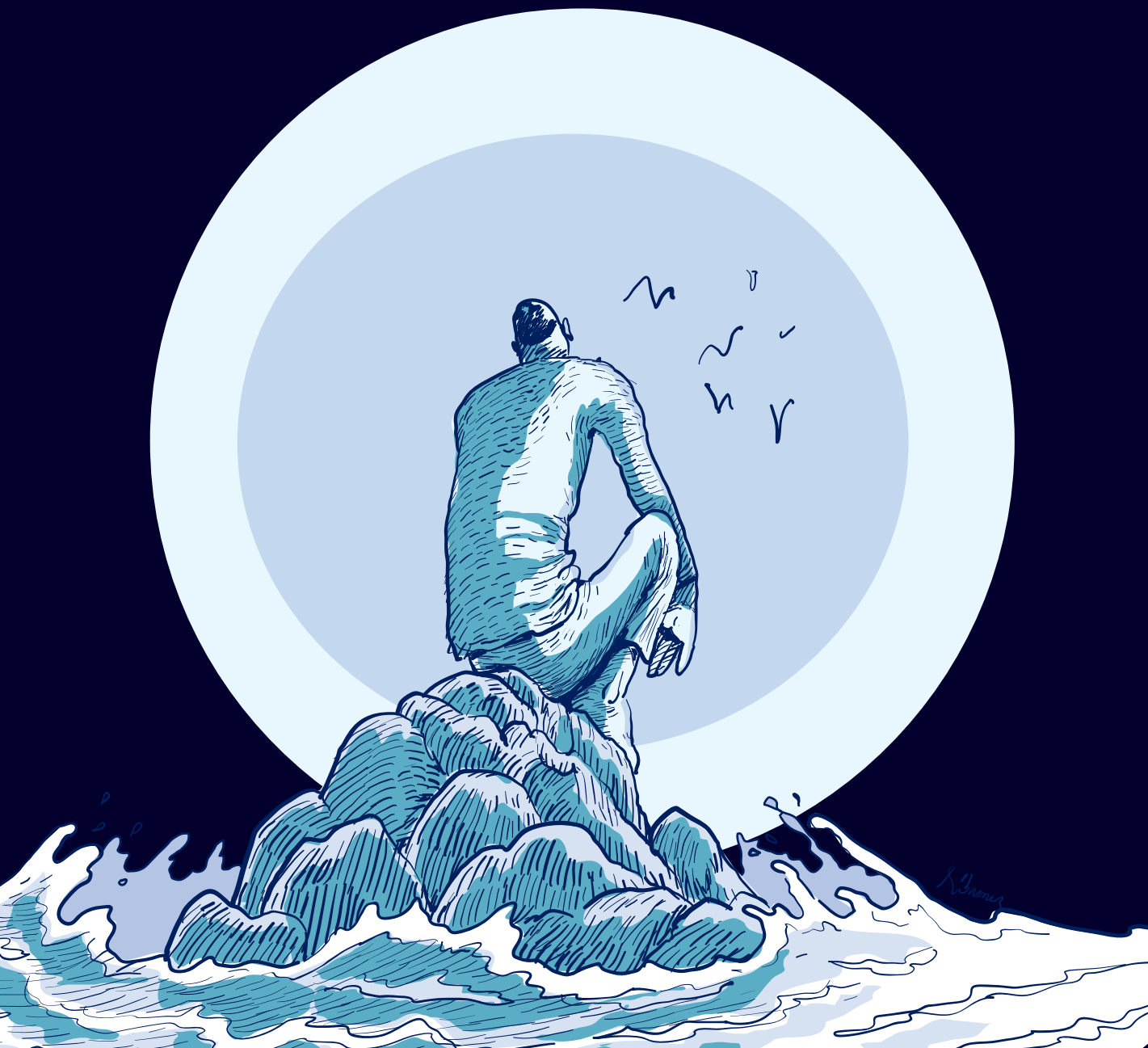
CSE green EDUCATORS' NETWORK

The Climate Chronicle



"Now we know the air we breath is toxic and the water we drink is poisoned; climate change is threatening our food, livelihood and housing security; and we are losing our rich biodiversity. The situation is dire indeed.

But we must fight these threats to our existence, and we must win. But to fight and win—as we must—we must learn about the issues so that we can be part of the change.

I believe, each one of us is part of the problem and so can be the solution. You must be that solution."

Sunita Narain

The Climate Chronicle

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Anand Raj

Beyond the bite: Traditional tribal food in Jharkhand

Climate change, socio-economic stresses, and biodiversity loss are pushing Jharkhand's tribal food systems toward extinction, threatening both sustenance and cultural heritage

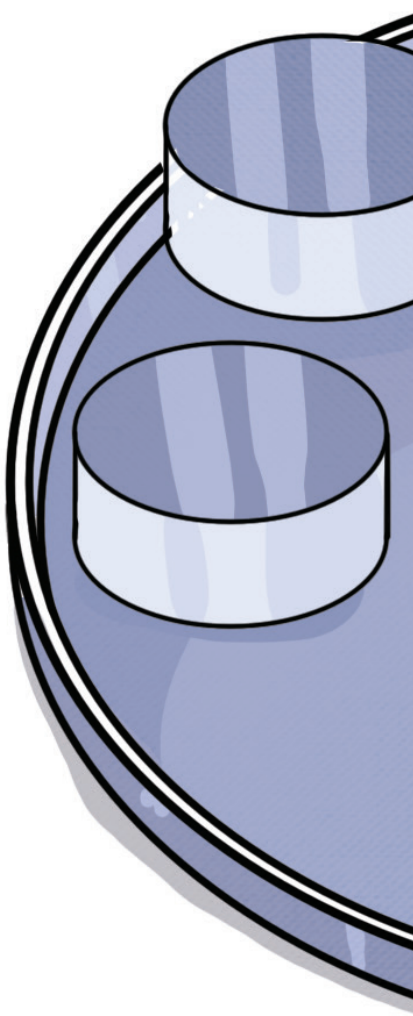
Jharkhand, with a tribal population of around 8.6 million (26.3 per cent of the state's total population, according to the 2011 Census), is home to diverse tribal communities like the Munda, Santhal, Oraon, Ho, and others. These communities have a deep-rooted connection to their environment and culture, reflected in their traditional food practices. These traditional foods are more than just sources of nutrition—they embody the culture and knowledge of Jharkhand's tribal communities.

The traditional food systems of Jharkhand's tribal communities, including Hadia (fermented rice beer), Moringa leaves, red ant chutney (Hau), and Rugda (indigenous mushrooms), face critical threat from environmental changes, biodiversity loss, and socio-economic pressures. These foods, which have sustained tribal populations for centuries, are now becoming increasingly scarce.

Climate change is a major contributor to the above phenomenon, with rising temperatures and erratic rainfall disrupting the growth of key food sources. Forest degradation and habitat destruction further exacerbate the problem, limiting the availability of indigenous food sources. Traditional foods like Banyan fruits, Kachnar flowers, and wild mushrooms have become increasingly rare. Moreover, displacement caused by mining and industrial projects has further disrupted these systems. Losing ancestral lands means losing access to the forests and agricultural resources that have sustained these communities for generations. This undermines food sovereignty, erodes traditional agricultural knowledge, and jeopardizes the preservation of cultural heritage tied to indigenous foods.

The younger generation is gradually losing touch with traditional food knowledge.

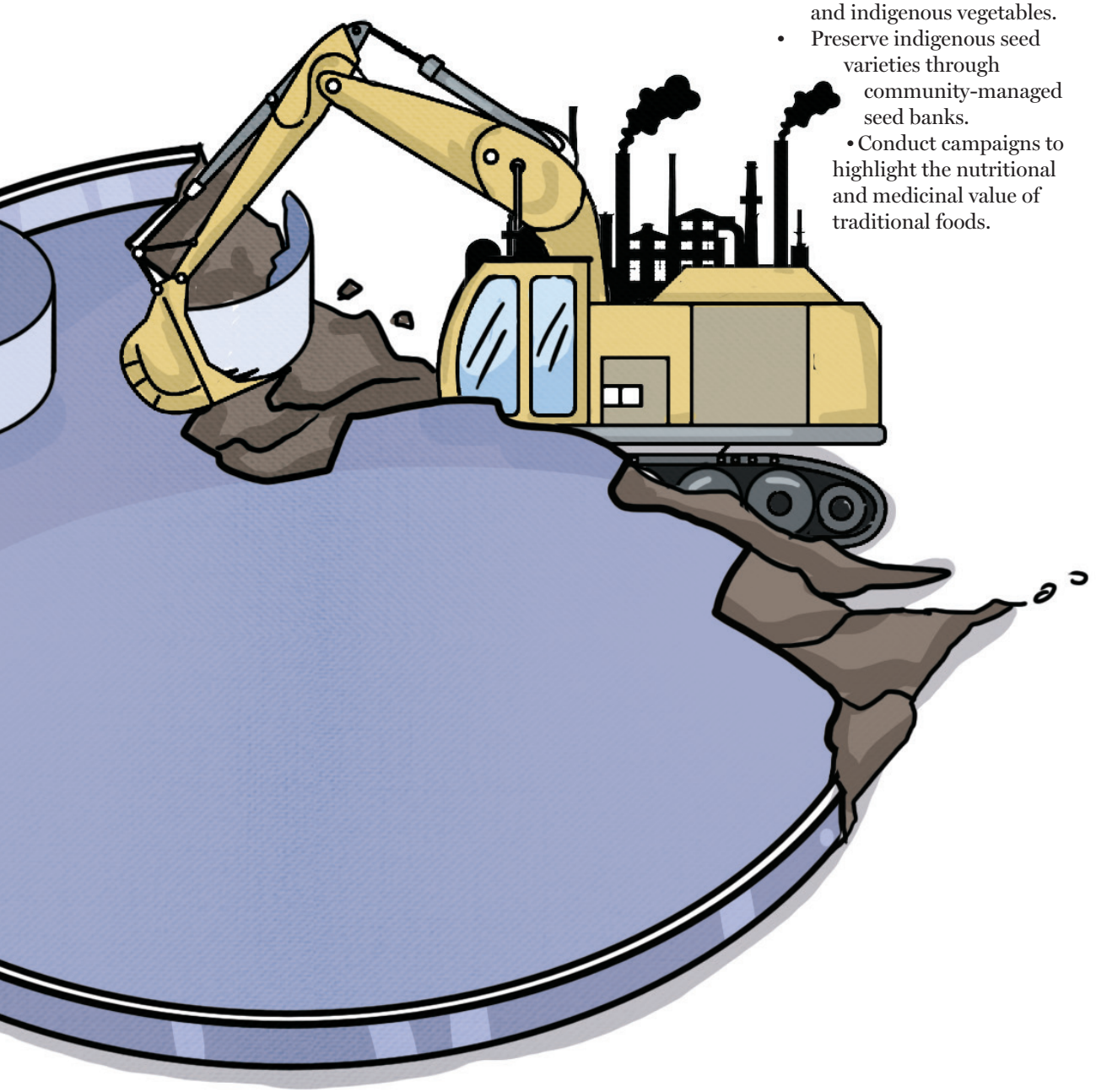
Traditional foods are more than sustenance—they embody the culture, knowledge, and resilience of Jharkhand's tribal communities



