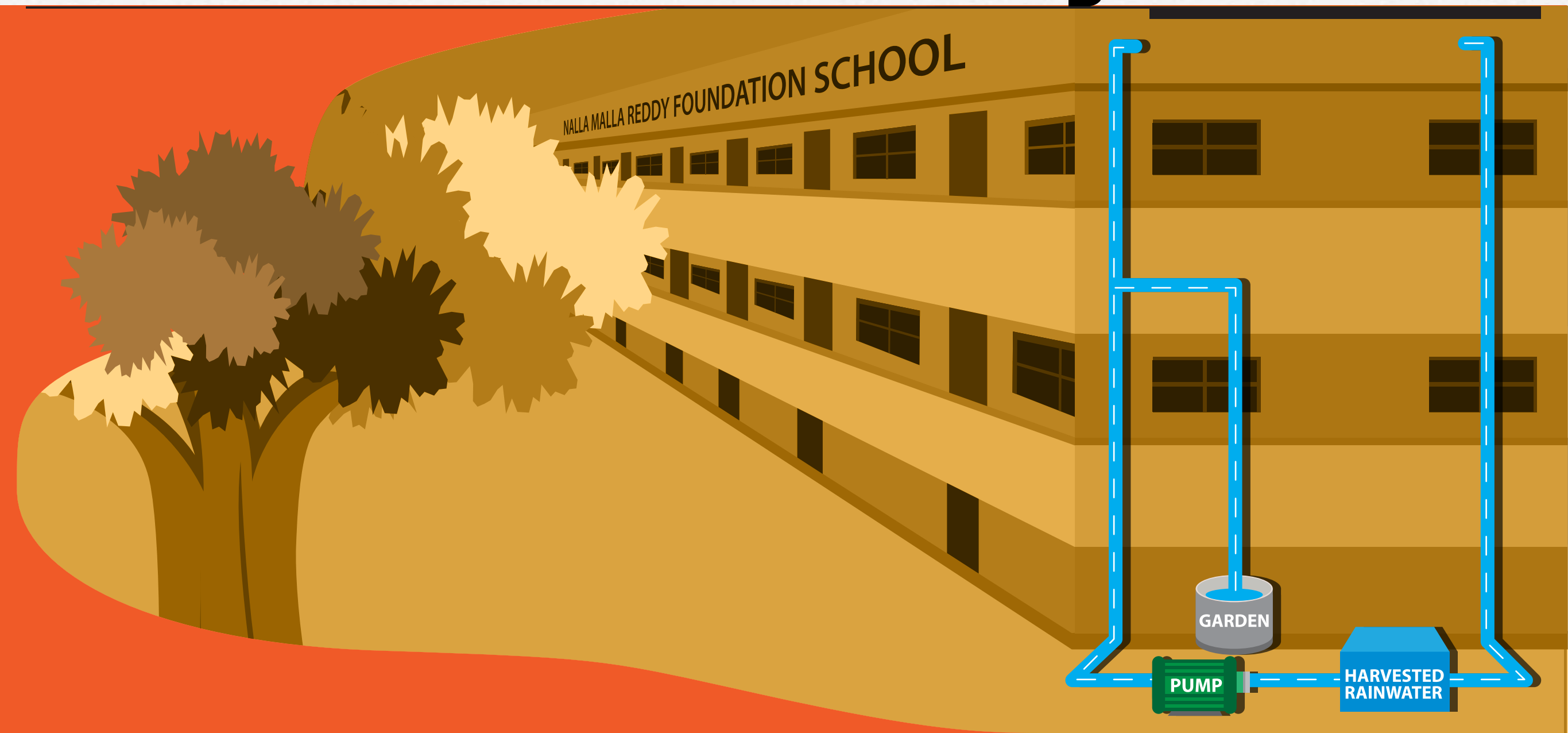
Aruna says, 'These young broadcasters are change makers. Their efforts help alter their lifestyles to be more environmentally friendly.' She happily shares that 'after prolonged experimentation and persevering efforts, our network has expanded from Visakhapatnam, a city in Andhra Pradesh, where we began, to twenty Indian states and four countries. Hundreds of children, youths and teachers take part in our programmes. We look forward to sharing School Radio programmes not just with hundreds, but millions soon.'

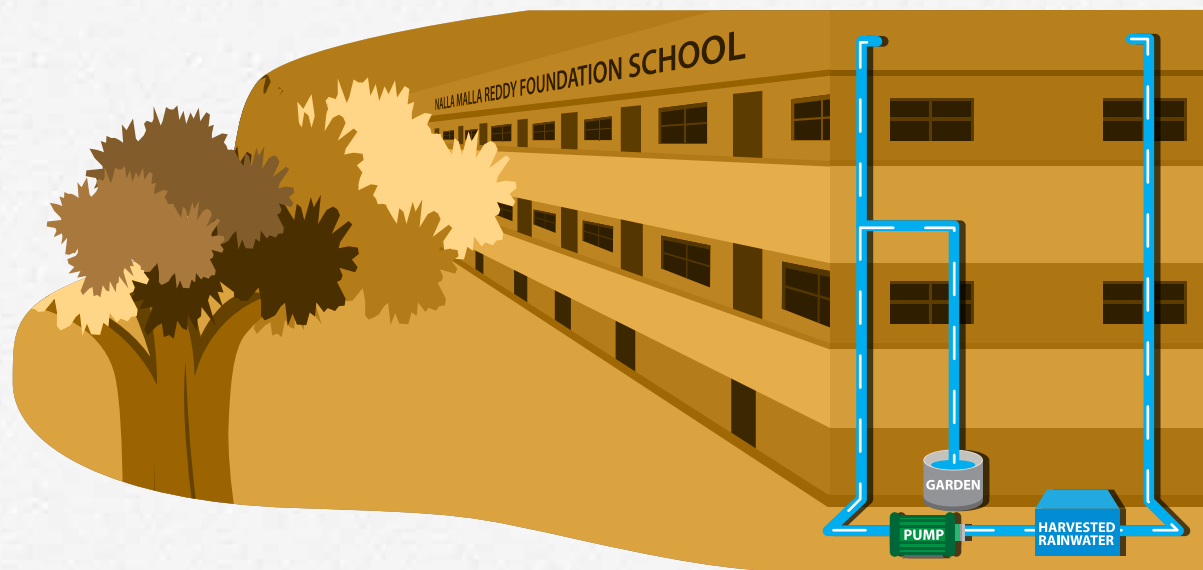
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It's Elementary





It's Elementary

'To live among the bounties of nature and not take cognisance of this great wealth is unacceptable,' says Dr Sneha Malla, Founder of Nalla Malla Reddy Foundation School, Telangana. 'Young children enjoy exploring the world around them. Channelising this curiosity is an excellent method for schools to help young minds acquire lasting knowledge,' her experience in the educational field confirms. 'Our school provides its students with a conducive atmosphere to appreciate their natural surroundings and delve into understanding the basic foundations and the building blocks of the biosphere they occupy,' she says.

Sneha's research in environmental economics and participation at international conferences have orientated her teaching methods to inculcate stewardship for the environment in students. She finds that more fulfilling than lecturing at conferences. Sneha aims to achieve this through a practical, hands-on approach that spontaneously unfolds sustainable development benefits to young citizens. She firmly believes that such a method leads to improved quality of school education, too.

Nalla Malla Reddy Foundation School acts as a research platform for students to begin expanding their knowledge. This they build on a firm understanding of basics. Every opportunity is taken to repeatedly instill

in them an appreciation of the planet's natural wealth. Each student, from kindergarten to Class XII, is placed in one of four houses. Earth house is Green, Fire is red, Air is yellow and Water is blue. The students elected to lead each house pledge to abide by the eco-friendly values of the school and the particular agenda of their house. Each house plans strategies that help focus on the element for which it is named.

Earth house organises nature walks for the students. Every alternate day, all school students (except the toddlers) are taken for a half-hour nature walk. In addition, there are sessions spent planting saplings. These automatically inculcate an interest to enhance the green cover. Gardening classes are scheduled for different age groups within school hours. This is when they learn the foundation laying principles of sowing and harvesting. The house collects food scraps and composts them to make natural manure for the plants. The produce of their efforts finds its way to the cooking classes. Some practical sessions on science and art are also held outdoors under the shady trees. On Earth Day, special events are organised that include marches, quizzes and other exciting competitions to focus on the wealth of our planet.

Water house helps bring to the fore the urgent need to save rapidly depleting water resources through the judicious use of water, and by installing systems to recharge aquifers and groundwater. The varied water management practices adopted increase water use efficiency and productivity. The students receive knowledge about the significance of recharge pits and rainwater harvesting on campus. They take this wider by admonishing anyone who wastes water and counsel them to be better citizens. To awaken students to reality, teachers share well-documented statistics, such as the shocking fact that around a quarter of the world's population might soon face a water crisis. Students are astounded when they learn that the small heap of coffee powder they use every morning has utilised many gallons of water to go from bean to cup. Such statistics act as catalysts to action.

