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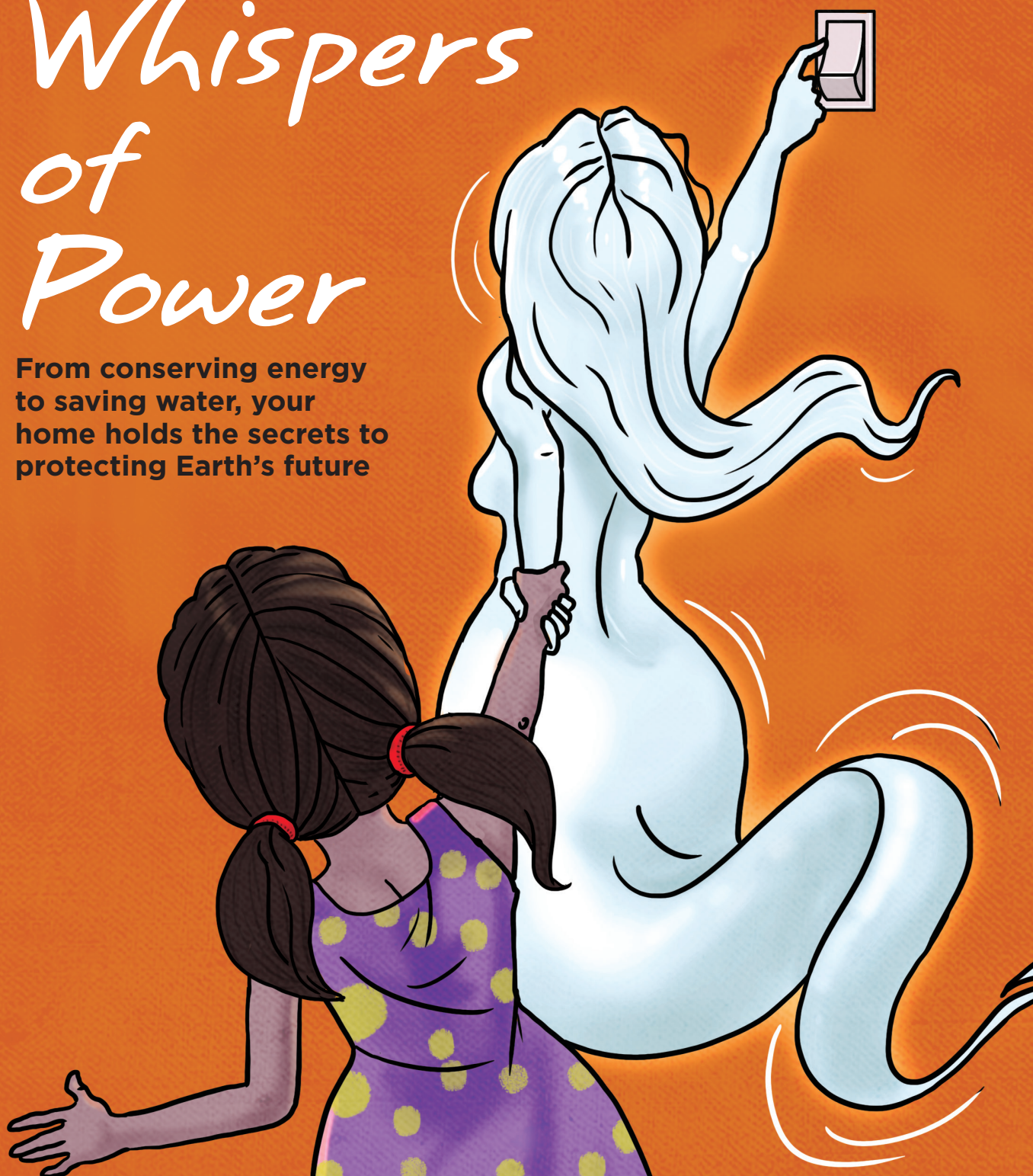
