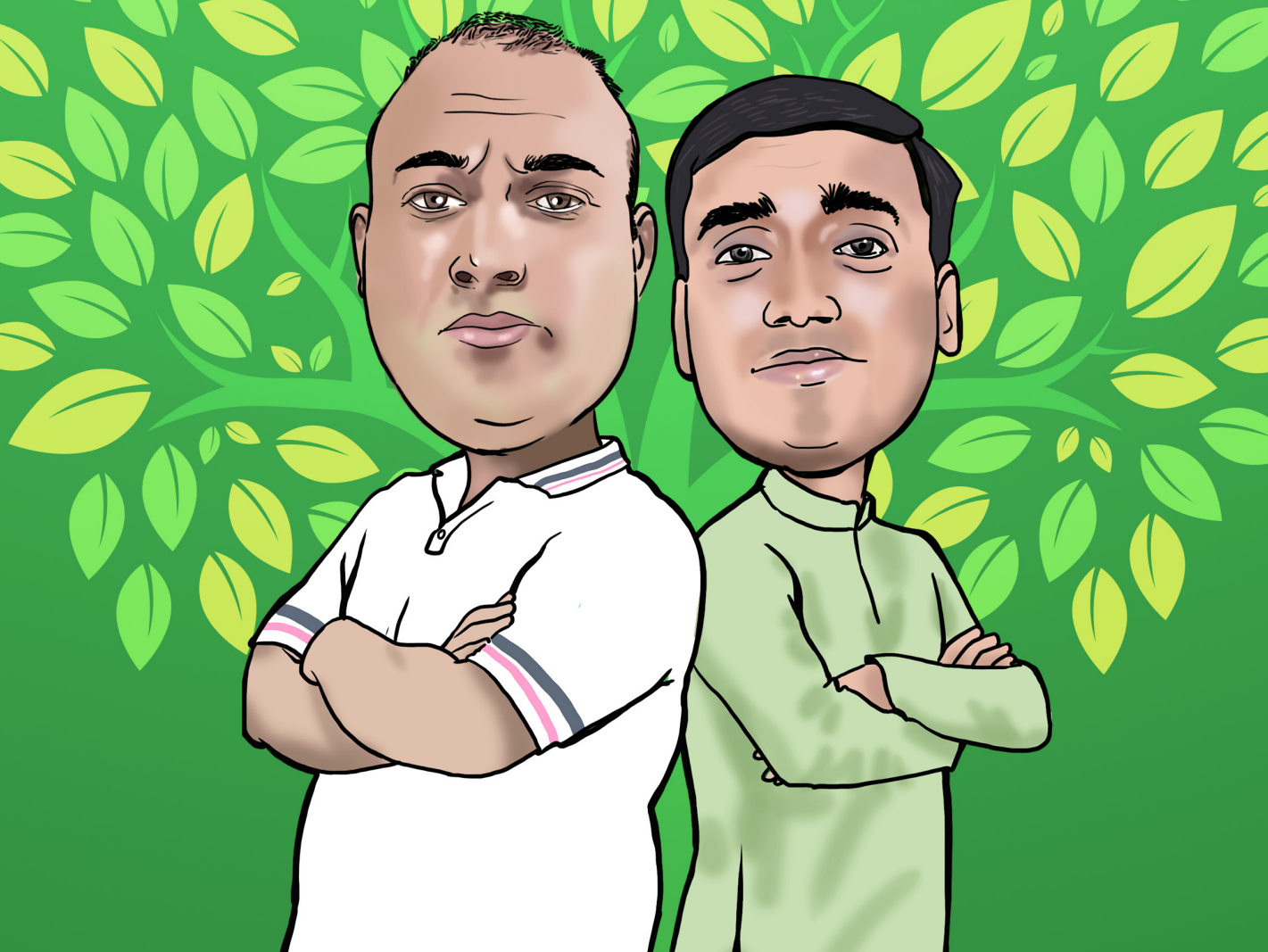
gobar times
ISSUE NO: 256, September 1–30, 2023
A DOWN TO EARTH SUPPLEMENT FOR THE YOUNG AND CURIOUS

GREEN GURUS

Featuring evergreen stories of some real change-makers who have lead by example at the ground-level



Cover Story

Standing Tall and Green

An inspiring story of a school teacher, transforming a barren hilltop into an evergreen haven with sheer grit, indefatigable passion, and true love for nature.