Fire house is responsible, among other things, for advocating the reduction of use of single-use plastic, a product that is easily inflammable. The soft power that the students wield with their peers has changed the habits of the entire school! No student brings a plastic water bottle or plastic lunch box anymore. The students are also encouraged to recycle through annual recycling tournaments that create awareness about waste management.

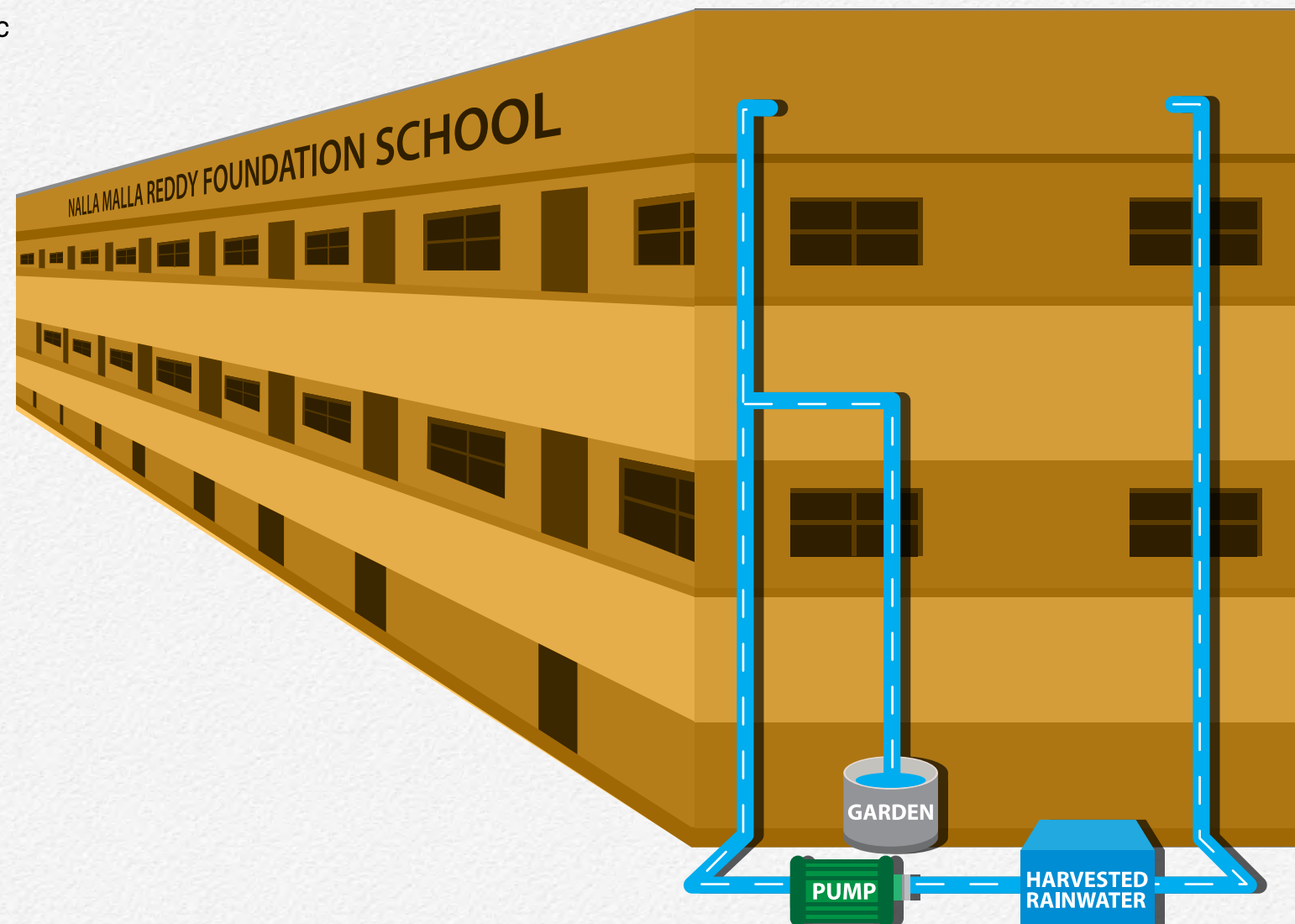
Air house makes its members scientifically examine the air they breathe. They measure the Air Quality Index and assess its impact. Students conduct research and shortlist the least polluting lifestyles to share with the general public. Discussions on ways to help Restore Our Earth are held at the school's morning assemblies with the entire school present. During lunch hours, the house team enacts street plays. These build environmental awareness and entertain at the same time. A person gasping for breath, as oxygen levels shrink in the atmosphere, makes for a vivid image to remind the audience of their responsibility to lower carbon emissions.

Thus, the management and faculty of the school work tirelessly to develop stewardship for the environment in their students by utilising a system of self-initiated discovery that is buttressed and confirmed with scientific knowledge.

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Founder

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Irish Potatoes to the Rescue





Irish Potatoes to the Rescue

Yanique Beckford is a teacher at the Holmwood Technical High School in Manchester, on the West Indian island of Jamaica. He firmly believes that educators need to help youths understand the science behind environmental concerns faced by the islanders. 'Once we accomplish that with a foundation of knowledge of irrefutable facts and figures, young minds, not bogged down by dogma but willing to experiment, will help formulate solutions to raging problems,' he believes.

The agricultural sector is one of the critical contributors to the Jamaican economy. However, many farmers are plagued by periodic swarms of insects settling on plants and destroying the harvests. People's use of synthetic chemicals to ward the pests off has contributed negatively to the environment and impacted the health of the islanders over the years. Furthermore, species that earlier existed in particular habitats relocate away from chemically-marred sites. In many cases, this even resulted in their extinction.

Unfortunately, despite support for organic farming from government and non-profit agencies in Jamaica, commercial organic pesticides are not easily available. Farmers who desired to avoid toxic pesticides began to rely on word-of-mouth alternatives in a desperate attempt to protect their plants. Would simple kitchen recipes work? Should we try the essential oils of native plants and trees? Perhaps laundry soap mixed with water? None of these really did, and farmers bent on avoiding chemicals sadly watched as pests continued to invade their fields.

Yanique was determined to find a solution to this rampant destruction of crops. He worked with students from senior classes to whom he had imparted knowledge about basic science in their earlier courses. Now the time had come to put their theoretical knowledge to practical use. He first helped them analyse why spraying chemicals to ward off insect attacks was not a good option. Students were encouraged to put their understanding of chemistry to use, and themselves discover the extent of the negatives this method resulted in. He was delighted when they volunteered to find a natural, safe, and widely effective pesticide (earlier organic ones had shown limited results).

The students got busy. They experimented with available products, traditionally known to act as pesticides. While two selected were onions (*Allium cepa*), and hot peppers (*Capsicum chinense*), the third was Irish potatoes (*Solanum tuberosum*). The latter first domesticated in South America, subsequently travelled around the world and even became a staple crop in many countries. Today, its varieties are counted in thousands. The variety Irish potatoes got its name from its widespread cultivation in Ireland in the early 1800s. Over successive years, attacks on the tuber by a fungus-like organism led to the Great Irish Famine, one of the worst agricultural, social, and cultural disasters of the 19th Century.

As Irish potatoes, onions and peppers are in high demand by the tourism sector in Jamaica, these are sometimes expensive to buy to experiment with. To work around this financial roadblock, students collected discards of unused or spoiled peppers and onions and the peels of the Irish potato. The liquid from each was extracted and experimentation began. Different proportions were mixed and used to spray crops over an extended period. The students recorded their results daily and carefully documented each formula. Many failed mixtures were discarded before the students found

one with confirmed satisfactory results. Without a doubt, it was the Irish Potato-based pesticide. Its starch allows the mixture to stick to the plants' leaves and stems for a longer period. So was born the [Tech Sci Irish Potato Organic Pesticide](#) solution. When tried on leafy crops, herbs and shrubs, the results were excellent. It didn't kill the insects but diverted them away for extended periods.

Armed with the data, in-depth discussions were held in consultation with Yanique about standardising the formula. Students now took on the mammoth task of convincing farmers that synthetic chemicals harm the environment and sooner or later will impact their lives and livelihoods as well. Diligently and patiently, putting all their persuasive powers to use, students went from farm to farm to share their discoveries and turned farmers away from chemical use. Farmers were given samples and brochures outlining how to use the pesticide and its benefits over other similar products. Exhibitions and expos were held for farmers' groups at the parish and national levels. The headmaster of Holmwood Technical High School supported the students in conducting a seminar on the use of natural pesticides and to showcase why chemical ones must be discontinued. At the event, the presence of the island's Minister of Agriculture and Fisheries as the Chief Guest lent strong credence in support of the natural pesticide.