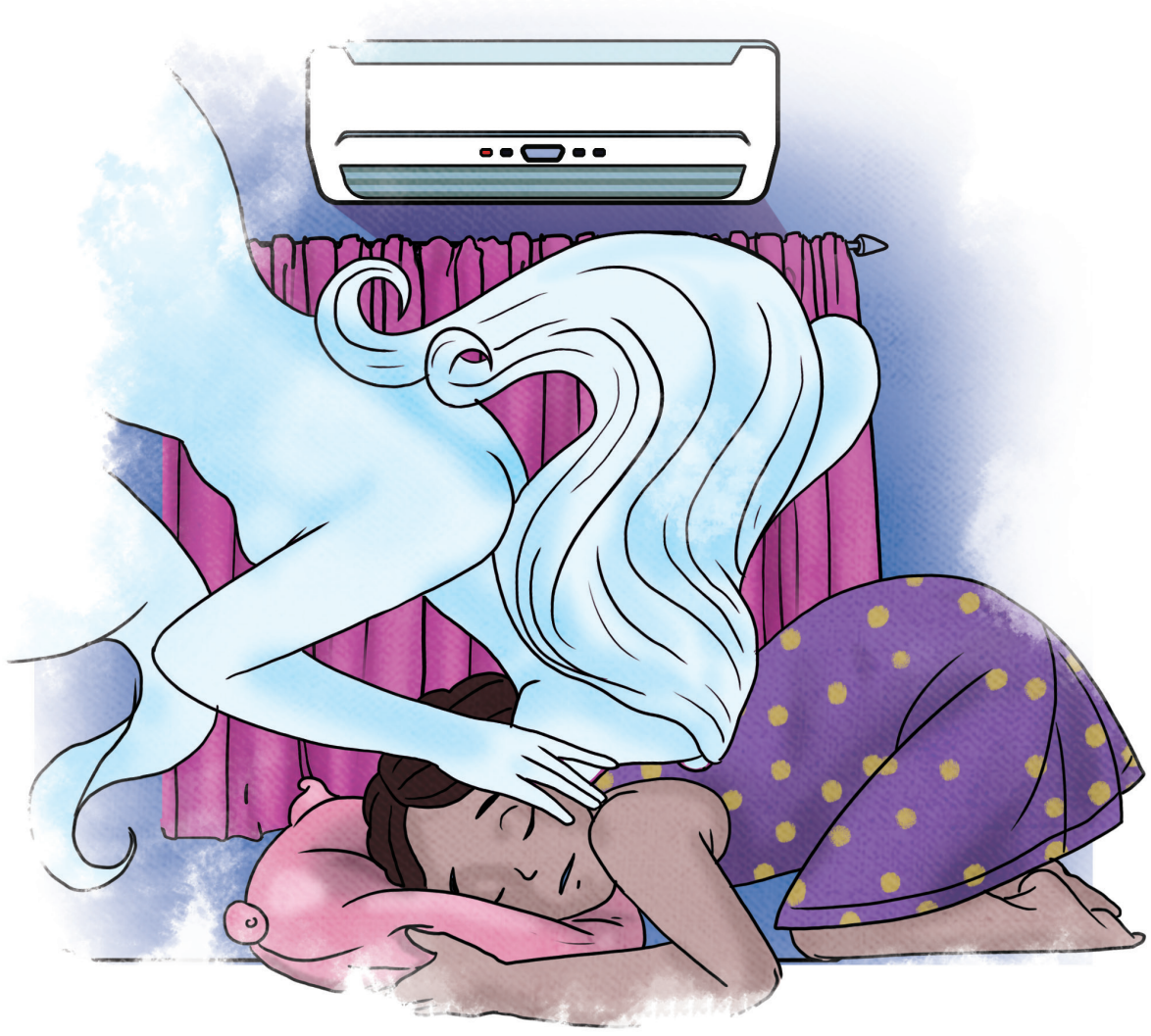
A DOWN TO EARTH SUPPLEMENT FOR THE YOUNG AND CURIOUS