My name is Jeevan Singh. I was duly appointed in government service by my state's education department in 2010. But I got properly initiated as a teacher only when I was posted at the Government Primary School, Sidhot, based in Salooni Educational Block of Chamba district in Himachal. Promoted to 'TGT Non-Medical' in 2017, I got an opportunity to disburse my services in the Government Senior Secondary School, Himgiri, also located in Chamba. Over the past six years since then, I have belonged here.

Jeevan Singh Thakur

Along with educational, I've always been interested in social initiatives. Perhaps, because I've inherited these pursuits as virtues from my parents. Therefore, since I arrived here, in addition to observing the vast campus, I sensed the possibilities of greening and landscaping it. So, I formulated a plan and began working in an organised manner. Among the first tasks I undertook was the beautification and plantation of our ground.

At the site of our school, which is a hill's peak, wind blows from all directions and loses a lot of humidity. That's why moisture for any vegetation is a constant requirement. So, I served my plants regularly by watering them daily, particularly, by reaching the school at six o'clock in the morning and post four o'clock in the evening in order to not waste any office time. And regarding the need for *gobar* (cow dung manure), I collected it in sacks from wherever it was available on-route and dumped it on my vehicle to unload it in our garden.

Observing my diligence—as I performed these chores with a lot of heart—I was appointed as the in-charge of my school's eco-club in 2018. The same year, my staff honoured me with the Green Valley Award. Soon, I got a chance to meet and became very inspired by, Shri Ravi Sharma, Senior Scientific Assistant in the Himachal Pradesh Council for Science, Technology & Environment. Working under his guidance, our herbal garden received all kinds of support.

Currently, a diverse flora is thriving here, including over 200 plants in the playground and

over 500 saplings queued alongside. Deodar, lemon, plum, rose, marigold, jasmine, *khanoor, chooli, aadu, khumani, kena, nargis*; and medicinal plants like, tulsi, wild onion, *ashwagandha, saunf, mulethi*, etc. are flourishing here. To protect these species, we nurtured them periodically.

We launched a campaign whereby each student was allocated two plants to inculcate environment consciousness whithin him/her. We also framed a calendar to raise awareness among our school students and in our neighbourhood. Our calendar scheduled all our eco-activities and I gladly contributed approx. ₹9,000 towards its expenses. I also invested over ₹25,000 on more than a hundred ornamental plants sown in our compound. From 2017–22, our eco-club planted more than 2,500 saplings of which over 700 have already developed into trees. Thus, in 2018–19, our school secured the first position in our district for our special efforts on environment conservation, and also bagged the state's Environment Leadership Award.

Our rich flora, comprising the herbal and kitchen garden, consumed manure on a large scale. Thus, thrice I'd self-funded the supply of *gobar* wagons. Many times during shortages, I transported water on my own vehicle to irrigate them. Throughout the COVID when all institutions were closed, I continued visiting the school the entire year to remove weeds, spade the mud, water the plants, and fertilise them.

Due to the lack of a boundary wall, livestock often went astray inside our campus, causing a lot of damage and even triggering feuds. The rampaged plants included some especially purchased decorative species, like *mor pankh*, green thuja, araucaria, and pencil palm. As a result, some of these were sown thrice to ensure their survival. At times, the locals even thieved some shoots; say, fifty plants, each pot costing ₹200 or more! So, new plants were grown in replacement. There were many worse challenges I faced, which I can't even disclose, while accomplishing this mission.

But now, I feel relieved. Earlier, there was not a single tree which could shade us from the sun. But now each sapling has matured into one. In the past 2–3 years, several honeybees, butterflies, and birds with their nests have got attracted to this one-hectare area. Presently, our entire canopy is sheltering our children and motivating them towards eco-sensitivity.

In appreciation of our eco-club's endeavours in 2019–20, my school again bagged the state Environment Leadership Award, offered to us by the Chief Minister of Himachal Pradesh, Shri Jai Ram Thakur, in Shimla. Following that, in 2020–21, we were again rewarded at the district-level, this time with a second prize. And in 2022–23, we were conferred with the Land Management Award and the Green School Award at the Green School's Carnival in New Delhi, conducted by the Green Schools Programme of the Centre for Science and Environment. On 5th June this year—the World Environment Day—in Shimla, my school was bestowed with the Chief Minister's Rolling Trophy. Receiving so many accolades under the banner of eco-club is indeed a matter of great pride for us.

Many people have contributed from time-to-time towards fulfilling our goal. My school principal; Miss Akansha, the Agriculture teacher; Jagdishji, the Lecturer of Political Science; Dharam Singhji; and Rekha Sharma had helped a lot. Plus all the kids of the eco-club were an indispensable helping hand.