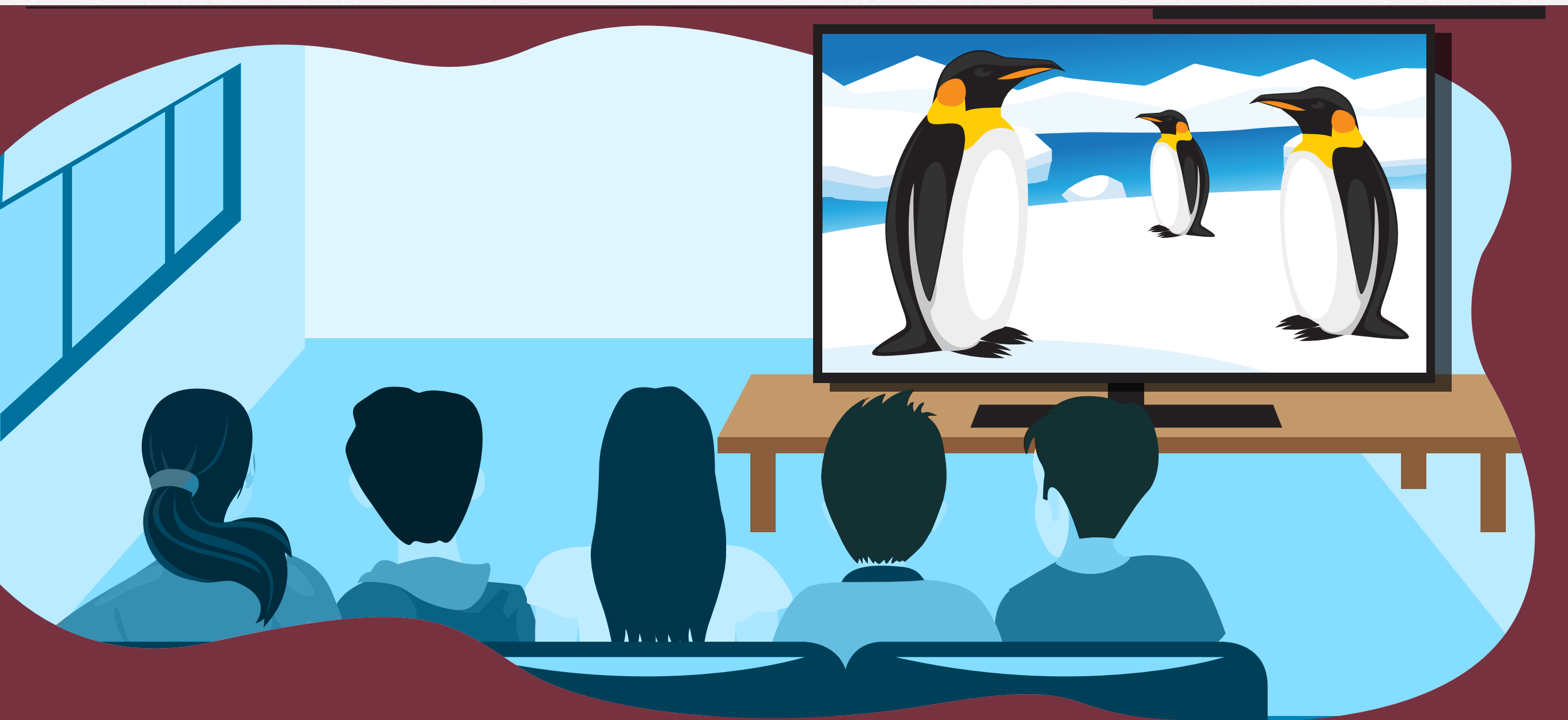
The Tech Sci Irish Potato Organic Pesticide solution has brought about many positive effects. There is a natural fragrance in the air while allergies and respiratory discomfort are a thing of the past. Farmers now report improved health. Groundwater and surface water are less contaminated, as these were earlier fed with chemical-loaded runoffs from fields. The Tech Sci Irish Potato Organic Pesticide was awarded the National Innovative Science Project in 2018. And, Yanique's conviction was proven correct: climate education and climate literacy from a young age leading to stewardship for the environment is a must in the global effort to bring about a change in our environment.

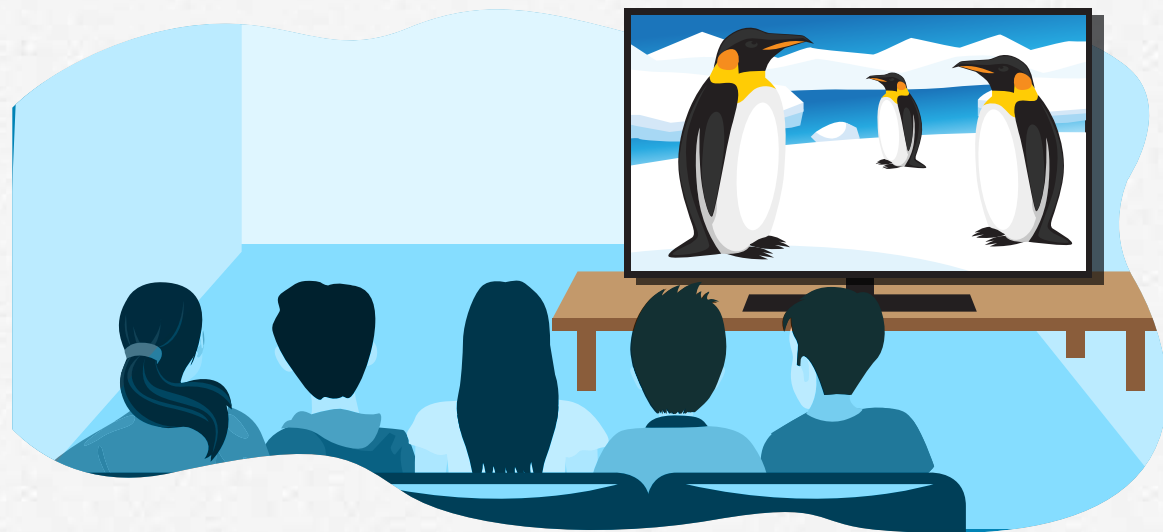
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The Moving Image





The Moving Image

If you cannot experience it in reality, watch a film that closely mimics life and provides spectators with hyper-heightened reel experiences.

Moving images create magic by defying the laws of nature. With cinematic techniques, motion can be speeded up or slowed down, time can be made to travel backwards, and distances of thousands of kilometres crossed in the blink of an eye. The camera can capture many glorious aspects of nature: clouds as they cross the canopy of the sky in a mini second; the opening of a bud to full bloom; a seed germinating into a sapling in the time it takes to read this sentence; the descent of a drop of water and its disintegration into thousands of droplets as it hits the ground; a soap bubble disengaging from the wireframe and floating off in rainbow-coloured iridescence. It is there to view and marvel at, not just once, but repeatedly, if one so wishes. Moreover, if you want to examine a frame minutely, nothing stops you from hitting the pause button and freezing the movie.

Subha Das Mollick, the founder secretary of Bichitra Pathshala, an organisation that promotes learning with moving images, says, 'Films make powerful supplements to textbooks. They intensify the viewer's simple, routine experiences into something unforgettable, coming as they do as a package of special effects, sound, colour, depiction and storyline.'

I have successfully used films to draw young minds to climate change—a phenomenon sometimes difficult to pinpoint in daily lives, given its lack of clear visibility or concreteness. This is particularly so for a pre-teen or teen, as fallouts of negative environmental impacts can take decades to manifest in a changing climate. Using moving images successfully helps open young minds to the stark realities of climate change. The larger picture presented in terms of geographical spread, and one that can delve into the past, present and future, stimulate their emotions and intellect.'

To develop climate change awareness amongst students, Subha recommends films as scene setters. For middle and high school students, Subha says her first choice is 'Before the Flood'. The film features the well-known actor Leonardo DiCaprio in dialogue with scientists, officials, and locals from Greenland to China, to highlight shocking realities such as the melting of the polar ice caps and excessive fossil fuel consumption by the developed world. Al Gore's 'An Inconvenient Truth' is another excellent film. Al Gore systematically leads viewers through hardcore statistical evidence to drive home irrefutable facts about global warming that translates into climate change over the years. The film also ensures that viewers understand the correlation between the huge jump in carbon emissions and rising global temperatures.'