Whispers of Power

From conserving energy to saving water, your home holds the secrets to protecting Earth's future



Cover Story



Spirit of the Home

Sugeet Grover

A friendly house spirit shows Kavya—and you—how little switches, breezes, and sunlight can save energy and heal our Earth.

Supplement Editor: Souparno Banerjee **Senior Creative Director:** Ajit Bajaj **Supplement Editorial Coordinator:** Anubhuti Sharma
Design: Ritika Bohra **Illustrations:** Yogendra Anand **Cover Design:** , Ritika Bohra **Production:** Rakesh Srivastava, Surender SIngh
Email: young@downtoearth.org.in **Snail Mail:** 41, Tughlakabad Institutional Area, New Delhi–110062

It had been a hot day. Kavya had just finished her homework and curled up in bed, exhausted. As her eyelids drooped, a soft breeze went through the curtains. As she was drifting off, she heard a whisper.

"Hey... Kavya," whispered a warm voice. "Are you awake?"

Kavya blinked. "Who's there?"

"I am the spirit of the house," said the voice gently. "And I need your help."

"My help? What do you want?" Kavya sat up, wide-eyed. "Why would a Spirit need help from a little girl?"

The Spirit chuckled. "I realise that the world around me is changing, it is hotter than it was the year before, which in turn was hotter than the year before that. It saddens me that I contribute so much to this change. You see, I use a lot of energy to keep you comfortable, to keep the lights glowing, fans spinning, your television running, the AC working. But I do this at a cost, where do you think all that energy comes from?"

Kavya scratched her head. "From... electricity?"

"Yes, little one," said the Spirit. "But electricity is made by burning fuels like coal. That releases smoke and gases that warm up our planet — just like if you were stuck in a glass box under blazing sun, it is called greenhouse effect, and I wish to not be part of the problem anymore."

"Oh no!" Kavya gasped. "So what can I do?"

"You and all other children can help me by conserving electricity, in fact, it is one of the simplest ways in which anyone can contribute to this issue, let me show you how," said the spirit, and just like that, the walls melted away. Kavya found herself floating gently through the rooms of her house with the spirit beside her, glowing faintly. The Spirit floated down the

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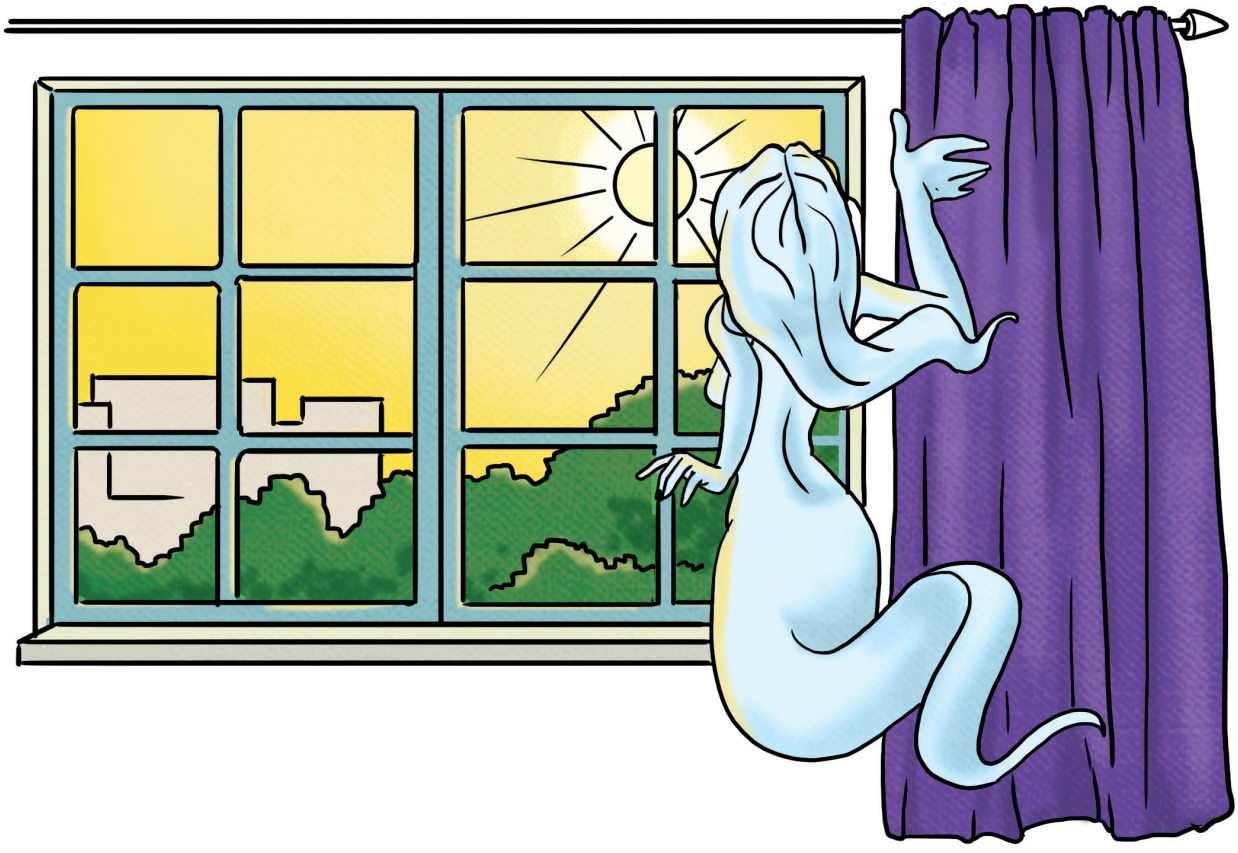