The author teaches Science and Maths to classes 6–10 in Government Senior Secondary School, Himgiri, Chamba District, Himachal Pradesh. The article was translated from Hindi by Anubhuti Sharma.

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Cover Story

The butterfly garden initiative

Bharat Godambe

Showcasing how visionary projects can nurture future leaders who are not only academically adept but also environmentally conscious and aware.

In an era of urbanization and technological advancements, the importance of connecting the youngsters with nature cannot be overstated. My school, the Sacred Heart in Kalyan, Maharashtra, stands as a beacon of inspiration in this regard. Their authorities had given me the mandate to set up a butterfly garden and provided all the required finance and manpower. And as our pioneering effort flourished with time, I was duly absorbed as a Nature educator.

In February 2017, our campus attracted only 10–12 different butterflies. So we grew some nectoring plants like Wedelia, Hamelia, Jamaican spike, spicy jatropha, pentas, Golden Duranta, periwinkle, Caesalpinia, lantana, etc. By May, we observed 25+ butterfly species fluttering in our compound. Then, we introduced these nectoring-cum-host plants: Nerium, Bryophyllum, Krishna Kamal, lemon, curry leaves, and Ixora. And, by September, our garden bloomed vibrantly. Not only our butterfly count increased day-by-day, our bird count also rose due to the easy availability of food. Throughout the year, our results were astounding as we documented an impressive 56 species in our 1500 sq. ft. garden.

With the active participation of both our students and teachers, we transformed a corner of our ground into a vibrant ecosystem. We grouped several pairs of students and allocated the daily plant-watering duty to them so that the saplings keep flowering. We avoided every chemical pesticide and weedicide, and used manure from our school's composting pit. We observed the garden daily to record the lifecycle stages of butterflies—the egg, larva (caterpillar), pupa, and adult butterfly. Further, we installed an information board with photographs of diverse flies and their specs which enabled the students to identify about 15+ varieties clearly. Next, we established a butterfly nursery, conducted a series of butterfly lectures, and organised an exclusive butterfly festival! Our garden has been more than just a sanctuary for winged wonders; it has become an outdoor classroom—a living laboratory, where our ambassadors-of-change learn through direct observation and hands-on experiences. Thus, we enhanced their educational experience by bridging the gap between traditional learning and the natural world.

We have a lush green campus of about ten acres where we integrate natural farming with other agricultural practices. Apart from making natural fertilisers, we run a biogas plant and varied animal husbandry projects. We pursue rain-water harvesting, dry and wet waste segregation, and use hundred per cent solar power. The journey of developing our butterfly garden is a testament to the power of education in transforming landscapes and mindsets alike. It showcases how a simple initiative can instill within our next generation a sense of responsibility and appreciation for our environment.

The author is a TGT Science teacher and teaches Nature Education, Agriculture, and Hydroponics to classes 5–8 in Sacred Heart School, Kalyan, Thane District, Maharashtra.

Comics

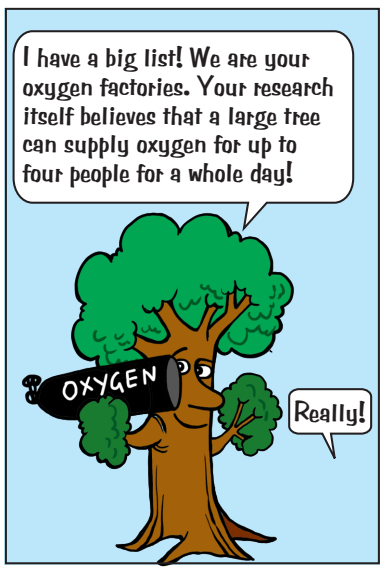

Should I cut the
TREE?
by SORIT


My shuttlecocks and kites always get stuck in the branches of these trees!
(Yawn!) That's sad Piu. You know, that's why I don't fly kites at all!


Makes sense! Trees are fully useless!!! I'm gonna chop all of them from our park now!
WHAT!!!


Hey! That's not fair. You can't cut me down just because your knick-knacks get trapped in my branches.