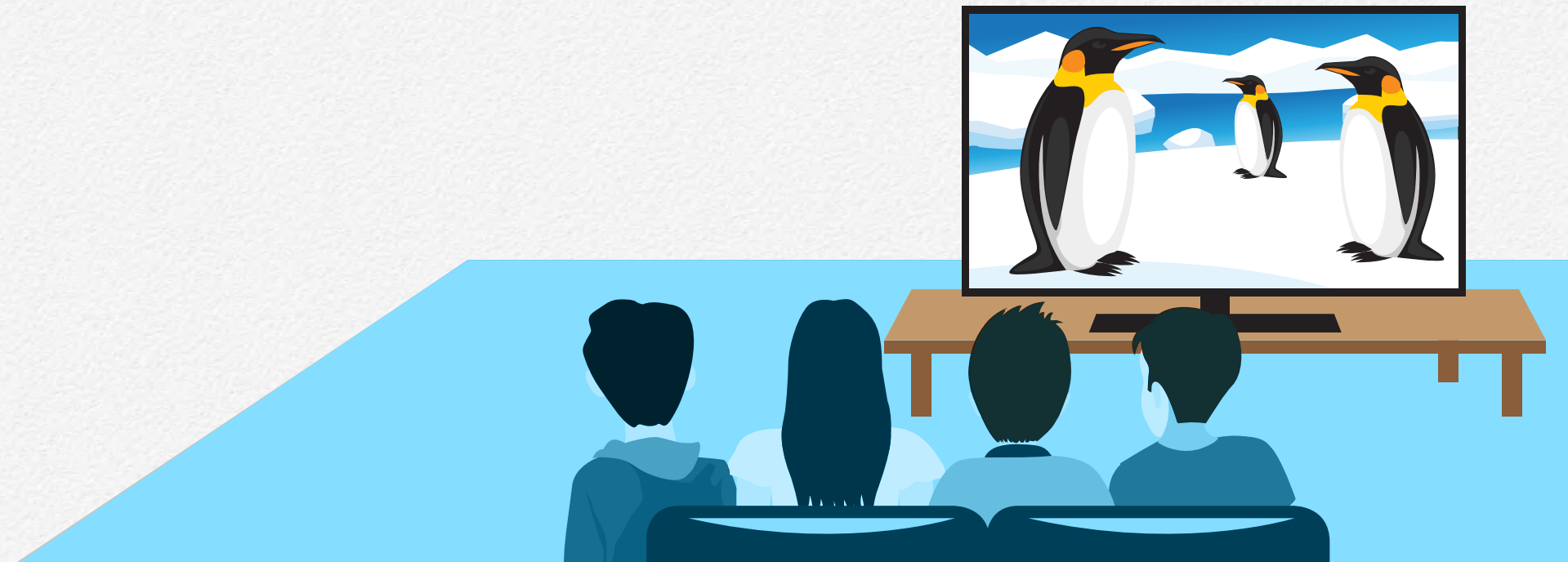
Subha's choice for younger age groups is the popular 'Ice Age' series produced by 20th Century Fox Animation. The series lucidly explains the coming of the ice age and the phenomenon of ice melting. The scenarios of past years are no flights of fancy of the storyteller Michael Wilson but based on secondary data such as medieval paintings and literature. Teachers can have the students impersonate the three sub-zero heroes—the woolly mammoth, the ground sloth and the sabre tooth tiger. 'To allow young minds to reflect and absorb the film's messages, teachers should screen the film sequence by sequence, each preceded by introducing the students to the subject and followed by discussions to ensure that the students understand the points raised in the segment. What has worked for us is not more than two segments per class of 40 minutes. Post the screening, we encourage the students to delve further to research to confirm and add to what they saw. Exercises that follow can be of two types—in one, the students are asked to stretch their imagination and write or draw what it would be like to live in a warmer world, the likely plight of polar bears when the polar ice caps melt etc. In the second, they

are encouraged to hone their analytical powers to calculate the rate at which the glaciers are melting or the sea level is rising, given the Earth's average temperature. A class is always a heterogeneous mix of different types of learners. So different types of exercises will help diverse learners fathom the reality of climate change in their way.'

Subha hopes that teachers will make a concerted effort to utilise the moving image method. 'They could go for films in regional languages and even have students making their films about climate change. Bichitra Pathshala has partnered with Earth Day Network—India for 'Earth Reel', an environmental filmmaking competition for youths. Those who take part get the opportunity to learn basic filmmaking using their smartphones. It is amazing to see their insightful depictions. Over the years, we have kept in touch with the winners. We can confirm that making the films etched lasting impressions on their minds and were instrumental in developing them into responsible stewards for the environment,' Subha says.

Subha Das Mollick
Founder Secretary

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Be the Change

Soak the waste paper in water



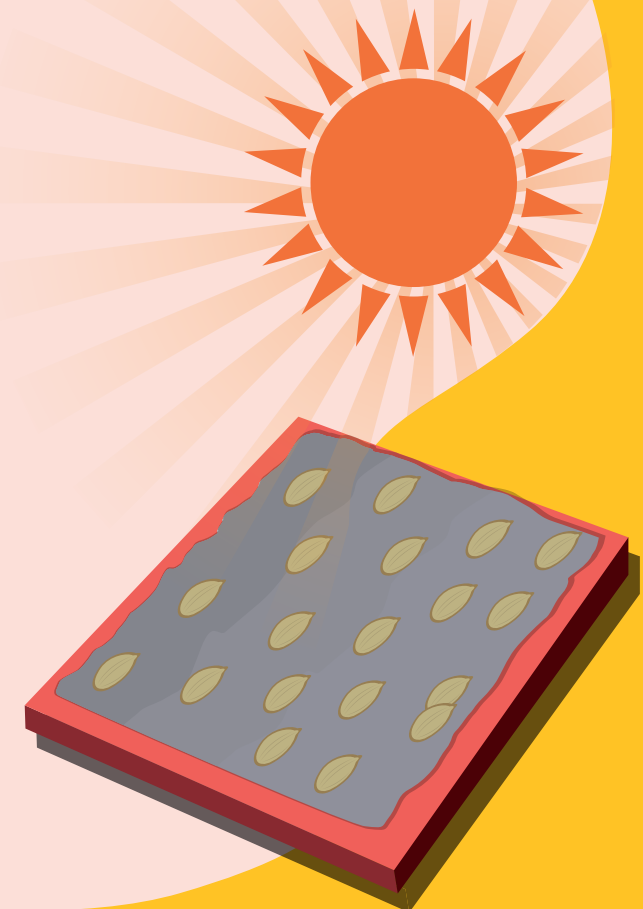
Blend into a smooth pulp



Spread the pulp over a frame, scatter seeds and cover



Allow to dry for 24 hours





Be the Change

[AR Cedtech](#) is a start-up with a mission to make education meaningful and transformative through innovative products and processes that lead students to address the UN's Sustainable Development Goals (SDGs). 'Be the Change' is the mantra they want the younger generations to understand. For schools, they recommend integrating SDGs in each subject. Their inspiration is the wisdom of the Dalai Lama, 'When educating the minds of our youth, we must not forget to educate their hearts.'

AR Cedtech works with teachers and students across the country. Ritu Malhotra, a co-founder of the start-up, says: 'To teach students about the SDGs, it is important to educate and inspire teachers first. Unless the teachers are confident, we cannot ignite the passion in students.' AR Cedtech conducts capacity building workshops for teachers to empower and equip them to awaken responsibility for the environment among their pupils. It also provides them with free resource books that have detailed lesson plans and additional resources to build effective learning-teaching models. A bird's eye view of one of the materials is available in their book, 'Be the Change.' This handbook provides learning material to work towards the SDGs.

Recently, the organisation worked with children in villages around the town of Dharampur in Gujarat. With hostels shut because of COVID-19 restrictions, children returned to their homes in these villages. Though education continued through the online medium, being home reduced their study time as they now had to help their families in the fields. COVID-19 had financially impacted their households, so it was necessary to find economically profitable occupations that simultaneously stimulated the young towards concerned stewardship of the environment.

Making handmade paper out of scraps was the method selected. Given the limitations of resources and facilities, this activity proved to be a good fit as the making required nothing more than readily available wastepaper and rudimentary tools generally available in homes. The first group had 300 students and 85 Adhyapikas (elementary school teachers). AR Cedtech Solutions Pvt Ltd's book *Be the Change*, a handbook published to work towards the UN Sustainable Development Goals, was the learning material.

To make your own plantable recycled seed paper, here are the instructions. Tear the waste paper (avoiding glossy paper such as in magazines) into small pieces and soak these in water. With a beater or blender, turn the mixture into a smooth pulp. Place a mesh frame (an old window screen, for example) in a tub with some water. Pour some pulp onto the frame. Spread it gently so that it forms a thin layer. Pull the frame out of the water. Sprinkle seeds of herbs or flowers. Add a little more pulp to cover the seeds so that they stick. Use a cloth or sponge to press out excess water. Let the paper dry on the screen or flip the mould over and let it dry on another surface. It takes a day or two to dry out and be ready for use. Once written work on it is completed, it continues to be useful—as a pod carrying seeds. Now, one can plant it, not throw it away.

The children were encouraged to document every stage of the making and upgrade what was taught with additional research to ensure that the paper produced was replicable. As preparation, the students needed to study how paper is made and the materials needed. During the process, the students logged observations in response to: What happens to paper soaked in water? Why does this happen? What does the paper look like as it begins to dry? On completing the activity, it was time for them to reflect on: what worked or did not. What would you do differently to make an improved paper? What steps could you take to upscale production? Can other

materials be added to the pulp? How can you add organic colours to the paper? To what extent does this paper replace the paper you normally use? How will our activity impact our environment? What have we learnt about the value of recycling and the other 'R's such as Refuse, Reduce, Reuse, Repurpose and Recycle?

The children learn the value of recycling, where 5–6 waste sheets make one sheet of handmade paper. They learn to use paper wisely, get hands-on experience of the 5 'R's, collate and graph data about their activities and experience how an individual effort contributes to a global goal to save trees. They now look forward to making book covers, greeting cards, bookmarks, and folders with their sheets of handmade paper.