Cover Story

hallway, and Kavya followed. As they entered the living room, the Spirit pointed to the air conditioner.

"Did you know," the Spirit said, "this machine works very hard to cool your room? But it uses a lot of energy. There are smarter ways to help it work better."

Kavya tilted her head. "Like what?"

"Well," the Spirit replied, "before rushing into an air-conditioned room from outside, your body needs a bit of time to get used to the change in temperature. If you rush into a cold room right away, your body might not be ready, and you could get a bit sniffly and catch a cold."

"It's better to cool your body down first. Switch on the fan. Open a window if it is not too hot outside. Let the breeze flow through."

Kavya's eyes widened. "That's so simple!"

The Spirit nodded. "And at night, when the air is cooler, open the windows wide open to let the breeze cool the room. This is called night ventilation. It lets out all the stuffy heat that the house has accumulated through the day. Just don't forget to close them again if it gets too hot outside in the daytime."

They floated next to the cooler in the corner.

"In dry, hot months like May and June," the Spirit explained, "this desert cooler is a wonderful friend. It uses water to cool the air and works best when the outside air is dry. But always keep it in a shady spot and don't block the airflow. And remember, a cooler needs open windows to work well—so don't shut everything tight like with an AC."

"What about the rainy months?" asked Kavya.

"Good question! During hot, humid months like July and August, if the temperatures are not very high, ventilation should be the first step. Open the windows, let fresh air be your friend. It's best that you open windows on opposite sides of the room. It is called cross ventilation and it's nature's way of cooling.

Appliances use energy even when they are off. That's called standby power. Turning them off from the socket—can save 5 to 10 per cent of electricity.

If the temperature and humidity both are high, it's okay to use the air conditioner—but wisely, air conditioner works by recirculating the air and throwing the heat to the outdoors, hence worsening the already warm air outside, hence not good for you or the environment.

Keep doors and windows shut when it's on, and set it no lower than 26-27°C. Each extra degree can save up to 6 per cent electricity! You can also use a fan with it to help cool yourself."

The Spirit then floated over to the curtains and pulled them aside.

"When winters arrive, welcome the warm sunlight to fill in your room during the day," it whispered. "It keeps the house warm and bright. Natural light is not only free, it makes us feel calm, happy, and healthy.

But don't open the windows unless it's warm outside. We don't want the warmth inside the room to escape."

Kavya looked at her study table. "In winters, I don't get enough light while studying, what can I do?"

"It's wonderful that you are thinking this way!" said the Spirit. "Look around your room, perhaps you can move the table closer to the window." With a snap the table moved closer to the window, better lit than before.

"There would be times when it is too dark outside," the Spirit continued, "...and you will need more light. In such a scenario, a desk lamp might do the job, it saves more energy than lighting up the whole room."