Market foods, such as potatoes and hybrid vegetables, are replacing the diverse and nutrient-rich diet their ancestors enjoyed. Additionally, government food schemes like the Public Distribution System (PDS) prioritize non-indigenous staples like rice and wheat, further sidelining traditional foods. This shift has led to the erosion of cultural identity and traditional culinary practices, which were once a cornerstone of tribal life.

Preserving traditional foods is not just about conserving biodiversity; it's about safeguarding cultural heritage, improving nutritional security, and ensuring sustainable livelihoods for future generations. Several policies and initiatives aim to address the decline of traditional foods among tribal communities. The National Food Security Act (NFSA) ensures subsidized food grains, though it often promotes non-indigenous staples over traditional crops. The Van Dhan Vikas Yojana, led by the Ministry of Tribal Affairs, supports the collection, processing, and marketing of forest produce, encouraging sustainable livelihoods tied to indigenous foods. However, successful on-ground implementation of such initiatives is still a distant dream. In order to effectively combat the decline of traditional foods in tribal communities, solutions must align with the Sustainable Development Goals (SDGs), and include:

- Promote rainwater harvesting, indigenous irrigation systems, and multi-cropping to ensure sustainable food production.
- Encouraging the cultivation of traditional crops like millets and indigenous vegetables.
- Preserve indigenous seed varieties through community-managed seed banks.
- Conduct campaigns to highlight the nutritional and medicinal value of traditional foods.



Bodrothu Deepika

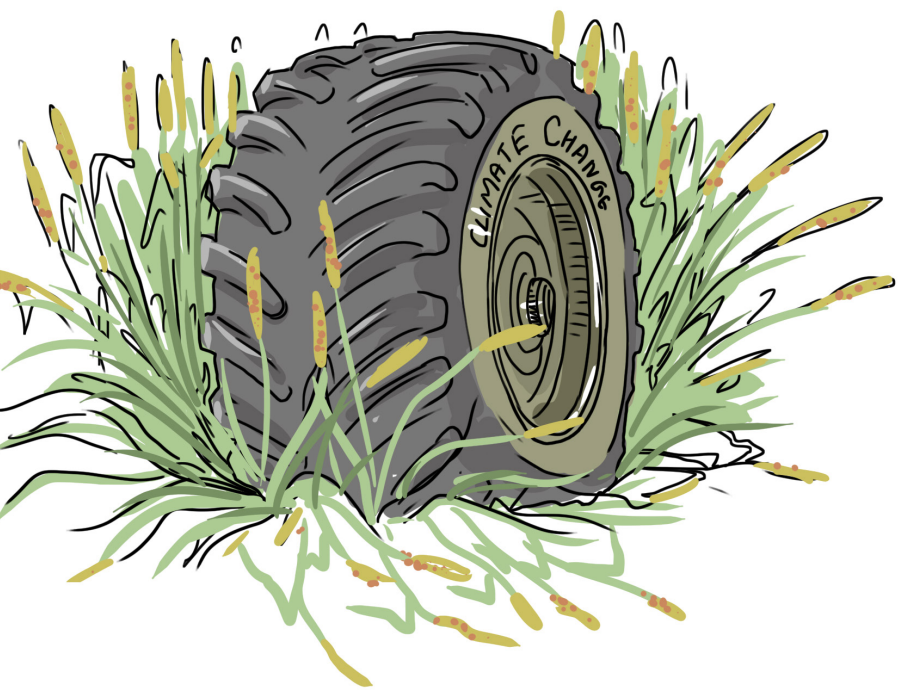
Is climate change rewriting Andhra Pradesh's farming future?

Climate change threatens Andhra Pradesh's agriculture and food security, but resilient crops, water conservation, and community-driven solutions can help safeguard its future

Andhra Pradesh, known for its rich agricultural diversity, faces growing threats from climate change, as shifting weather patterns disrupt crop production and deplete water resources, endangering food security. The state's reliance on monsoon rains makes it vulnerable to rising temperatures, erratic rainfall, and extreme weather events, impacting farmers and communities.

Climate change reduces crop yields through unpredictable weather, worsens water scarcity with droughts, and causes ecological damage like rising pests and coastal degradation. Farmers, especially smallholders and women, face economic instability and food insecurity. Several government policies aim to address these issues, but implementation is hindered by limited awareness and resources.

These challenges can be effectively countered by introducing climate-resilient crops, enhancing water management through conservation, and providing farmer with education. The involvement of communities, local bodies, and NGOs is crucial to ensure effective implementation of policies, supporting the most vulnerable, and maintaining food security.



Climate change reduces crop yields, worsens water scarcity and causes eco-logical damage such as coastal degradation

Chirag Anand

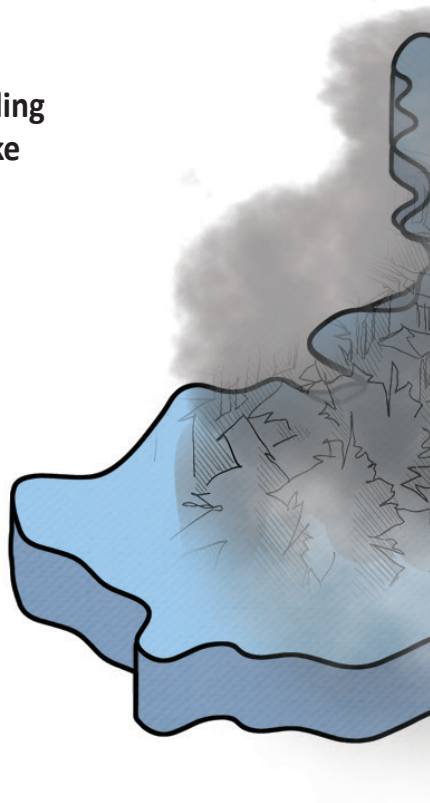
City on hold: Delhi's deepening air crisis

Delhi's air pollution crisis is a public health emergency demanding urgent, sustained action from authorities and communities alike