The work in the village is a testimony of how everyone, no matter from which strata of society, can contribute to saving the environment. In the words of Anit Gupta, ARCCedtech's co-founder, 'The pandemic has taught the world to work together for the common good. We have learnt that no one is safe till everyone is safe.'

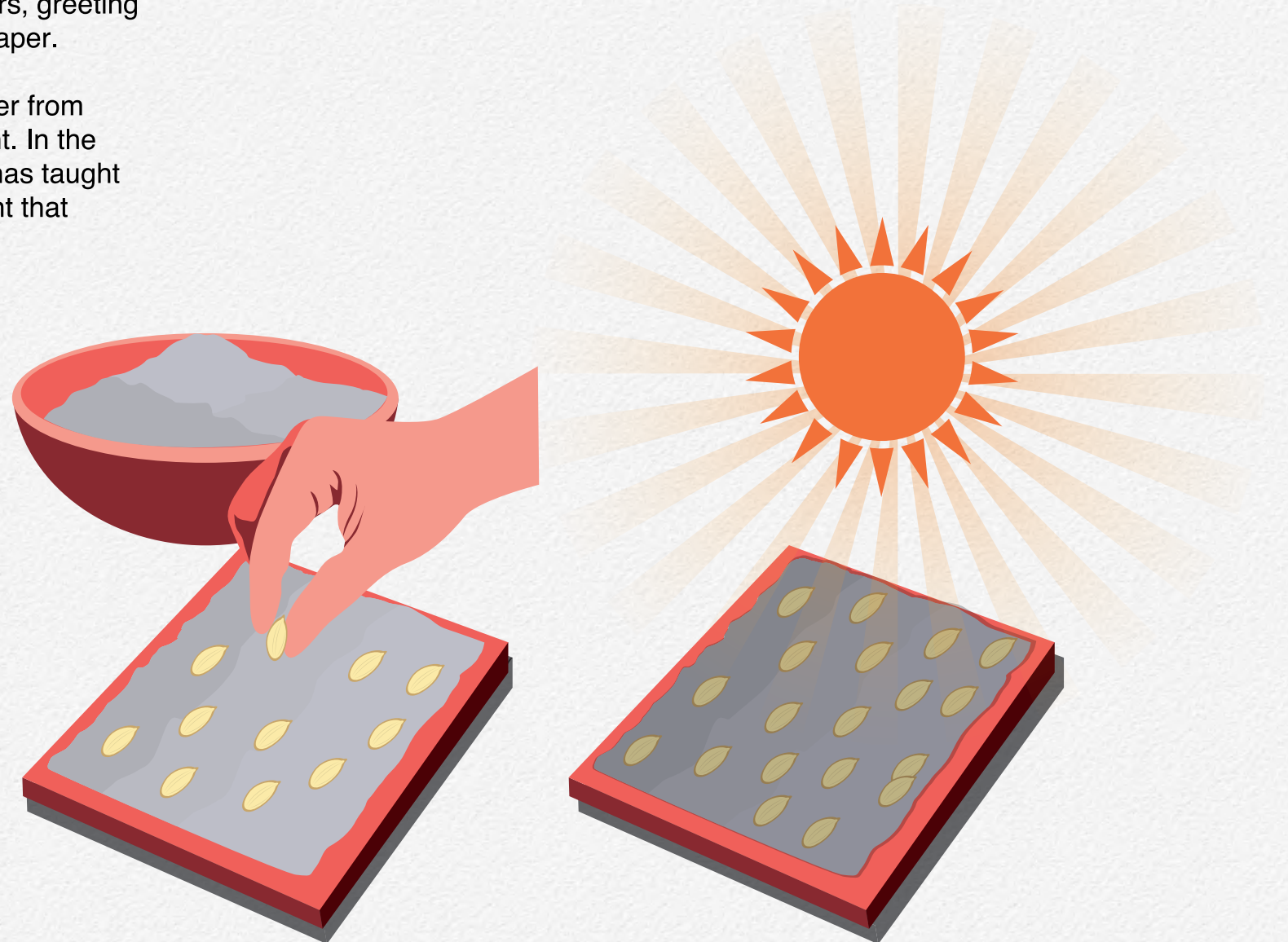
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Principal Sets Green Principles



**EVERY ACT
COUNTS**



Principal Sets Green Principles

‘If what you’ve been doing for hundreds of years has brought you to the brink of a mass extinction, maybe it’s time to try something new.’ This quote from Eric Holthaus set Suvina Shunglu, Founder Principal of Sri Sri Academy, Kolkata, thinking. ‘I now draw routes in my mind...voyages to unknown destinations...pathways to reach a clean, plastic-free, natural, green, moist, and simple world with crystal clear rivers and ponds and smoke-free air,’ she says.

Suvina dreams of a beautiful world but realises that time is rapidly running out for her dreams to become a reality. She also knows that those in positions of authority (such as her) have a crucial role in ensuring that climate stewardship grows from seeds planted by academic institutions in their students’ minds and nurtured systematically through learning opportunities. ‘We have just a brief, critical window to hold back humanity from continuing with anthropogenic actions that lead to conditions on our planet that could result in the extinction of species,’ she says. With this in mind, her teaching methodologies are designed to harness the power of thoughts and words that could reach students’ curious minds

and supercharged brains. ‘Once considered innocuous and simple acts—such as throwing away what was not needed or taking an extra plastic bag—these are now recognised as shameful acts stemming from ignorance,’ she says.

In 2010, Suvina was appointed Principal of Sri Sri Academy, placing her in a position of authority to formulate strategies that could help accelerate forward-thinking in the present generation. Keeping in mind the school’s guiding principle of ‘dedication to the environment’, she is committed to inspiring the younger generation to give up habits that impact the environment negatively. She also encourages them to help their elders unlearn some past practices that are found to be harmful for the environment, and instead develop forward-thinking to deal with the present climate crisis. ‘In my 13 years here, I have conceived, drafted, shared and implored people to join eco-friendly initiatives initiated at Sri Sri Academy,’ she says.

As a child, Suvina saw recycling widely prevalent: from glass jars used for pickles to old shirts sewn into floor mats. ‘Today’s world is so different—more of a use and discard one’, she observes. These experiences inspired her to mandate that in Sri Sri Academy, students from Kindergarten to graduation get taught the importance of ‘Reduce, Reuse, Recycle for a Happier Earth’. Her other green list of initiatives include appointing students as ‘Climate Marshals’ to enforce the school’s ‘no plastic’ policy. Plastic mineral water bottles (something in common use) are a complete no-no today. ‘We brainstormed and got donors to sponsor steel bottles for participants to conferences, which then became mementoes. Upcycled plastic bottles make plant holders for their vertical gardens. A huge plastic dolphin stuffed with plastic waste draws the attention of all who come to the school about the need to end plastic pollution. Any backdrop for our stage gets made from recycled paper and upcycled waste only.’

Each staff member voluntarily pledges to devote 100 hours per year to work for cleanliness. They promise neither to themselves litter, nor let others do so and pledge to convince at least 100 others to do the same. This supports Mahatma Gandhi’s dream of an India that is free, clean and developed. On the school’s notice board, posters on the scientific disposal of garbage, the importance of personal hygiene and ways

to identify and address water pollution are regularly placed. Weekly Cleanliness Drives are also organised.

However, while schools can make rules, these must be adhered to by students. This often is easier done after they attain self-realisation. Suvina wanted her students to be environment-conscious not because the teacher said so, but because they understand the significance. She also knows that achieving this with what students often term 'boring study material' would not get the desired results. Instead, the students needed to be involved and come up with solutions themselves. With guidance from their art teacher, the school students used Warli art to paint a mural on one flank of their school's outer wall with messages related to nature and countering climate change. This illustrated message makes passers-by and those who come to drop or pick up their wards stop to reflect. This was one example of understanding leading to action.

Principal Ma'am (as she is referred to) says she is fortunate, because her team and management are just as enthused about turning the campus green. Over the years, the school's continuous efforts have borne visible fruit. 'Today, I can say with pride I no longer need to implore, push or strain to have green projects implemented. We have created an army of climate warriors who do not tolerate waste, filth or greed. They inspire others with their enthusiasm for change and constantly work to make this happen through over a dozen creative ways,' Suvina remarks. Going beyond, she plans to establish student leadership forums with multiple institutions across India. Sri Sri Academy engages with external agencies as well to create awareness in and outside the school environment. For example, eWaste organisations have designated Sri Sri Academy as a neighbourhood hub for collecting eWaste, which she hopes to rapidly expand.

'My message to all principals is to make their campuses truly green with youth-lead civic engagements. Sri Sri Academy applies no rocket science to help its students become responsible citizens who care for our common home—Earth. You can do it too!' Suvina advises.

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Founder Principal

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Habit Change 4 Climate Change





Habit Change 4 Climate Change

Tarumitra is a pan-India students' organisation that helps promote ecological sensitivity amongst its 200,000 members, and an ever-widening circle of thousands more through them.