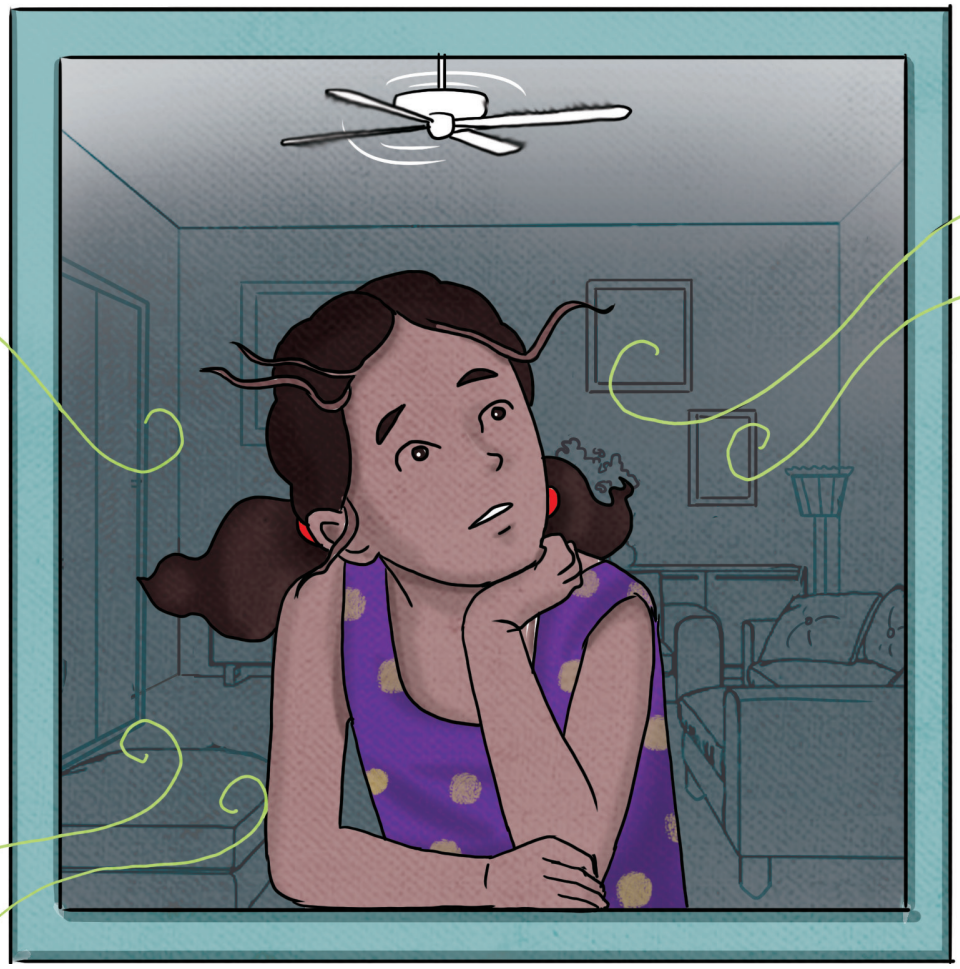
They moved towards the kitchen, where little red lights glowed on the microwave and the TV kept nearby.

"See those lights?" the Spirit asked. "They're using energy even when the appliance is off. That's called standby power. Turn them off from the socket—it can save 5 to 10 per cent of electricity."

Kavya's eyebrows lifted. "Just from that?"

The Spirit chuckled. "Yes, small things make a big difference. Every switch turned off, every degree changed—each one helps the Earth."

They stepped out onto the terrace. Kavya gasped.



A lush, green garden stretched before her, full of herbs and plants she didn't even know were there.

"This... this isn't our terrace!" she said in surprise.

"Not yet," said the Spirit. "But it can be. The house needs to be protected from the unforgiving summer sun. A rooftop garden does exactly that and cools your home while providing you with fresh produce too. It is another way by which you can help the Earth, starting from home. If a terrace garden is too much, we can simply paint the roof in a white shiny paint or floor it with white tiles. This will help in reflecting the harsh sun and keeping the house from heating up."

Kavya beamed. "I'll tell Papa tomorrow!"

The Spirit's voice became softer. "Remember, energy is precious. We use it every day—for light, for comfort, for fun. But if we're careful and kind, we can save it—for our planet and our future."

As they walked back into her room, Kavya noticed the soft morning light beginning to peek through the window. The Spirit looked at her with glowing eyes.

"Is this a dream?" she asked.

"If it was, it would mean that deep inside you, you already knew everything I just said," the Spirit said kindly with a smile. "Now, go on and rest. You need to be your home's energy champion when you wake up."

Kavya blinked—and suddenly, she was back in her bed, curled under her blanket. Was it a dream? She wondered. But then she saw it—her curtains slightly open, the fan slowly spinning, and a gentle breeze brushing her cheeks. She smiled.

Maybe the Spirit is real, residing in all our homes and can benefit from your help.

The author is a Programme Manager, Sustainable Habitat Programme, Centre for Science and Environment, New Delhi.

Readers Writers

Every Drop Counts

Through rainwater harvesting, pledges, and online campaigns, one educator proves how simple steps can create lasting ripples of change.