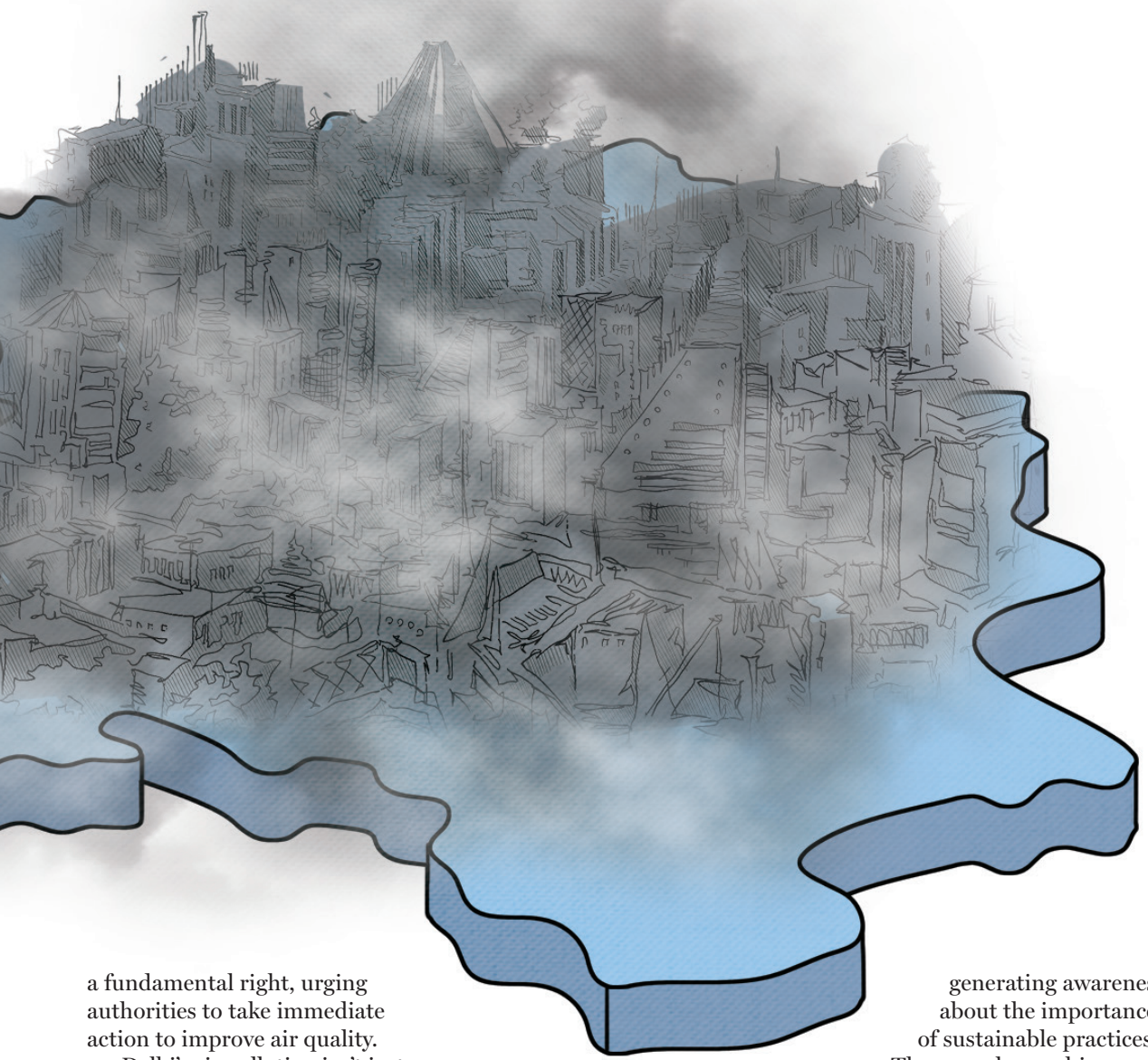
Delhi National Capital Region (Delhi NCR) faces severe air pollution caused by NO_2, PM_{10}, and $PM_{2.5}$ pollutants, as reported in many recent studies. It causes severe environmental issues and has become a major health risk for livelihood in Delhi. With the increase in population, there is an increase in emissions from various utilities as well, making Delhi a gas chamber. The capital's residents have become accustomed to the annual 'pollution season' that arrives with the onset of winter, when particulate matter levels peak due to lower winds and cooler temperatures and the government is forced to declare a public health crisis. This crisis has become an annual ritual for Delhi and its citizens. The National Green Tribunal and various courts of India have also taken cognizance of the problem and directed the Delhi government and various concerned agencies to enact measures to resolve the issue.

Delhi's toxic air isn't just pollution—it's children missing school, families trapped indoors, and a city gasping for breath every winter

Over the last few years, several studies have been undertaken to understand air quality and its impact on health. According to the World Health Organization (WHO), urban air pollution is responsible for approximately 800,000 deaths and 4.6 million lost life-years annually around the world. A study published in the journal, *Environmental Science & Technology* in 2015 suggested that outdoor air pollution in Delhi led to around 15,000 premature deaths annually. In the same year Indian Institute of Technology Kanpur, published a study on air pollution that reported a thousands premature deaths due to severe respiratory and cardiovascular diseases caused by air pollution.



The consequences of Delhi's toxic air are serious as it causes respiratory disorders, cardiovascular conditions, cognitive decline, and impacts children's health and development. Poor air quality has led to disruptions in daily life, including closure of schools and issue of health advisories urging residents to remain indoors. Various measures have been taken to tackle pollution, such as restrictions on vehicle emissions and industrial activities, but the situation remains critical. The Supreme Court of India has declared that living in a pollution-free environment is



a fundamental right, urging authorities to take immediate action to improve air quality.

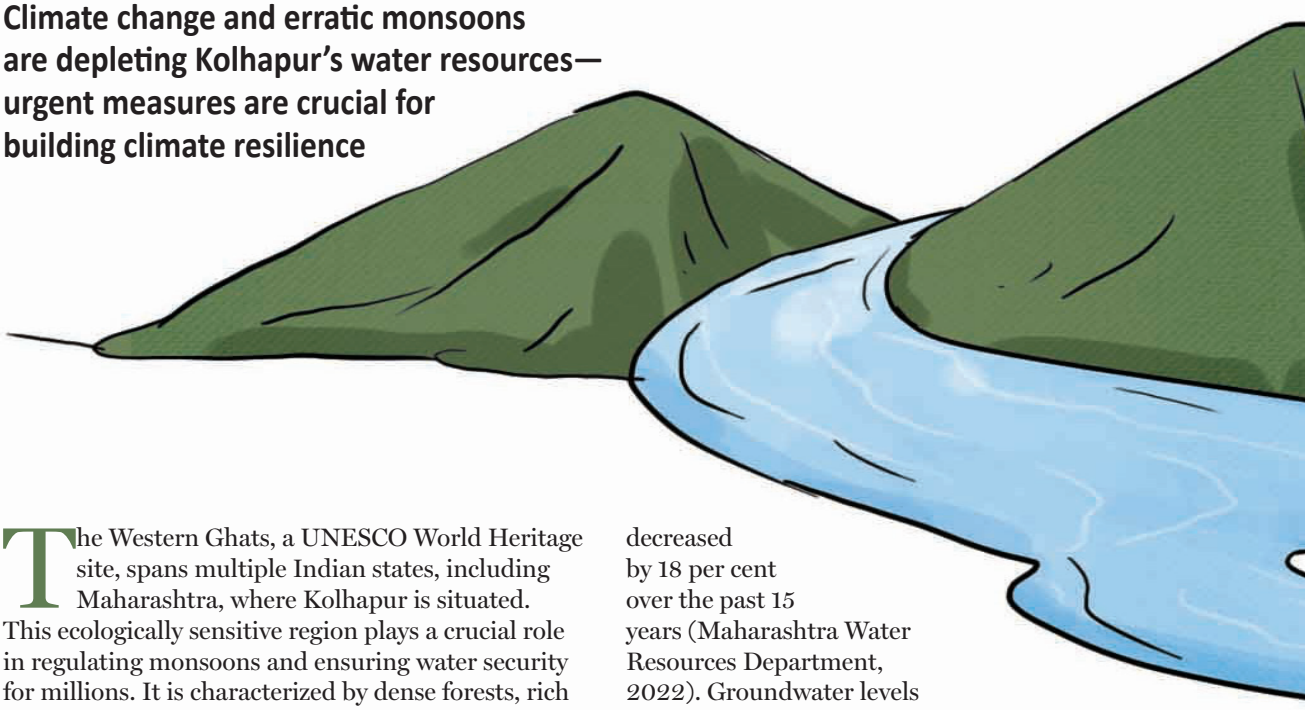
Delhi's air pollution isn't just a crisis, it's about people struggling to breathe, children missing schools due to respiratory issues, and the entire city coping with bad air on a daily basis. The toxic, polluted air serves as a reminder that we must take urgent action to combat this problem.

The Delhi government has implemented measures like the Graded Response Action Plan (GRAP) to tighten pollution controls when the air quality touches the 'severe' mark. The National Clean Air Programme (NCAP) is beginning to set certain long-term targets to curb pollution levels. NGOs like the Centre for Science & Environment (CSE) are working on the ground conducting surveys, encouraging the use of alternate sources of energy, and generating awareness about the importance of sustainable practices. They are also pushing authorities to take stronger action. Apart from this, it is very important to understand that we must be take measures not only as individuals but also as a community. Solutions can only be found if we, as a community, follow these practices on a daily basis and then encourage around us to do the same so that the little progress each day adds up to big results in the future.

Vaishnavi Jadhav

Rising heat, falling rain: The Western Ghats' changing climate

Climate change and erratic monsoons are depleting Kolhapur's water resources—urgent measures are crucial for building climate resilience