'Habit Change 4 Climate Change' is a Tarumitra initiative. It aims to empower youths to make informed choices based on understanding our planet's environmental concerns and the strategies to mitigate these. Once trained, the climate literate youth are worthy communicators who utilise every opportunity to share learnings gained with their family, friends, communities and others.

A reduction of demands for single-use plastic and the scientific disposal of plastic waste are focal points of the initiative. It shocked Tarumitra officials to learn that many are unaware of the substantial harm plastic litter causes. It blocks waterways, endangers marine ecosystems, is dangerously ingested by animals, and emits toxic gases when burnt. Approximately 4 million tonnes of plastic waste packaging alone remain uncollected every year. Even what is transported to dumpsites by municipal bodies can leach out, polluting the soil and water around.

In 2018, Tarumitra collaborated with Earth Day Network—India to run their 'End Plastic Pollution' campaign. This was the genesis of Habit Change 4 Climate Change. Tarumitra's teachers enhanced students' plastic-related information from prescribed syllabi by providing additional science-based facts and figures. Students received data on the different types of plastic—which ones are recyclable and which ones are only reusable. They were also exposed to statistics on the quantity of plastic waste generated and how much gets disposed of scientifically, booklets on prevailing laws on plastic use, and the responsibilities of the various stakeholders.

An Ecological Leadership Development Programme with 20 students in six 3-hour sessions helped enhance their communication skills. Interactive presentations, hands-on practical training in role-playing and answers to likely questions when they approached others helped the students communicate with stakeholders, policymakers, manufacturers, citizens, ragpickers, and others.

Well-equipped to be anti-plastic messengers, the students went from house to house and shop to shop to apprise people of the need to segregate waste at the source. They spent hours conversing with ragpickers who tended only to sift out metals and particular types of plastic (HDPE, PET, LDPE) that have a resale value. The rest they mixed and dumped, often at unregulated dumpsites. Persistence and patience paid off in convincing the ragpickers that single-use plastic waste also has value. It can be utilised to build harder roads, bricks, and as fuel for boiler plants such as those used by cement factories.

After building awareness about the need to segregate plastic, the students' next step was to persuade businesses to replace non-biodegradable plastic with biodegradable materials. The first success was when an ice-cream manufacturer started handing out wooden spoons in place of plastic ones. The students also drafted and handed over recommendations of environment-friendly by-laws for implementation to the Municipal Commissioner of Patna.

Tarumitra is happy to note that students take their civic engagement seriously. In 2019, a delegation of school students from eight educational institutions took a train to Ahmedabad to participate in an inter-state dialogue on the ecological impact of plastic. During their journey, they collected

all the plastic wrappers of snacks and also plastic teacups littered around. These were stuffed in discarded PET bottles. It became a competition to see who had filled the most bottles by the time they disembarked. The students also spent time convincing the captive audience of co-passengers that plastic waste is harmful to the environment. For the return journey, the train arrived at the platform three hours late. The Tarumitra student members used the intervening time to perform skits and widen the awareness of those around them to the ills of plastic pollution.

Other programmes for the Habit Change 4 Climate Change initiative had Tarumitra work with interns from Internshala to make presentations before college and postgraduate students in multiple cities. As a lead up to the Indian festival Holi (during which people in the State of Bihar traditionally light bonfires—*Agaja*), students met with the District Magistrate to apprise him that discarded tyres were being collected to feed the fires—something banned by law. To stop this was easier said than done, as officials hesitated to interfere with traditional practices. As a way out, Tarumitra members personally segregated items made of plastic from the stockpiles for the municipal corporation's trucks to cart away for disposal. Simultaneously, they interacted with the community to help them understand why there was a ban on burning plastic. The younger generation was quicker to comprehend and support this. The elders came around after many rounds of convincing conversations.

Tarumitra continues to inform, mobilise, and help activate youths across India to demand that governments and corporations manage and reduce plastic pollution and support institutions and individuals to take personal responsibility. A sea change is evident thanks to the ongoing Habit Change 4 Climate Change initiative.

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We Think, We Feel, and We Act





We Think, We Feel, and We Act

‘Fairtrade is a simple, powerful way to make a difference through our everyday choices,’ says Abhishek Jani, CEO in India of Fairtrade Projects. As part of its endeavour to direct consumer choices to enterprises that adopt sustainable practices and keeping in mind that this needs to begin from a young age, they run the Fairtrade India Schools Programme. This is part of the vast network of academic institutions worldwide, with over 1,000 registered Fairtrade Schools in the UK alone.

Abhishek elaborates, ‘A Fairtrade School is at the heart of the global movement for change. There are three stages to becoming a Fairtrade School: FairAware, FairActive and FairAchiever. In India, there is a unique advantage of directly connecting youths to Fairtrade producers and farmers who will earn a fair price through the work of the Fairtrade movement that includes the Fairtrade Schools.’

In 2015, a Fairtrade Pilot School Programme was launched in India. After a lengthy process of meetings, selection, and consensus, the first schools to join the Fairtrade Schools pilot programme were carefully selected. Committing to the programme is not just a one-time ceremonial

signing event. It requires different stakeholders—students, educators, and guardians—to be on the same page. A steering committee is then formed to plan, implement, and monitor activities. It ensures that the school maintains the principles of Fairtrade and also shares knowledge about the benefits of Fairtrade with the community. Once past the first step, lessons are conducted using the Fairtrade India School Kit as resource material. Fairtrade assemblies are held, and events are organised for the school community during Fairtrade Week Campaign, restating the commitment to support Fairtrade Certified farmer organisations.

Vidyashilp Academy (VSA) Bengaluru won the honours and became the very first Fairtrade School in India. To celebrate this landmark event, Sarvaiya Pravin Kumar Nagajibhai, a Fairtrade cotton farmer from Suminter Farmers Producer Company, and his family travelled to Bengaluru from Dhajala, a village in Gujarat. The group included the eldest child, Divya, a beneficiary of a scholarship from Fairtrade Premium, who surprised everyone by topping her district’s board exams. ‘For us at Fairtrade India, this is the story of empowerment,’ says Abhishek.

VSA’s pioneering efforts are active in widening awareness in the community about the impact that fair and responsible choices have on people and the planet. The students are supported to understand the concept of Fairtrade through classroom teaching and the many engaging activities conducted for and by them. For example, the school has on several occasions organised slogan writing and drawing competitions. They have run a tuck shop stocked with Fairtrade Certified items such as TruBio spices from Kerala, rice from Ecolife Uttarakhand, cashews and cinnamon from Fairtrade Alliance Kerala farmers, raisins from APFFNGA Nasik and cumin from RDFC, a farmers’ group in Gujarat. On Sports Day, stalls sell Paper Boat Fairtrade Labelled Chikki energy bars and students play with Fairtrade INDP Pro Footballs.

The school uniforms for VSA are sourced through Fairtrade Certified supply chains. The students are proud to be the first in India to wear uniforms made with procurements from responsible and ethical supply chains. The school’s T-shirts also have the Fairtrade Mark on them, indicating that there was no social or environmental exploitation in the entire process of manufacturing. The cotton comes from Suminter India Organics Pvt Ltd’s farmers in Gujarat, who receive a fair price and Fairtrade Premium for it. At the same time, the

garment factory workers at Mercer Apparels in Tamil Nadu who stitch them are assured decent work conditions.

On 15 August 2018, India's Independence Day, VSA reinforced its commitment to Fairtrade with a two-day event named 'Jai Jawan, Jai Kisan'. Over the next fortnight, many activities were conducted. These included a display of India's largest Fairtrade and organic T-shirt, student-farmer interactions and screenings of short documentaries that helped educate people on the concept of fair trade. For the day of the launch, meals were prepared with Fairtrade ingredients.

'We are indeed proud of the pioneering efforts of VSA and know that their example will kick-start a massive Fairtrade Revolution in our country. Towards that, we are in the process of gradually adding more schools to the programme,' says Abhishek. Kalai Selvi, Head of VSA says, 'Our academic initiatives function in a collaborative and dynamic environment that recognises the child's ability to think and act. The principal ingredients for moulding a responsible individual are on a canvas of social, moral, and ethical values. By joining the Fairtrade Movement, our students join the global community of ethical consumers. They will continue to be the change influencers and contribute towards reducing social and environmental exploitation. Shilpites will strive to contribute to the Sustainability Goals in its true spirit.'

Ritu Bali

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SowGood





SowGood

The students of SDMC Bhim Nagri School eagerly look forward to school time spent farming in the urban metropolis that is New Delhi. Once a week, they bring to school all the peels, stems and waste food from their kitchens to compost at the farm they manage together. One by one, these household biodegradable wastes are emptied into the composting unit they have dug.

The schoolchildren are part of a project run by SowGood Foundation, a community of like-minded people who consider it essential that urbanites also stay in touch with nature. They believe that children should understand that the crisps they so enjoy do not just come out of packets but begin from harvested potatoes and that they can grow these tubers themselves. That is why at SowGood farms, almost everything is done by children. Field experts, parents, and volunteers only help. From preparing the soil to deciding what to sow and where, taking care of the crop as it grows naturally, facing challenges and finding solutions to overcome them, children lead the seed's journey as it becomes food. Along the way, they learn more about life than just how vegetables grow.