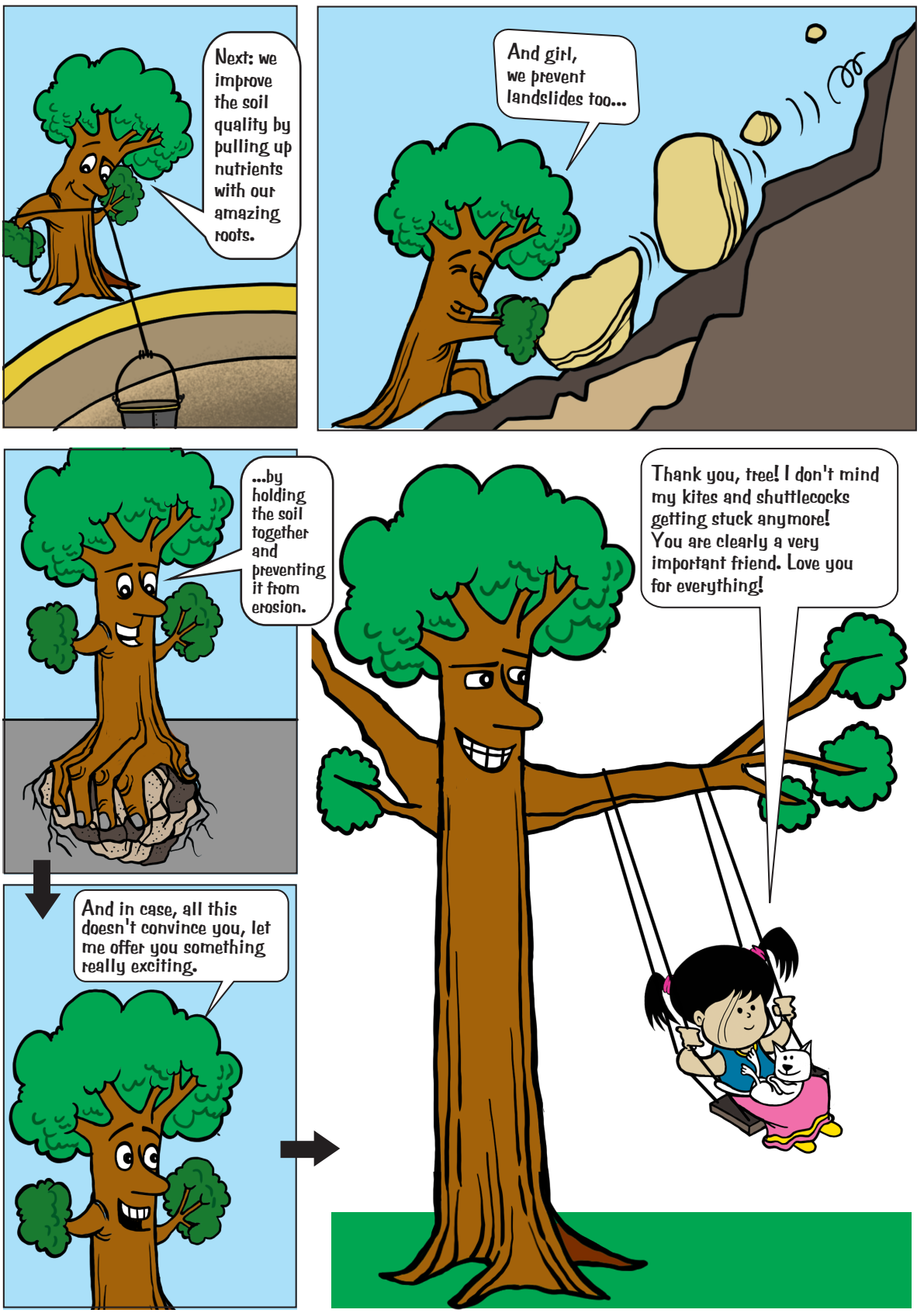

What about all the beneficial contributions I make!?
Like...?


I have a big list! We are your oxygen factories. Your research itself believes that a large tree can supply oxygen for up to four people for a whole day!
OXYGEN
Really!


Yeah! And we clean the air by removing the harmful carbon dioxide that you guys keep emitting.


Further, we make forests which are a vital habitat for the wildlife.

Comics


Next: we improve the soil quality by pulling up nutrients with our amazing roots.
And girl, we prevent landslides too...
...by holding the soil together and preventing it from erosion.
Thank you, tree! I don't mind my kites and shuttlecocks getting stuck anymore! You are clearly a very important friend. Love you for everything!
And in case, all this doesn't convince you, let me offer you something really exciting.

Readers-Writers

APT FOR AGRICULTURE

A path-breaking scientific and technical invention by a student of Amity International, New Delhi to ease agriculture, using solar power

Kriti Garg

I wanted to create something unique which can contribute to the development of our country."