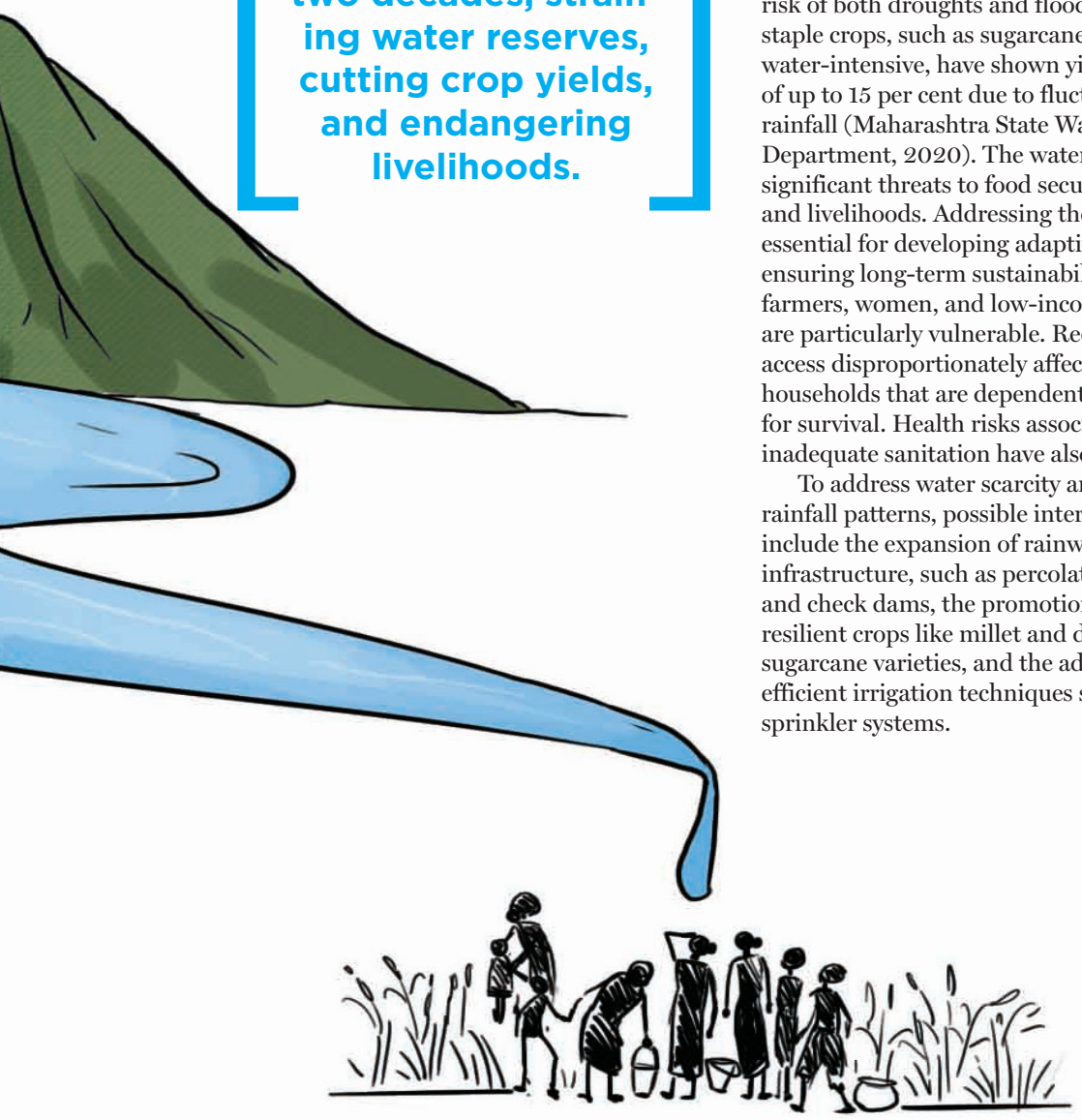
The Western Ghats, a UNESCO World Heritage site, spans multiple Indian states, including Maharashtra, where Kolhapur is situated. This ecologically sensitive region plays a crucial role in regulating monsoons and ensuring water security for millions. It is characterized by dense forests, rich biodiversity, and intricate river systems. However, the region has been experiencing significant environmental stress due to climate change. Over the past century, the Indian Meteorological Department (IMD) has recorded an average temperature rise of 1.2°C in the Western Ghats, leading to notable climatic shifts. In Kolhapur, monsoon rainfall has declined by 20 per cent between 2000 and 2020, severely affecting agriculture and water resources (Maharashtra Water Resources Department, 2022). Erratic rainfall patterns have caused prolonged dry spells and sudden, intense rainfalls, disrupting the hydrological cycle. The Panchganga River's flow has decreased by 18 per cent over the past 15 years (Maharashtra Water Resources Department, 2022). Groundwater levels have declined by up to 25 meters in certain areas. These changes have adversely affected agriculture, drinking water supplies, and public health. The alteration in rainfall patterns has led to habitat loss, biodiversity decline, and soil degradation. Forest fragmentation has disrupted natural water retention systems, further exacerbating water shortages.

The primary causes of these changes include increased greenhouse gas emissions leading to rising temperatures, deforestation, and land-use changes that disrupt natural water retention. Over-extraction of groundwater for agriculture and poor water

Case study: Majale village—a model of water efficiency

Majale, a village in Hatkanangale taluka of Kolhapur, faced severe water scarcity despite being in a high-rainfall district. The community-led initiative, supported by the Jalmitra Foundation, transformed the village through effective water conservation practices. Activities included deepening existing ponds, constructing check dams, continuous contour trenches (CCT), and afforestation drives. Over 50 hectares of land were restored, resulting in a significant rise in groundwater levels by approximately 4 meters within two years. Agricultural productivity increased by 25 per cent, with improved crop yields for water-intensive crops like sugarcane and paddy (Jalmitra Foundation, 2019). Today, Majale stands as a model for climate resilience, achieving year-round water availability even during dry spells.

Kolhapur's monsoon rainfall has dropped by 20 per cent in two decades, straining water reserves, cutting crop yields, and endangering livelihoods.



management practices, including inefficient irrigation systems, further exacerbate the issue.

Kolhapur's economy and livelihoods heavily rely on monsoon-driven agriculture and water resources. Climate change has led to erratic rainfall patterns, increasing the risk of both droughts and floods. The region's staple crops, such as sugarcane, which is highly water-intensive, have shown yield reductions of up to 15 per cent due to fluctuating rainfall (Maharashtra State Water Resources Department, 2020). The water crisis poses significant threats to food security, biodiversity, and livelihoods. Addressing these changes is essential for developing adaptive strategies and ensuring long-term sustainability. Small-scale farmers, women, and low-income communities are particularly vulnerable. Reduced water access disproportionately affects rural households that are dependent on agriculture for survival. Health risks associated with inadequate sanitation have also increased.

To address water scarcity and changing rainfall patterns, possible interventions include the expansion of rainwater harvesting infrastructure, such as percolation tanks and check dams, the promotion of climate-resilient crops like millet and drought-tolerant sugarcane varieties, and the adoption of efficient irrigation techniques such as drip and sprinkler systems.

Rishav Ray

Can Delhi crack the zero-waste challenge?

Delhi-NCR's zero-waste efforts struggle with low awareness and poor infrastructure, but successful city models offer solutions

Rapid urbanization and population growth have led to an unprecedented increase in waste generation, posing environmental and health challenges. In metropolitan India, especially Delhi-NCR (National Capital Region), zero waste policies are vital for sustainability and public health. The Zero Waste concept ensures all items are reused, eliminating waste going to landfills and incinerators. This project aims to compare and analyse Zero Waste policies and practices across Delhi-NCR municipalities, identify challenges and provide recommendations from successful city-level practices across India for improvement.

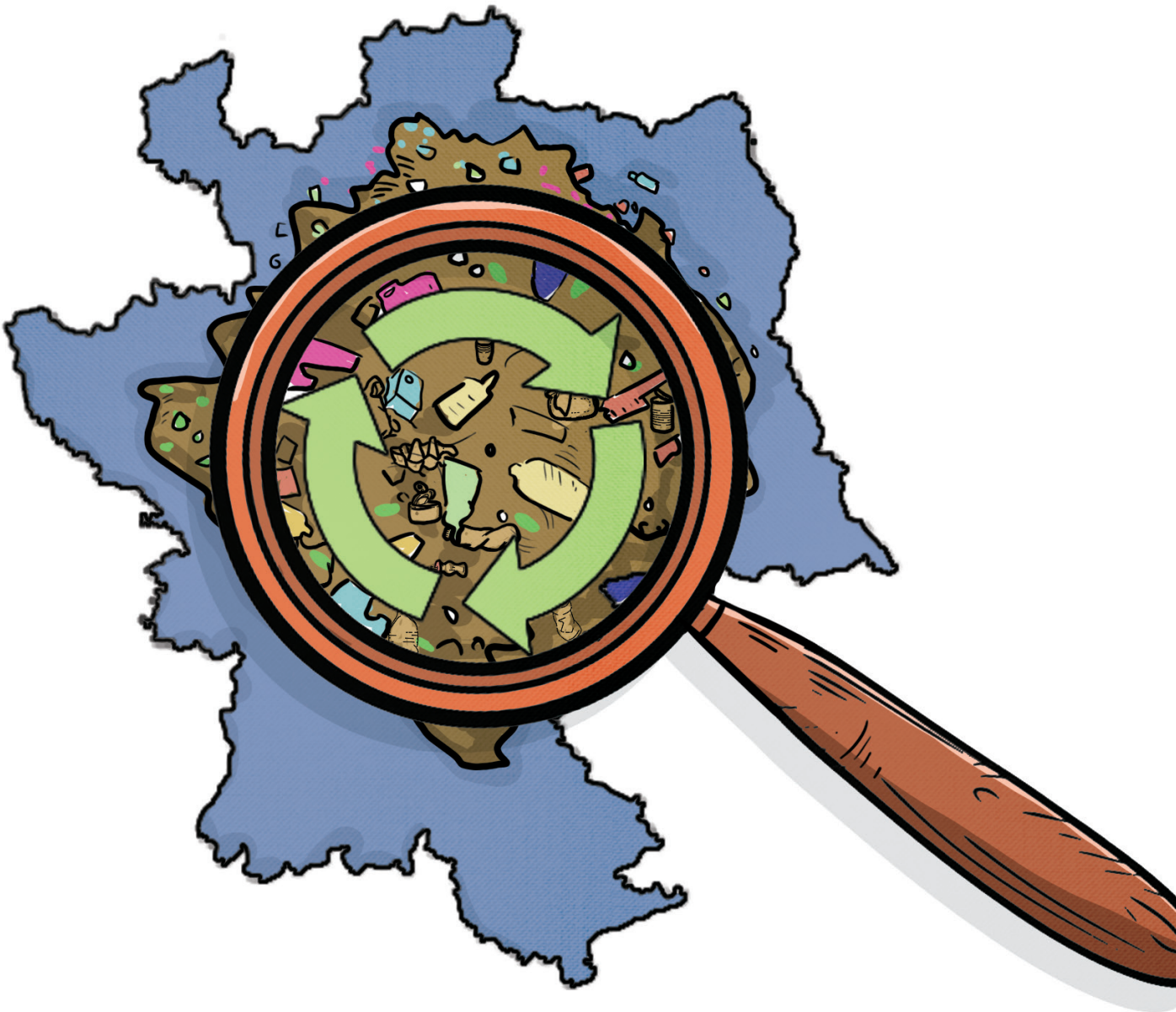
Waste management in the NCR was primitive, leading to landfills like Ghazipur, Bhalaswa, and Okhla exceeding their capacity. The Solid Waste Management Rules 2016 by GoI mandated waste segregation at source, integrated informal waste collectors and adopting decentralized processing. Urban local bodies (ULBs) in the NCR have also adopted zero waste policies: material recovery facilities (MRFs) divert dry waste from landfills and promote resource recovery (Goyal, 2023), and organic waste converters in residential colonies manage wet waste effectively. Arihant Nagar in West Delhi was declared a 'zero-waste colony' by the Municipal Corporation of Delhi in 2022.