Established in 2017, SowGood Foundation is the brainchild of Delhi-based environmental enthusiast Pragati Chaswal. She started farming at a horse-riding school in Delhi attended by her son; the school permitted

her use of a section of their land for farming. In exchange, she provided them with a regular supply of vegetables. So began regular farming sessions for her son and his schoolmates, and slowly a community grew around this little farm. Inspired by their children, parents would regularly visit, which sparked their interest too in all things green.

Supported by the community, the children explored different projects at their farm. To save water, they designed a drip irrigation system. With the help of a parent who is a practising green architect, they designed and built mud and bamboo huts, which hosted a library and the farm's schoolroom. Most of these ideas came from the children. Workshops on different topics—music, art, biodiversity, cooking and much more—were conducted by members. The space grew into a haven for nature lovers of all ages to gather and share knowledge.

SowGood's 'Open Classroom Learning' concept takes a three-pronged approach: connecting with nature, building values, and supporting academic learning. Today, SowGood conducts weekly farming sessions for some 800 students of four government schools in Delhi. Keeping in mind that each has different needs, SowGood adjusts its modules to accommodate them. For example, to work around the reduced open space at MMTCColony Girls' Senior Secondary School, a nearby dump was converted into a farm. To ensure that curricula are supplemented at the farms, SowGood taught concepts such as pH testing, plant physiology, home economics, waste management and water conservation through practical farming applications.

Children from private schools face a different challenge—too much emphasis on academic and bookish learning. During their weekly sessions at the SowGood farm, children learned more holistically using their senses, getting their hands dirty and pursuing enquiries. They were also encouraged to explore nature through their other skill sets—music, art, craft etc. In 2018, SowGood began conducting sessions at a spacious farm in Chattarpur. They now host children from over ten popular schools in the Delhi NCR region, with more always welcome!

At the farm, every child is given their own patch of land to manage the way they want. Each is entirely responsible for their khet (farm) and the produce that comes from it. Understanding how to grow their own produce instead

of buying it from a store cultivates respect for their food, health, and the natural process of life. Through farming, the children also learn how their actions affect the environment and how they can bring about a positive, sustainable impact through their positions of privilege. For example, the zero-waste toothpaste they learn to make. Furthermore, they influence their families to stop using plastic and find alternatives. Families are now more careful about waste—they carry biodegradable bags everywhere they go.

Through working with children, SowGood hopes to bring the joys of nature awareness to many more. They conduct regular workshops for children at their farm and their newly opened centre in Gurugram. These workshops range from natural farming to making zero-waste soap, forays into urban ecology, birdwatching and more. SowGood patrons understand the benefits of a community-based lifestyle and conclude that farming is the ideal way to develop a community. Pragati says, 'The best way to form a connection with others and the larger ecosystem we are all a part of, is through growing together, in both senses of the word. We welcome enthusiastic volunteers with time to spare and passion for the environment.'

To visit, volunteer, contribute or enrol to be a part of this community, please contact them through their [Facebook](#) or [Instagram](#) pages or email.

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Ah, Aha, Ha-ha





Ah, Aha, Ha-ha

Agastya International Foundation is an educational trust founded in 1999 by visionary philanthropist Ramji Raghavan, whose advice on education is heeded by top national and international organisations. Along with a group of other prominent citizens, the Foundation was set up in Bengaluru. Agastya is a movement, not just an organisation. Its mission is to spark curiosity, nurture creativity, instil confidence in economically disadvantaged children and supplement the work of government school teachers by providing imaginative and innovative hands-on science education (environment science included) methodologies. This is accomplished via project-based and peer-to-peer learning in schools in 19 Indian states: not just the urban ones but also those in rural areas. Its aim is captured in its mantra Ah, Aha, Ha-ha (awakening, understanding, delight).

Among Agastya's many innovative initiatives are the mobile vans it runs. These provide an opportunity for discovery and self-learning through the displays and workshops. Agastya's Lab-on-a-Bike combines the compactness, portability, and modularity of the Lab-in-a-Box with the mobility of a motorbike ridden by one of Agastya's teachers. The concept extends Agastya's reach into areas where the mobile labs cannot go. It also diminishes the hierarchy between instructor and student in the minds of the villagers.

India's Google Impact Challenge Awards of 2013 set the creative minds at the Agastya International Foundation churning. To compete, participants were invited to find ways to use technology to transform lives. Agastya's TechLaBike emerged the winner for its effective method of taking science to children who have no access to labs in remote areas. Its 'Campus Creativity Lab' is located on a 172-acre campus in Kuppam, Andhra Pradesh. This once denuded land is now rejuvenated into a flourishing ecosystem. Kuppam houses multiple labs, an astronomy centre, a planetarium, a centre for creative teaching, an innovation hub, a science model-making centre, the Ramanujan Math Park, and an Open-Air Ecology Lab. The campus welcomes over 650 children every day from different schools. Teachers from multiple states also attend training programmes there. Their journey to success is documented in the book [The Roots of Creativity](#).

While Agastya's labs and curricula are geared mainly to Class VI–IX students, its Maja Box promotes experiential learning or discovery through exploration for those in grades VII–XII. The Lab-in-a-Box is designed for the school and the Maja Box for the home. Maja Boxes contain games, puzzles, scientific toys, and Do-It-Yourself activities to amuse, entertain and educate. Instructions are included as pictographs, taking the child through the steps of each activity. A Think Box at the end raises questions, encouraging thoughtful reflection on the activity. Siblings can play together or even have their parents join in. Ownership endows the child with the responsibility to care for the items. For, this way, they can return to the box again and again and continue to experience the joy of learning. Repetitive play encourages the child to explore, break, build, discover, and share. Breaking and failure are intentionally a part of the Maja Box. Scientific discoveries that are not successful or disprove theories are also important for advancement in any field of study.

Agastya's science fairs and carnivals are a rallying point for children to see science experiments and models that demonstrate lessons and principles taught by a select team of trained and motivated youngsters.

Just recently, Agastya added the MyTree campaign. This promotes students planting and nurturing trees. The initiative is designed to facilitate learning by observation. The title MyTree provides a sense of ownership to each

student. It also rhymes with the word mitra (friend). Along with growing trees, the many advantages of this natural wealth are explained—the shade, fruit, and flowers they provide as well as attracting rainclouds, binding the soil and providing homes for many species of birds and animals. Any school can submit a request for seeds or saplings on the Agastya website. The schools can select the trees they want to plant from a list of indigenous trees only—no invasive species are allowed. The MyTree programme encourages stewardship by insisting that each student take responsibility for the plant for a minimum of three years. Each child methodically maintains a document of progress. The documentation will also help the schools earn the distinction of being carbon negative.

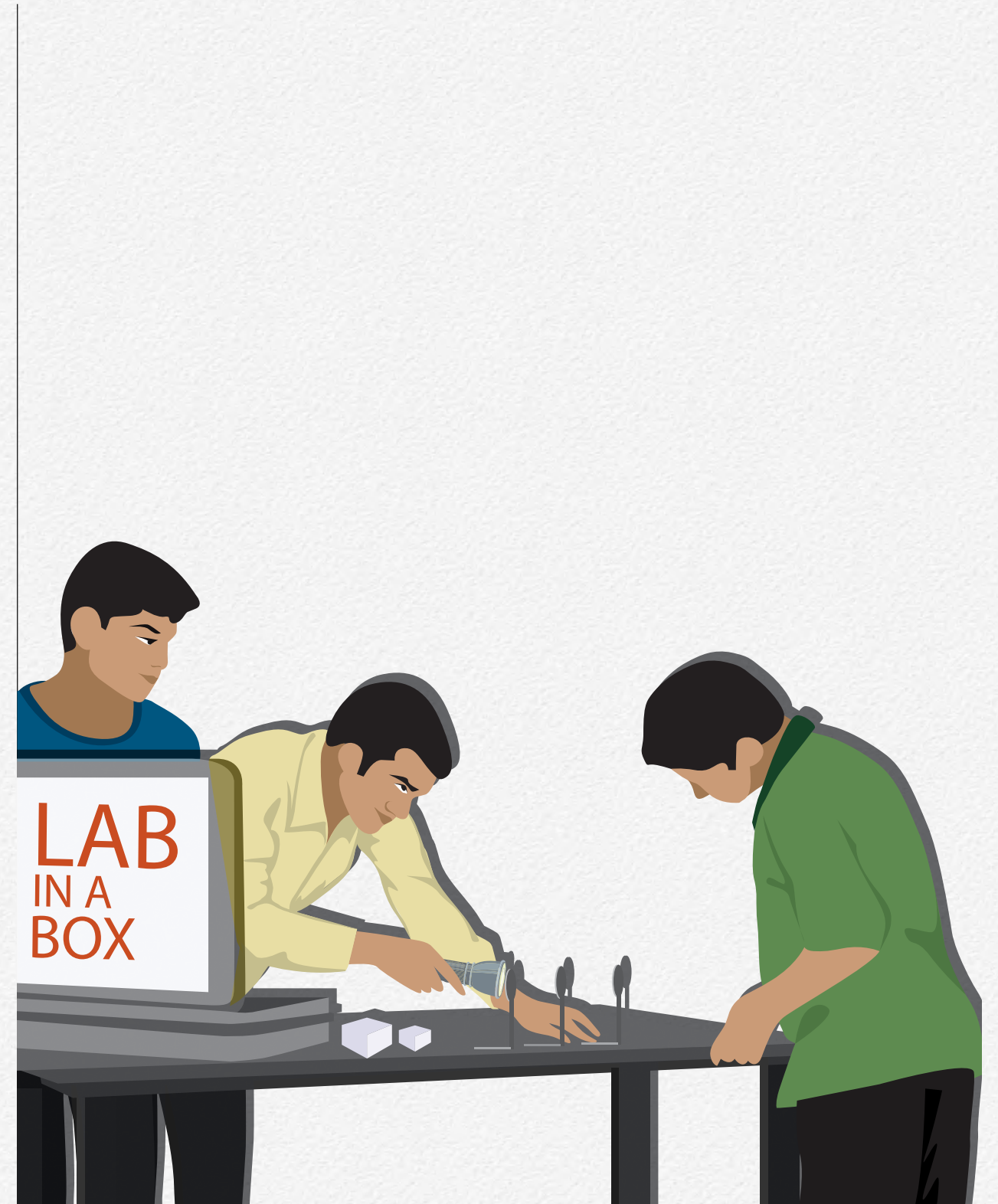
The aim is ambitious—to plant 10 million trees by 2026. Ambitious, but given Agastya’s track record, this will be achieved, says Laksh Kumar AR, Project Manager of Ecology Programmes at Agastya. ‘Our campus will serve as this programme’s sole centre of operations. As the programme grows, we also intend to partner and develop a few more centres in different regions to collect and distribute seeds. The collection of endemic tree seeds needs to be done in the respective areas where those trees are present.’

