

# पर्यावरण दर्पण

बीसीसीएल की पर्यावरणीय समाचार पत्रिका





# CORPORATE ENVIRONMENT POLICY 2025

## Objectives

*BCCL shall endeavour to-*

- 1. Plan & design projects with due consideration to environmental and social concerns for Sustainable Development and reduction in emission intensity of its operations.*
- 2. Conduct mining and associated operation in an environmentally responsible manner to comply with applicable laws and other requirements related to environmental aspects.*
- 3. Prevent pollution in surrounding habitation by continuous monitoring and adopting suitable measures for environment protection.*
- 4. Ensure effective implementation of Environment Management Plans (EMPs) in all our mines / projects to mitigate pollution, conservation of natural resources and restoration of ecology & biodiversity.*
- 5. Ensure compliance of all statutory conditions prescribed by regulatory agencies.*
- 6. Ensure waste management in each unit on the principle of REDUCE, REUSE, RECYCLE and SAFE DISPOSAL.*
- 7. Put special thrusts on efficient energy utilization / renewable energy and other measures to reduce carbon foot-print.*
- 8. Strive for continual improvement in our environmental performances by setting targets, measuring progress and taking corrective action.*
- 9. Take measures to gainful repurposing of land and render productive post mining land use for ensuring environmentally sustainable closure of mine, keeping in view the social needs and requirement of the locals.*
- 10. Take steps for dealing, prevention and control of coal mine fire and related subsidence.*
- 11. Ensure implementation of activities applicable to BCCL arising out of International Conventions.*
- 12. Create environmental awareness and ensure environmental education among the employees, local communities and other stakeholders through pro-active communication and training.*
- 13. Promote R&D projects/innovations addressing various environmental concerns like minimization of carbon footprints of BCCL and environmental issues in mining & surrounding areas.*
- 14. Establish eco-parks in the reclaimed mined areas and promote eco-mining tourism in the coalfield areas.*
- 15. Ensure transparency in Environmental reporting / disclosure to stakeholders*



### Message

*It gives me immense pleasure to know that the Environment department is going to release the 22<sup>nd</sup> edition of Environmental newsletter “Paryavaran Darpan” on the occasion of the World Environment Day, 2025.*

*The coming years will be remembered in the history of India as years of rapid development. India is making giant stride towards energy security with Momentous IBT coal production in the last financial year. The challenge for us lies not in delivering but delivering in the most sustainable way possible. Rising upto this challenge will-not be an easy task as it will- test our mind and might alike, with innovation as the only way forward.*

*BCCL is implementing sustainable development with its initiatives of reducing carbon footprint, land restoration, promoting renewable energy, eco-tourism along with adoption of modern technology for safeguarding the environment. There is still a long way to go and I am glad that BCCL is not shying away from taking all the initiatives to carve its name as a company mining coal with sustainability.*

*It goes without doubt that the success of BCCL as a company dedicated to mining & environment will depend upon each one of our work & contribution. This company stands on the hard work of each of its employee and it will reach greater heights only through sheer hard work & dedication.*

*There is a beautiful quote by Ernest Hemingway  
“The Earth is a fine place and worth fighting for.”*

*I think that this World Environment Day 2025 calls for collective action to tackle plastic pollution and fight for our earth where each and every individual has the role of a soldier. Plastic pollution permeates every corner of the planet – even in our bodies in the form of micro-plastics. By promoting sustainable alternatives, reducing plastic consumption, and advocating for proper waste management, we can collectively combat this global challenge. Let us unite on World Environment Day 2025 to beat plastic pollution and create a cleaner, healthier planet for generations to come.*

*Congratulations to the BCCL’s environment team for the success of “Paryavaran Darpan”. This initiative is being appreciated by one and I hope they continue this good work and script BCCL’s name as a company committed to the environment.*

**SAMIRAN DUTTA  
CHAIRMAN-CUM- MANAGING DIRECTOR,  
BHARAT COKING COAL LIMITED**



### संदेश

मुझे यह जानकर अत्यधिक खुशी हुई कि बीसीसीएल का पर्यावरण विभाग विश्व पर्यावरण दिवस 2025 के अवसर पर अपने न्यूजलेटर "पर्यावरण दर्पण" का 22 वां संस्करण जारी करने जा रहा है। विश्व पर्यावरण दिवस एक ऐसा अवसर है जो पर्यावरण के लिए जागरूकता लाता है और इस उद्देश्य से देश-दुनिया के करोड़ों लोगों को एकजुट करता है। इस वर्ष विश्व पर्यावरण दिवस की थीम "Beat Plastic Pollution" है। इस अभियान का केंद्रीय भाव प्लास्टिक प्रदूषण का समाधान है। प्लास्टिक प्रदूषण मानव स्वास्थ्य, अर्थव्यवस्था और हमारे पर्यावरण को नुकसान पहुँचा रहा है और सतत विकास की उपलब्धि को भी खतरे में डाल रहा है।