A 2018 audit reports that waste segregation awareness in Delhi remains low, while overflowing landfills continue to release dangerous methane emissions

Civil society organizations like Delhi Greens, Chintan, and Hara Jeevan support government efforts. Delhi Greens promotes awareness campaigns, while Chintan impacts millions through programmes targeting households, bulk waste generators, etc.

However, challenges persist. A 2018 audit by The Energy and Resources Institute (TERI) revealed very low awareness of waste segregation among Delhi residents as well as inadequate segregation infrastructure. According to The Guardian, Delhi's landfills continue to leak considerable volumes of methane, a powerful greenhouse gas.

Here are some successful city-level practices from other parts of



the country and the lessons that could be replicated in NCR:

- Ahmedabad's Zero Waste Roadmap: It focuses on waste segregation, recycling and composting, and has set ambitious targets to reduce landfill waste
  Lessons for implementation in Delhi-NCR: The ULBs can develop roadmaps with clear targets and timelines, and expand infrastructure for waste segregation and recycling facilities.
- Gandhinagar's Zero Waste Village: Ambapur village in Gandhinagar transformed into a zero-waste village, with the support from local NGOs, crowdfunding and student volunteers
  Lessons for implementation in Delhi-NCR: Support from NGOs and volunteer programmes should be sought.
- Indore's Zero Waste Practices: The city has 100 per cent source segregation and comprehensive door-to-door collection. Tech-advanced processing plants handle waste efficiently and the community is involved at all levels.
  Lessons for implementation in Delhi-NCR: A robust plan including city-wide awareness campaigns, tech-enabled waste processing facilities, and educational programmes in schools for sustainable waste practices.

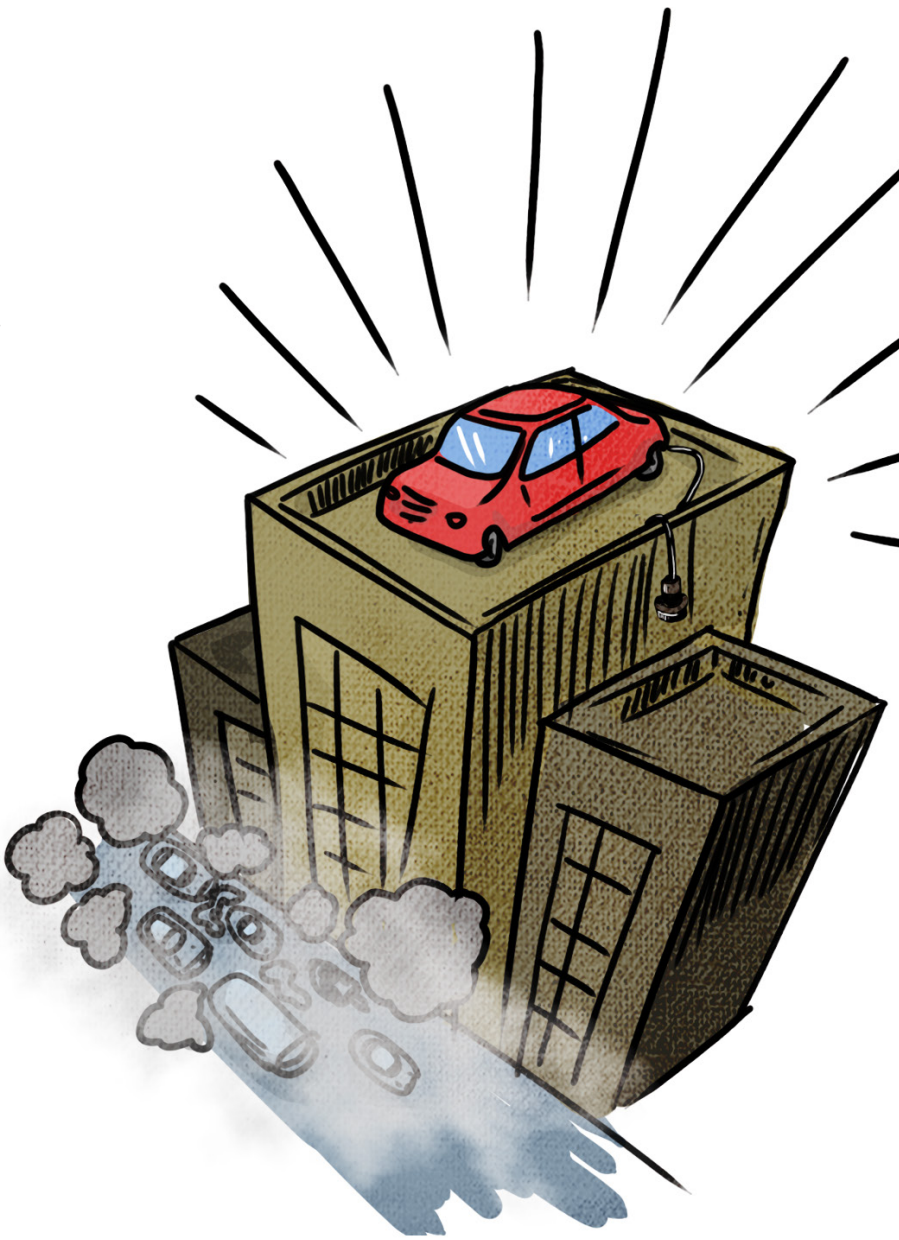
Sneha S Rajesh

Fuel to future: Electric mobility in Thiruvananthapuram

Thiruvananthapuram's EV transition faces cost and infrastructure hurdles, but stronger support can drive sustainable transport

Thiruvananthapuram, Kerala's capital, faces traffic congestion and the resultant environment degradation due to rapid urbanization and high reliance on fossil fuel-based transport. Electric mobility provides a promising solution to this problem. Measures such as the Kerala Electric Vehicle (EV) Policy (2019) by the government and the establishment of an EV industrial park in Vilappilsala have provided impetus to the solution in the past but have unfortunately not been able to meet the goals.

Transitioning to electric vehicles can help reduce air pollution, improving respiratory health, and mitigate climate change by lowering carbon emissions. However, high initial costs, limited charging infrastructure and lack of awareness around electric mobility hinder its widespread adoption. To accelerate the adoption of electric mobility in Thiruvananthapuram, EV charging infrastructure must be expanded across the city. Incentives and subsidies on EVs should be strengthened further to promote affordability and a second-hand EV market should also be developed.




....THEN
I THINK WE SHOULD MAKE CARS THAT POLLUTE HALF AS MUCH
Rustam


NOW....
HAVING DONE THAT, I THINK WE STILL HAVE A PROBLEM.

Hima Bindu Kola

Energy to emissions: Andhra's RTPP is a double-edged sword

Dr MVR Rayalaseema Thermal Plant fuels regional energy needs but at a high environmental cost calling for stronger mitigation efforts

The Dr MVR Rayalaseema Thermal Power Project (RTPP) in Andhra Pradesh, a 1,650 MW coal-based power plant by APGENCO helps meet the regional energy demands but also poses severe environmental challenges. Its operations contribute to air pollution, water contamination, solid waste accumulation, and ecological degradation. The burning of coal releases greenhouse gases like carbon dioxide, sulphur dioxide, nitrogen oxides and particulate matter, leading to respiratory diseases and poor air quality. RTPP also requires large quantities of water for cooling. The discharge of heated water into nearby water channels causes thermal pollution and impacts aquatic ecosystems. Fly ash and bottom ash disposal also contribute to waste mismanagement challenges.

The plant's impacts extend to habitat destruction, biodiversity loss and damage to agriculture. Farmers face economic hardships due to soil contamination and reduced crop yields. Additionally, air and water pollution cause respiratory diseases, cardiovascular problems and long-term conditions like asthma and lung cancer.

To mitigate these impacts, APGENCO has adopted pollution control measures such as electrostatic precipitators, effluent treatment systems, and afforestation programmes. Policies like the Environmental Protection Act and Fly Ash Utilization Notification regulate emissions and waste management. However, enforcement challenges, infrastructure gaps, and financial constraints hinder progress. Recycling fly ash and community afforestation efforts show promise but sustained efforts are necessary for long-term environmental sustainability.