The management of Agastya firmly believes that education is the surest way out of poverty. To broaden access to education, Laksh Kumar proudly asserts that they have ‘100+ Science Centres, 210+ Mobile Science Labs, 77 Labs-on-a-Bike, 10,000+ trained teachers, 600+ Operation Vasantha volunteers and 30,000+ Young Instructor leaders.’

Laksh Kumar AR

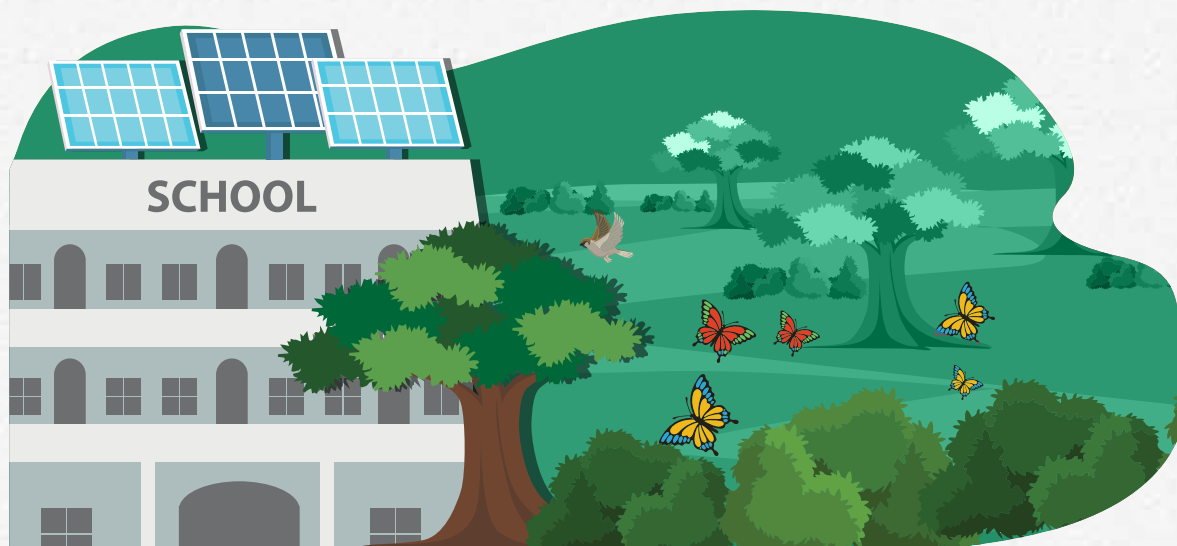
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Holistic Learning





Holistic Learning

A short drive away from Kodaikanal, nestled in the beautiful Palani Hills of Tamil Nadu, you will find [Sholai School](#). It is part of the 100-acre campus of the Centre for Learning, Organic Agriculture and Appropriate Technology (CLOAAT). The area teems with rich bio-diverse flora, fauna, and avian species. Myriad birds and wildlife such as the Malabar Giant Squirrel, Flying Squirrel, Deer, Elephant, and Gaur inhabit or frequent the grounds. Karuna Jenkins, Trustee of the Sholai School, proudly says, 'We are fortunate to have a diversity of flora that makes up the habitat of these wild creatures, as well as a variety of fruit trees, a coffee and pepper plantation and vegetable gardens that provide fresh produce to our community kitchen.'

The man who created Sholai's utopian world is social anthropologist Brian Jenkins. The green campus has the greater good of humanity in mind. The school is a stress-free environment as there are no rewards, punishment, and no fear of exams. The school endeavours to create an environment free from pressures and to cultivate a joy for learning in the students. Sholai began by admitting its first students—local children from economically challenged backgrounds—in 1992. Since then, a steady stream of local and international students have benefited from the holistic education provided in this lap of nature. The school is residential, with its students, teachers, administrators, and support staff spending most of the

year on campus. Inspired by the teachings of renowned philosopher and writer Jiddu Krishnamurti, the trustees of the Sholai School maintain this unique microcosm as one that provides all-round education. The children have opportunities to appreciate the wondrous environs with all of their senses. They learn to co-exist with and care for nature. Over time, they realise that the Earth's resources are finite and precious.

To preserve its natural beauty, the campus is entirely off-the-grid, thanks to an array of renewable energy systems. This includes 89 solar panels, a micro-hydro plant, a wind generator and biogas unit. The students are conscious of their carbon footprints and ensure these remain minimal and no energy gets carelessly wasted by anyone. For example, computer or mobile use is restricted to designated hours. Rainwater harvesting, organic farming and waste segregation are other green measures adopted at Sholai. Over the last three decades, every bit of waste has been scientifically managed, making it a zero-waste campus. 'Growing up studying these sustainable systems, students experience both the joys and challenges of living consciously with minimal impact on the natural environment,' Karuna explains.

To encourage a sense of ownership and responsibility towards the planet, the teachers, students, and administrators combine efforts to maintain the school campus as a community. In the process, students learn the intricacies of managing the systems on site. There are no cleaners or janitors; everybody segregates their waste, which is then sorted into 16 categories in the Recycling Room and then managed. The school's weekly meetings provide a forum for community members to discuss concerns and solve issues. Fresh ingredients come from the farm for their meals, while they also run a dairy and a small cheese-making unit.

Living close to nature instils in children a certain sensitivity to the elements. During the rainy season, when sunshine is scant, the requirement for more careful use of energy is clear. Students at the Sholai School are therefore habituated to using electric lights only when necessary, avoiding wastage. Switching off lights and electrical appliances, when not in use, becomes second nature to the students. In the summer, when water is scarce and impacts are visible on the crops grown, the students automatically limit their water use. Upon depletion of the storage tanks, they resort to well water, which they pump out manually.

These habits lead to sustainable development becoming integrated in their psyche. Classes on Environmental Studies, Natural Sciences and Organic Farming awaken in them an awareness of the delicate and vital balance that humans share with the living biosphere around. In the Physics and Engineering classes, teachers help the students understand the science behind the technologies used on campus and explain ways to maintain these in running order. Other classes, such as Mathematics, English and Social Studies, direct students' attention to anthropogenic activities that have impacts on our planet. This helps them conclude that everything on Earth is interconnected. 'Self-enquiry and attentiveness to relationships are encouraged in both students and teachers. We hope that the students continue to build on the foundations laid in their formative years at Sholai,' says Karuna. The Sholai School has truly proven to be an exemplar of how to make youth climate literate and appreciative of sustainable and regenerative sources of energy.

CLOAAT has received many awards. These include the prestigious 'Model Green School' award from the Centre for Science and Environment, New Delhi. CLOAAT is also a certified organic farm.

Karuna Jenkins
Trustee


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Produced by Earth Day Network—India (inspired by EARTHDAY.ORG),
Climate Literacy: Beyond the Written Word is the second in our series focusing
on the global theme 'Restore Our Earth.' We are grateful to each of our 20 contributors
for sharing information on their initiatives for effective methodologies to build Climate Literacy.
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