बीसीसीएल पर्यावरण संरक्षण और सतत विकास को ध्यान में रखते हुए कोयला खनन बढ़ाने के साथ-साथ वृक्षारोपण, इलेक्ट्रिक वाहनों का प्रयोग, ट्रॉली एवं ट्रक माउंटेड फॉग कैनन का उपयोग, सौर ऊर्जा, आदि का उपयोग कर रहा है। हमारा विश्वास है कि पर्यावरण में किया गया निवेश- जीवन, स्वास्थ्य और भविष्य को संवारने वाला सबसे लाभदायक और स्थायी निवेश होता है।

बीसीसीएल एक जिम्मेदार संगठन के रूप में, प्लास्टिक प्रदूषण से निपटने के लिए निरंतर प्रयासरत है। प्रत्येक व्यक्ति विभिन्न उपलब्ध विकल्पों का उपयोग करके "प्लास्टिक प्रदूषण के समाधान" का हिस्सा बन सकता है। बीसीसीएल द्वारा इसके प्रति लोगों में जागरूकता बढ़ाने हेतु विश्व पर्यावरण दिवस के अवसर पर इको फ्रेंडली थैलों का वितरण, वृक्षारोपण, पेंटिंग, प्रस्नोत्तरी तथा प्लास्टिक अपशिष्टों से उपयोगी वस्तुएँ बनाने इत्यादि जैसे कई गतिविधियों का आयोजन किया जा रहा है।

बीसीसीएल, अपने सामाजिक दायित्वों को समझते हुए, अपने कार्यक्षेत्र एवं आस-पास के क्षेत्रों में इको-पार्कों का विकास, चिकित्सा शिविरों का आयोजन, खान के जल का शोधन कर सामुदायिक उपयोग के लिए आपूर्ति, स्थानीय लोगों को व्यावसायिक प्रशिक्षण, आस-पास के क्षेत्रों में तालाबों के नवीनीकरण जैसे कार्यों के माध्यम से स्थानीय लोगों के सामाजिक और आर्थिक स्थिति को सुदृढ़ बनाने में निरंतर प्रयासरत है।

विश्व पर्यावरण दिवस 2025 के अवसर पर मैं पर्यावरण विभाग को उनके द्वारा किए जा रहे उत्कृष्ट कार्यों तथा "पर्यावरण दर्पण" के 22वें संस्करण के विमोचन हेतु हार्दिक बधाई देता हूँ।

श्री मुरली कृष्णा रमैय्या  
निदेशक (मानव संसाधन)  
भारत कोकिंग कोल लिमिटेड





### Message

*World Environment Day provides a critical opportunity to raise the volume on the call for governments, cities and businesses to invest in and implement solutions to various global environmental problems. This year it focuses on the urgent need to end plastic pollution—a global crisis that harms oceans, ecosystems, human health & the economy. From the peak of Everest to the bottom of the oceans, plastic pollution is rampant and threatening the achievement of sustainable development.*

*As a coal mining company, we understand the unique challenges, responsibilities and obligations we face in harmonizing economic development with environmental stewardship. We acknowledge that the creation of long-term value must fundamentally incorporate environmental, social, and governance (ESG) factors.*

*At BCCL, we are progressively aligning our financial strategies with sustainable practices by investing in cleaner technologies, improving operational efficiencies, and endorsing initiatives aimed at minimizing our environmental impact.*

*In alignment with global initiatives aimed at eliminating plastic pollution, I urge all employees, partners, and stakeholders to wholeheartedly adopt the principles of the 3 R: Reduce, Reuse, and Recycle. By integrating the 3 R into our organizational culture and individual behaviours, we can contribute to a broader solution that safeguards our environment and fosters a legacy of responsibility.*

*BCCL's Environment newsletter provides a platform to spread awareness amongst its stakeholders for the conservation of environment and sharing the environmental initiatives taken by BCCL. I congratulate the Environment department for publishing the 22<sup>nd</sup> Edition of Paryavaran Darpan and wish it all success*

**R.K. SAHAY**  
**DIRECTOR (FINANCE)**  
**BHARAT COKING COAL LIMITED**



### Message

*It gives me immense pleasure to note that “Paryavaran Darpan” has now reached its 22nd edition, continuing to serve as a meaningful platform for showcasing BCCL’s commitment towards environmental sustainability and ecological stewardship. On this World Environment Day 2025, we reaffirm our dedication to the global campaign theme “#BeatPlasticPollution”, which underscores the urgency to mobilize communities worldwide to implement and advocate for solutions.*

*As a pivotal player in India's energy sector, BCCL understands the delicate balance between resource extraction and environmental preservation. In FY 2024-25, we have set new benchmarks not just in production, but also in our environmental and sustainability efforts. Significant progress has been made in our Net Zero journey, with 4.088 MWp rooftop solar commissioned and work orders issued for 45 MW more solar capacity out of which 25 MW is already commissioned, demonstrating our shift toward renewable energy.*