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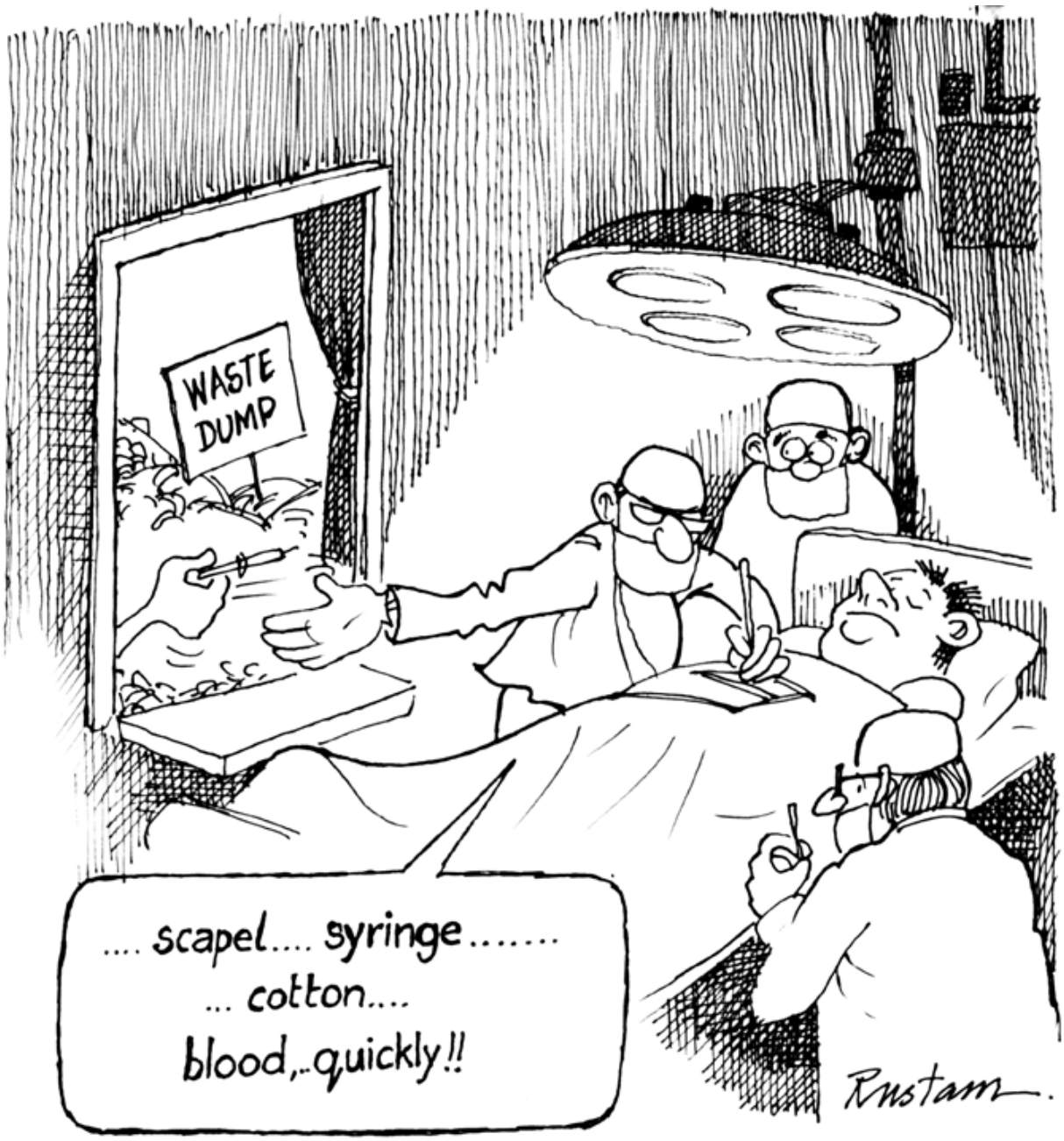

WASTE DUMP
.... scapel.... syringe.....
... cotton....
blood,..quickly!!
Rustam.

Jayashri Thorat

The industry-environment balance: A story of Nashik

Nashik's industrial growth boosts economy but weak environmental regulations worsen pollution, affecting air, water, and public health

In recent decades, the Maharashtra Industrial Development Corporation, Nashik has become a key industrial hub, with sectors like engineering, pharmaceuticals, chemicals and auto manufacturing driving its growth. This industrialisation has boosted jobs and the local economy but has also brought significant environmental concerns. The Godavari river is heavily polluted by industrial waste and effluents, impacting both water quality and agriculture. Deteriorating air quality from emissions also leads to multiple health issues.

The lack of effective regulations and enforcement is a key factor contributing to these issues. Many industries still use outdated technology that doesn't comply with current environmental standards. Additionally, industries often neglect waste management practices, resulting in insufficient investment in pollution treatment infrastructure

The government enforces waste, air pollution, and effluent discharge rules under the Environment Protection Act and Water Act. The Central Pollution Control Board and the Maharashtra Pollution Control Board monitor compliance, while the National Clean Air Plan and Swachh Bharat Mission provide frameworks for pollution reduction. However, lack of proper enforcement of rules and prioritising economic development over environmental standards remain a problem.

Vaishnavi Karve

Sour grapes: Climate change threatens Nashik's rich wine legacy

Climate change threatens Nashik's viticulture legacy, disrupting the livelihoods of farmers who sustain India's wine capital

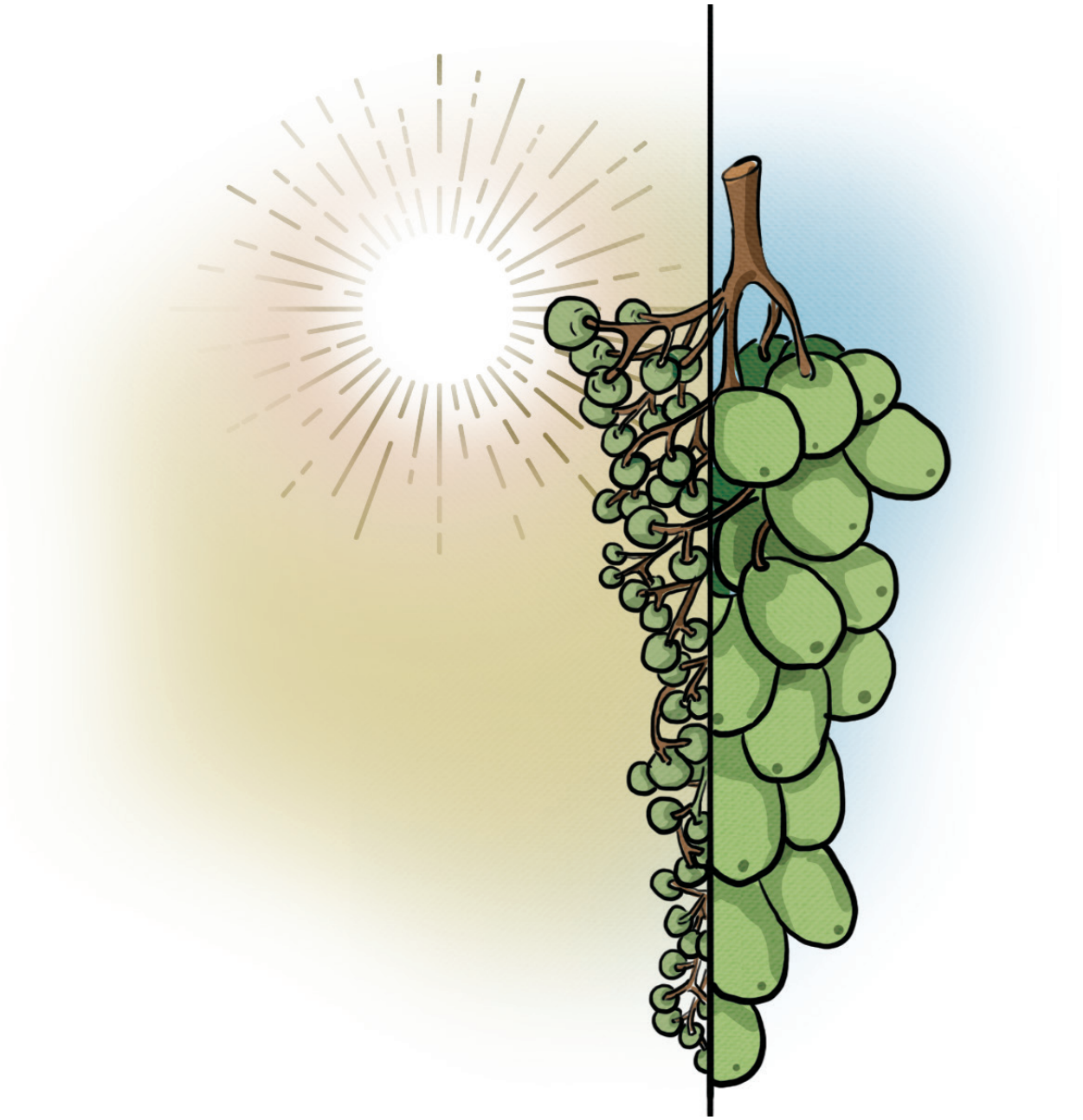
Nashik, located in the northern area of Maharashtra, is known as the *wine capital* of India. Nashik's excellent soil, abundant sunshine, and easy access to irrigation from rivers like the Godavari have long supported a robust viticulture sector. Grapes are a staple of the region's agriculture, with table grapes and wine grapes being the most popular varieties. However, this ecosystem is extremely vulnerable to climate change like temperature variations, irregular rainfall, and shifting growing seasons. While erratic rains can promote diseases like powdery mildew and downy mildew, rising temperatures can cause berries to grow smaller in size, ripen prematurely, and have less sugar content. Given Nashik's substantial contribution to India's wine production and grape exports, any disturbance to its viticulture could have an impact on the economy, society, and environment.

The natural balance necessary for grape cultivation is harmed by soil degradation and fertility loss brought on by rising temperatures and unpredictable rainfall patterns. While excessive use of fertilizers and pesticides to fight illnesses pollutes the soil and water bodies, excessive irrigation water consumption depletes groundwater levels. The region's biodiversity is also affected by changing climate conditions which further destabilize the environment by upsetting indigenous flora and fauna. Nashik's local farming community, which depends mostly on grape cultivation, experiences economic instability as a result of variable harvests and declining grape quality. Farmers' finances are strained by rising prices for pesticides, fertilizers, and irrigation.

Rising temperatures are causing grapes to ripen prematurely, with less sugar content, while erratic rainfall is spreading diseases in vineyards

Small-scale farmers, who lack the means to implement sophisticated irrigation or pest control techniques in response to climate change are the most vulnerable to these shifts. Women and landless workers who work in vineyards experience unstable income, which has an impact on their access to basic necessities and means of subsistence. Disruptions brought on by climate change disproportionately affect these populations, exacerbating social and economic disparities.