Vipin Kumar Tyagi

I started my journey on water conservation in 2013 when I was the Principal in Kendriya Vidyalaya (K.V.), Mussoorie. At the time, there was an acute problem of drinking water there, therefore a new project on rainwater harvesting was adopted. We raised awareness on water conservation among students through water exhibitions, rallies, debates, and essay and painting competitions. We also planted about 7,000 saplings in nearby hills and managed to preserve enough water for over 800 students. Finally, a 30,000-litre tank was constructed for harvesting rainwater and it was utilized for cleaning floors, toilets, and watering plants.

In 2016, I was transferred to K.V. No. 1, Roorkee and continued this venture. We conducted an offline pledge called 'Save Water, Save Future' in various schools in Roorkee—including K.V. No. 2, Cantt Board School, Government Inter College, St. Ann's School, Chandrashekhar School, etc. We also conducted this pledge online and engaged 12,500+ students, teachers, and parents. Further I also launched multiple Facebook groups on 'Save Water, Save Future' and 'Inspirational Save Water, Save Future group' involving over 2,000 members. Finally, our efforts bore result and we arranged for a 50,000-litre storage tank in our school for recharging groundwater.

Apart from water-related concerns, I also conducted pledges on different environmental issues like: a Green Pledge, Swachhata pledge, Say No To Single Use Plastic pledge, and Say No To Crackers pledge. During COVID, we held webinars with scientists, inter-school exhibitions, and quizzes on Ganga, Environment day, yoga, and Poshan Abhiyaan. Hence my school became a part of some prominent eco-schools in India and also received the Green School Award from Kendriya Vidyalaya Sangathan in 2018. Some of these efforts I made were published by the Ministry of Water Resources in February and March 2021, and also earned me the Green Leader Award from Igniting Dreams of Young Minds in the same year.

As we are already working together to preserve water for our future generations, I aim to get at least a lakh students, teachers, and parents undertake the 'Save Water, Save Future' pledge by next year.

The author is the Principal of Kendirya Vidyalaya No. 1, Roorkee, Haridwar District, Uttarakhand.

Algae Revolutionizes Irrigation

Integrating algae as an irrigation technique can boost water retention and support sustainable cultivation of medicinal plants like Brahmi

Niharika Dixit

In a country like India, where about 45 per cent of the population depends on agriculture for livelihood, water scarcity poses a serious threat. Due to climate change, droughts are becoming increasingly common and many regions are facing drastic water scarcity. According to the Food and Agriculture Organization, agriculture accounts for approximately 70 per cent of global freshwater withdrawals and this is constantly becoming a challenge.

Medicinal plant farming can offer a sustainable income to farmers. But with climate change being a grave concern, their farming practices have to reform. One sustainable solution which could potentially solve the water scarcity faced by these cultivators is—algae.

Imagine a farmer who earns his income from a piece of land. With limited rainfall and extinguishable water sources like wells or ponds, the unavailability of water makes it hard for him to earn a living. His crop yield is also decreasing gradually. Due to the emerging need of *Bacopa monniera* (Brahmi), the farmer decides to grow this crop. But since it requires moderate to high amounts of water, the farmer is unable to sustain the Brahmi plant.