Suhani Chauhan, a student of Amity International School, Pushp Vihar, New Delhi recently created SO-APT—a visionary agricultural innovation. Stories of students across states are emerging, based on the cross-section of new technology and age-old dilemmas, proving that the youth is not just adults-in-waiting but are individuals with a drive to influence the world.

Chauhan's groundbreaking creation, has the potential to revolutionise Indian farming. Putting her passion for research and scientific inquiry to good use, Suhani is set to transform the lives of Indian farmers by providing them with an eco-friendly, cost-effective, and multifunctional tool.

What is so apt about SO-APT?

SO-APT, short for Solar-Operated Agro Vehicle with Portable Tools, is a marvel of sustainable technology and has set a new milestone in agricultural innovation. Powered entirely by solar energy, it boasts of zero carbon emissions, contributing to a cleaner and healthier planet. The vehicle can perform a wide range of tasks, including operating a fodder-cutting machine, centrifugal pumps, fans, lights, and even charging mobile phones. Its versatility enables farmers to use it for hole-digging, seed-sowing, irrigation, spraying, and various essential agricultural activities.

With a distance coverage capacity of 60km on a fully charged battery, it ensures that farmers cover vast expanses without worrying about battery drainage. The vehicle's load-carrying capacity of 400kg makes it ideal for transporting bulky materials during demanding seasons.

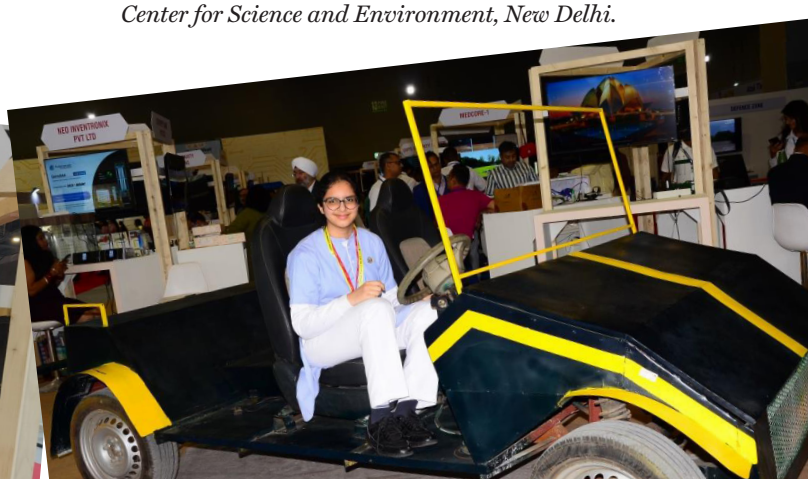
One of the most significant advantages of SO-APT is its low daily operation cost. Since it is entirely solar-powered, its running expenses are virtually nil. Furthermore, due to its simple design and fewer components, maintenance costs remain negligible, saving additional financial burdens.

Priced under ₹3 lakhs, Suhani's creation is inexpensive and accessible to a majority of the farming community, promoting inclusivity and empowerment. Through SO-APT, Suhani aims to increase crop productivity and decrease production costs, thus uplifting farmer's income and ensuring our food security.

In her own words, "The vehicle performs all the functions of agriculture, except for ploughing, which requires a high amount of energy and power." With this ambitious endeavour, she seeks to address the pressing needs of farmers and contribute to India's sustainable agriculture practices.

While the youth maybe the primary bearers in our climate change conundrum, they are the most proactive in responding through innovations as these. Chauhan's SO-APT presents a promising solution to the struggles of Indian farmers, providing them with an environmentally-fit economical tool for their needs. To that very end, environmental journalist, Robinson Meyer had once remarked, "Patience is a democratic virtue. But sloth is a cardinal sin. Perhaps only the young can tell the difference." We hope that young, brilliant students such as Suhani, continue to be able to tell the difference and make one too.

The author is an undergraduate student in the Princeton School of Public and International Affairs, Princeton University, USA; and was an intern at the Center for Science and Environment, New Delhi.



The new trend is here...

India is one of the fastest-growing markets of Electric Vehicles (EVs) in the world. More than 90 per cent of this market comprises electric motorbikes, scooters, and rickshaws. As per an International Energy Agency report, over half of India's three-wheelers registered in 2022 were electric. EVs are undoubtedly very popular and touted as a solution to our rising greenhouse gas emissions and worsening air quality.

Ritika Bohra/GT