The National Mission on Sustainable Agriculture and the National Action Plan on Climate Change (NAPCC), which emphasize the promotion of climate-resilient farming techniques, are two of the measures that the Indian government has implemented to combat the effects of climate change on agriculture. The state



government of Maharashtra has also started programs like the State Climate Action Plan, which aims to promote climate-adaptive crops, improve soil health, and conserve water.

Despite these initiatives, there are several barriers to effective implementation. Limited awareness among farmers about climate change and its impacts, along with financial constraints, make it challenging for them to adopt climate-resilient practices. Additionally, lack of access to advanced technologies and inconsistent policy enforcement hinder progress.

Efforts to assist Nashik's grape growers in adjusting to climate change must entail utilizing drought-resistant grape types, implementing organic pest control techniques and water-efficient irrigation technologies like drip irrigation. Training programs will also help farmers better grasp the effects of climate change and devise measures to adapt to them. Cooperation between local government agencies, non-governmental organizations, and the farming community is crucial to ensuring broad adoption and long-term sustainability.

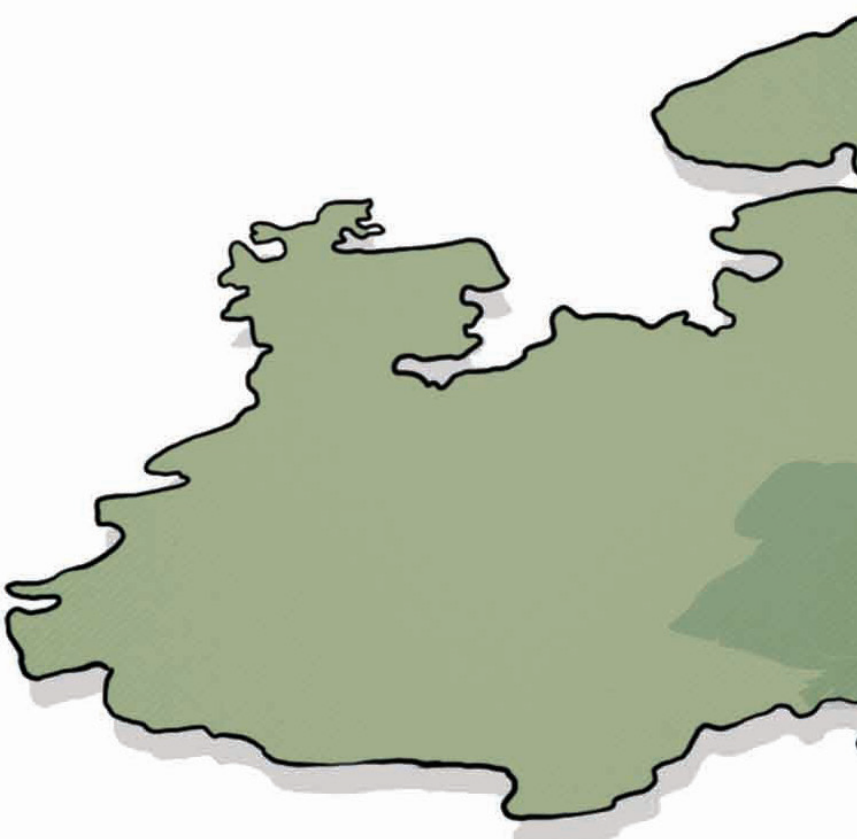
Anusha Sachdeva

Future of Soy Pradesh: Climate resilience or agricultural decline?

Madhya Pradesh's soybean industry faces climate threats, endangering yields—climate-resilient farming is crucial, but global action remains the real solution

Madhya Pradesh is a major agricultural state in India. It is often referred to as *Soya Pradesh* as it is the leading producer of soyabean in India. Soybean is a major oilseed crop in India, and a major source of edible oil and protein. Temperature, precipitation (water availability), sunlight (solar radiation), soil type (including pH and nutrient content), day length (photoperiod), and growing season length are the main environmental factors that affect soybean cultivation. Well-drained, loamy soils with moderate temperatures and enough moisture are ideal for growth, particularly during the flowering and pod-filling stages.

Soybean is an important legume for the environment — not only is it a sustainable alternative to vegetable oils like palm and canola, it also restores nutrients like nitrogen in the soil



through nitrogen fixing bacteria. It is also an important source of protein and edible oil, and is used in many food products like soy flour. India is also one of the largest soybean exporters in the world. Out of 146.08 lakh total land dedicated to kharif crops in Madhya Pradesh, it accounts for 35 per cent of the cultivated area. People who depend on soybean for their livelihood could be severely affected if there is less yield due to climate change.

The Indian Institute of Soybean Research, Indore, an undertaking by the Indian Council of Agricultural Research aims to increase the Area, Production and Productivity of soybean in the country. In the successive efforts made by ICAR-IISR, the Institute has developed three varieties of soybean i.e. NRC 157, NRC 131, and NRC 136 which have been approved by the Government of Madhya Pradesh. These are disease resistant and drought tolerant varieties, to combat the irregular rainfall brought about by climate change. Another way to combat lessening yield at the local level could be adopting aggressive efforts to adopt climate resilient strategies outlined by ICAR-IISR, a few of which are:

- Adoption of resource conservation technologies like minimum/reduced tillage for soybean production.
- Planting soybean on modified land configuration systems for moisture conservation (Broad bed and furrow or ridge and furrow system).
- Opening of irrigation furrows at suitable intervals for proper drainage and moisture conservation.

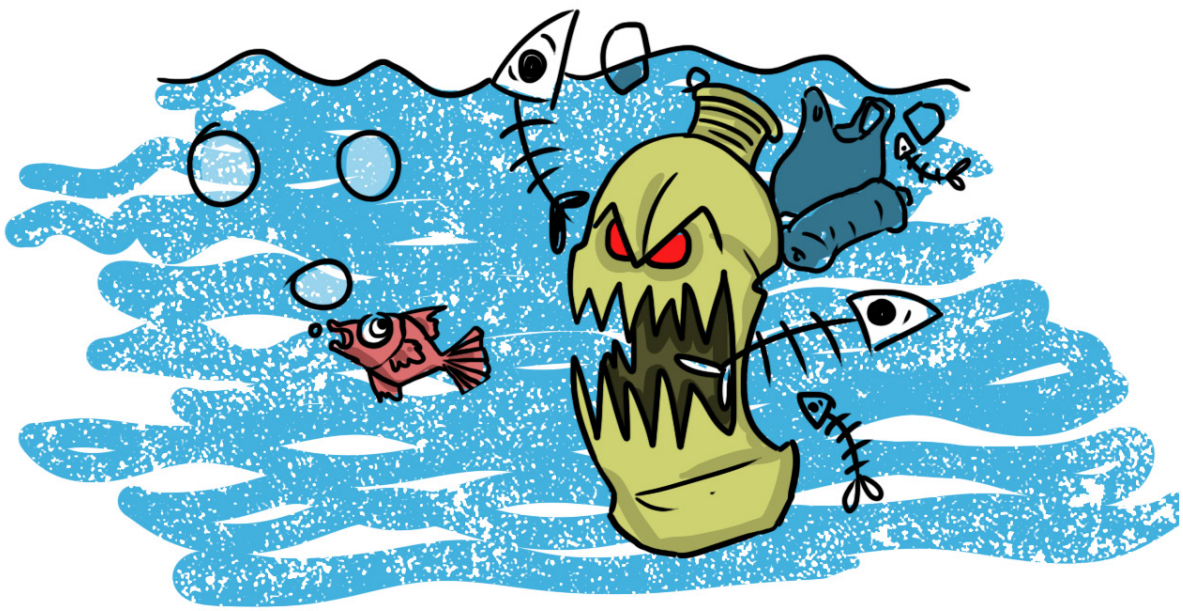
The effective dissemination of above strategies, particularly in remote areas, and educating people on the benefit of adoption of such strategies is important. Without proper knowledge, there cannot be change. There must be efforts made to reach the farmers at their level and for communicating its benefits. There must also be cultivation of the consequences of climate change.

These solutions, while they may be effective, do not address the root of the issue. Climate change is a global issue, and these solutions just mitigate its effects, not combat it. Deforestation, destruction of natural environment, industrialisation, pollution, killing the planet, these need systemic, international solutions. Combatting climate change requires international co-operation, and require the world to recognize its effects, and not treat it as a distant future.

Induja Raj

Backwater peril: Plastic chokes Alappuzha and Chengannur's lifelines

Plastic pollution threatens Kerala's water ecosystems calling for stricter waste management and policy enforcement



Alappuzha and Chengannur in Kerala boast of rich water-based ecosystems with lakes, rivers and wetlands. However, rapid urbanization, tourism, and inadequate waste management pose a massive plastic pollution challenge. The plastic waste contaminates water bodies, degrades soil, clogs drainage systems, and disrupts biodiversity. It has significant consequences not just on the environment but also public health. Microplastics in water and food cause various health issues. Livelihoods are also impacted due to plastic in water bodies as fishers and farmers struggle with declining fish stock and crop yields.

Although India and Kerala, in particular, have implemented policies like the Plastic Waste Management Rules (2016, amended 2021) and Haritha Kerala Mission, we need stronger policy enforcements. In addition to this, improved decentralized waste collection and segregation systems are also required. The urban local bodies can help combat the problem with better infrastructure for plastic waste collection and management. Civic involvement in awareness campaigns and promoting the use of alternatives will also prove to be useful.