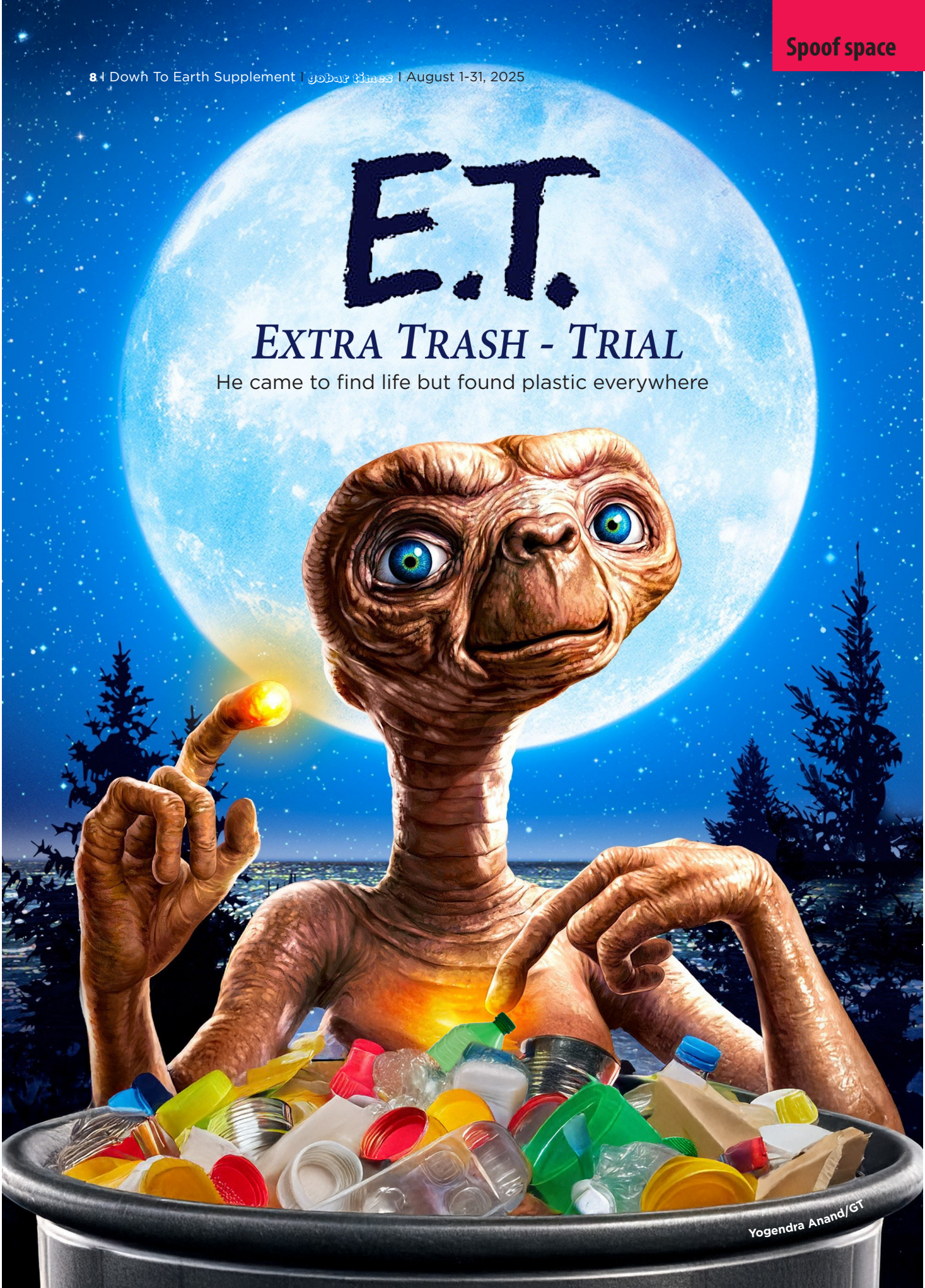
Then the farmer thought of a brilliant plan! He was aware that there are specific algae species growing between crop beds in water channels which can help improve soil moisture, add organic matter, and boost microbial activity. By encouraging algae growth in water channels, he could benefit from enhanced irrigation efficiency and, make agriculture more sustainable and climate-resilient. He could also lower dependence on chemical fertilizers and therefore reduce costs.

The farmer's land has loamy soil, which is ideal for water retention without waterlogging. So, firstly he divides the land into raised beds with water channels alongside medicinal crops. The farmer finds a specific type of algae, called the Blue-Green Algae (Cyanobacteria), and cultivates it in water channels along with growing Brahmi over the raised beds.

Cyanobacteria are photosynthetic microorganisms naturally found in lake ecosystems. Some of their species secrete extracellular polymeric substance which act as a "molecular glue" binding soil particles together, increasing soil's overall water holding capacity. Aggregated soils with higher porosity allow better water infiltration, reducing runoff, and maintaining the required moisture levels for Brahmi plants.

So, with the help of this technique, farmers can grow Brahmi while saving water. It is cost-friendly as it uses locally available resources. Brahmi is highly demanded for its healing properties such as reducing stress and inflammation. Applying this sustainable method can help build a future that goes hand-in-hand with development.

The author is pursuing BSc Biotechnology from the KL Mehta Dayanand College for Women, Faridabad, Haryana.


E.T.
EXTRA TRASH - TRIAL
He came to find life but found plastic everywhere
Yogendra Anand/GT