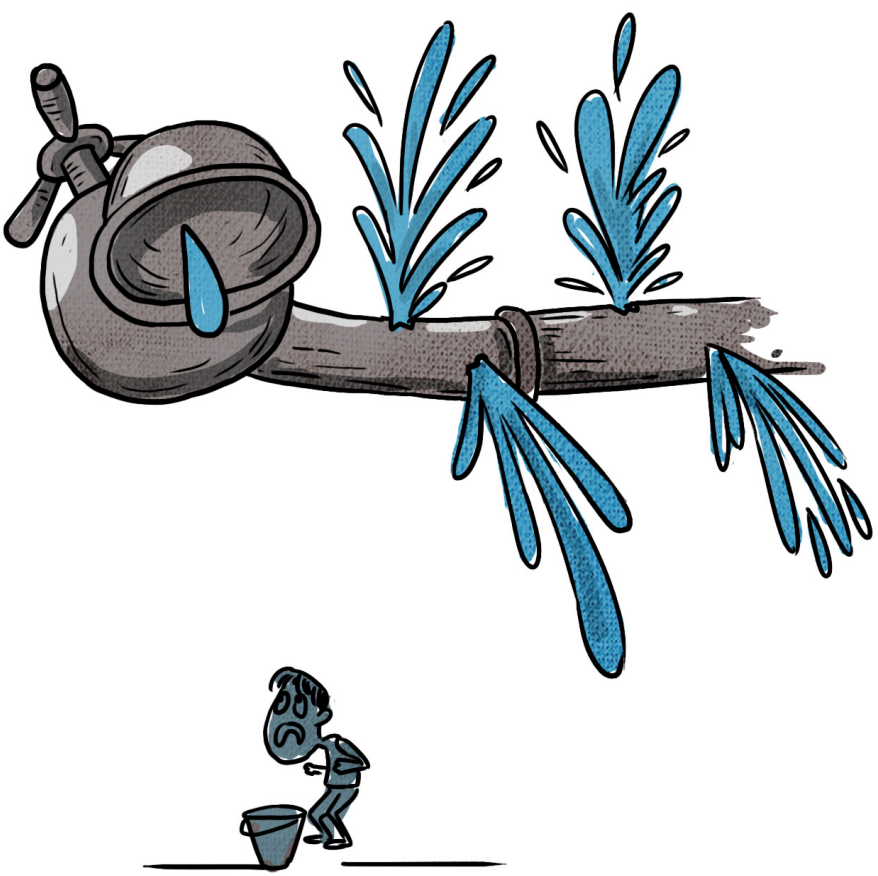
A thorough implementation of these measures will help in reduction and better management of plastic waste better along with a healthier environment and improved biodiversity.

Shravani M

Rethinking water: Can wetlands fix Mysore's water woes?

Urban growth is deepening Mysore's water crisis, but constructed wetlands offer a sustainable solution for restoration

Rapid urban growth is straining Mysore's water and wastewater management, leading to shortages, pollution, and infrastructure challenges. The city's water comes mainly from the Cauvery River and Kabini Reservoir, but with population increase and urban expansion, these resources are under pressure. This has led to the over-extraction of water, inefficiencies in distribution, and pollution from untreated sewage, affecting local water bodies like Kukkarahalli and Lingambudhi Lakes.



The city's ageing infrastructure often breaks down, causing water supply disruptions and untreated wastewater discharge. Water scarcity is a big issue, especially in areas without piped water, where groundwater is over-extracted. This affects both urban and rural populations, with low-income families, women, and children facing higher risks of waterborne diseases and limited access to clean water. Pollution from sewage and industrial waste degrades water bodies, harming aquatic life and public health, while rapid urbanization and climate change add to the challenges with erratic rainfall causing both scarcity and urban flooding. To address these issues, constructed wetlands are proposed as a cost-effective and sustainable solution. These systems use plants and microorganisms to treat wastewater, removing pollutants and improving water quality. Placing wetlands near polluted lakes can restore ecosystems, reduce flooding, and enhance groundwater recharge. This approach also supports biodiversity, offering a way to build urban resilience and improve community well-being.

Dasien Shullai

Mawphlang's sacred groves: A living heritage of tradition and conservation

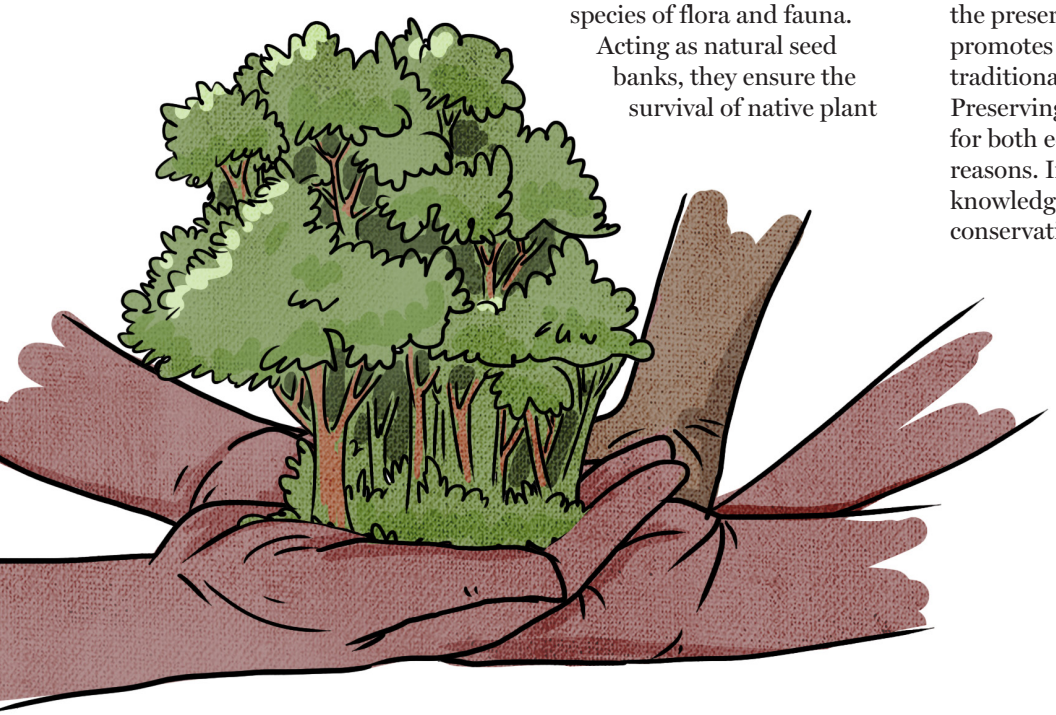
Protected under law kyntang, Meghalaya's sacred groves are living sanctuaries of culture, tradition, and biodiversity

For centuries now, Khasi customs and traditions have been woven into the land and forests of Meghalaya. One of these forests still retains this heritage and significance today – the Sacred Groves of Mawphlang. This was where Khasi kings and ceremonial leaders (Ki Lyngdoh) held their meetings and new chiefs were anointed. The sites are marked with monoliths and are an integral part of the cultural heritage of the Khasi people.

The forefathers of the Khasi, Jaintia, and Garo tribes established the law kyntang to protect the environment and preserve the cultural heritage of the indigenous tribes. The groves are home to rare plants, mushrooms, and trees, and are also the site of religious and cultural practices.

These groves serve as biodiversity hotspots, providing refuge for rare and endemic species of flora and fauna. Acting as natural seed banks, they ensure the survival of native plant species and contribute to the region's ecological stability.

Cultural beliefs and spiritual practices surrounding these groves have historically safeguarded them from exploitation. Managed by local communities, they foster a sense of collective responsibility, ensuring their long-term preservation. Rituals, festivals, and ceremonies conducted in these groves strengthen community bonds and uphold cultural heritage. In addition, the preservation of law kyntang promotes the transmission of traditional ecological knowledge. Preserving law kyntang is critical for both ecological and cultural reasons. Integrating traditional knowledge with modern conservation strategies can ensure their protection, securing their role as vital ecological sanctuaries for future generations.



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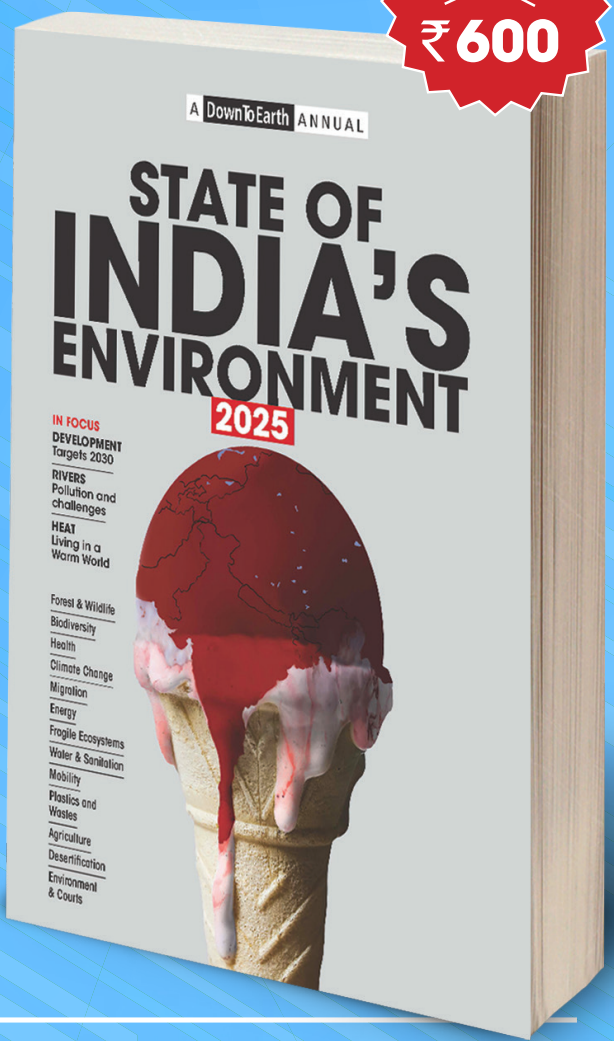

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