*Our operational areas have seen plantation on degraded land, and the development of two eco-parks at Akashkinari and Moonidih, enhancing local biodiversity and offering green lungs to our coalfields. Investments in mechanical sweepers, fog cannons, and LED lighting across our sites are a testament to our proactive measures for dust and energy management.*

*Water monitoring has been another focus, with enhancement in treated water supply system, and sustained efforts in ground water quality tracking through piezometric wells. Furthermore, our steps toward digitally transforming environmental oversight, including through SAP-based systems and ICCC implementation, reinforce our belief that technology and ecology can advance hand-in-hand. Importantly, we are aligning with circular economy principles through washery modernization and coal washery monetization, significantly reducing emissions through improved coal quality. Our CBM exploration projects and transition to electric vehicles in official fleets further underline our intent to decarbonize operations.*

*These achievements would not have been possible without the dedicated efforts of our Environment Department, whose strategic planning and diligent execution are enabling BCCL to walk the path of sustainable mining. I congratulate the team on the release of this 22nd issue of “Paryavaran Darpan” and encourage all our employees and stakeholders to actively participate in our environmental mission. Together, we can shape a greener, healthier, and more resilient future.*

**SANJAY KUMAR SINGH**  
**DIRECTOR (TECHNICAL) OPERATIONS**  
**BHARAT COKING COAL LIMITED**





### Message

*It gives me immense pleasure to extend my warm greetings to all of you through the 22<sup>nd</sup> edition of our newsletter, Paryavaran Darpan, being released on the auspicious occasion of World Environment Day, 2025. This day serves as a powerful reminder of our shared responsibility to protect and nurture the environment not only for our well-being but also for that of future generations. The theme for World Environment Day 2025, “Beat Plastic Pollution,” highlights the urgent need to tackle the global crisis of plastic pollution. It calls upon individuals, communities, and industries to adopt the principles of refusing, reducing, reusing, recycling, and rethinking plastic usage.*

*In alignment with this global vision, BCCL, under Mission LiFE, has undertaken a commendable initiative of organising an awareness drive themed “Say No to Single Use Plastic,” by distributing cloth bags along with organizing a cleanliness drive to encourage a shift towards eco-friendly alternatives and reduce plastic dependency. It further organised a skill development training program in plastic processing trade which aims at equipping participants with practical skills for responsible plastic management while also opening new livelihood opportunities.*

*Furthermore, as a key energy provider, BCCL faces the twin challenge of meeting growing energy demands while conserving biodiversity. Despite the complexities, we have made significant progress towards sustainability. One of the pivotal measures has been the installation of a robust self-monitoring system, featuring online PM<sub>10</sub> analysers across all mines and railway sidings for real-time, continuous air quality monitoring. To improve dust suppression and conserve water, we have introduced fog cannons (trolley and truck-mounted), mechanical sweepers, and mist sprinklers, enabling us to maintain air quality while using water resources responsibly. In our commitment to cleaner energy and environmental stewardship, BCCL has also implemented energy efficiency measures, adopted renewable energy solutions, and contributed to ecological restoration through the development of Eco-Parks and large-scale plantation efforts, thus reducing carbon footprint. By aligning industrial growth with environmental responsibility, BCCL is promoting green skills and contributing meaningfully to the global mission of a pollution-free planet.*

*On this note, I extend my heartfelt congratulations to the Environment Department for bringing out this edition of Paryavaran Darpan. I wish the publication continued success. Let us remain committed to building a greener, cleaner, and more sustainable future. The efforts we invest today will shape a healthier, more vibrant planet for generations to come.*

**Manoj Kumar Agarwal**  
Director Technical, P&P  
Bharat Coking Coal Limited



### **Message**

*Bharat Coking Coal Limited is a flagship company for production of coking coal as it produces bulk of the coking coal mined in the country. BCCL is committed to provide energy security to the country by attaining environmental and social sustainable growth through best practices.*

*This year, the Environment Day celebration on 5<sup>th</sup> June will be celebrated on the theme “Beat Plastic Pollution,” with the aim of addressing the shared issue of plastic pollution under the slogan “Shared Challenge, Collective Action.”*

*Plastic Pollution has become a global menace. It is our collective responsibility to combat this environmental crisis & safeguard our planet's future. Ridding the planet of “Plastic pollution” is an important contribution to achieve the SDG goal including those on climate action, sustainable production and consumption, repairing ecosystems and retaining biodiversity. There are ways by which we can support businesses that ensure sustainable packaging and reward those who take steps to reduce their plastic footprints.*

*BCCL is fully committed to reduce the consumption of single-use plastic, which can and must be replaced with durable and sustainable alternatives. You might know the 3 R – Reduce, Reuse, Recycle but we suggest 2 more: Remove and Refuse.*

*I am delighted to know that the Environment department is releasing the 22<sup>nd</sup> issue of its newsletter “Paryavaran Darpan” on the occasion of World Environment Day-2025 and wish that they will continue their work in improving the Environment.*

**AMAN RAJ**  
**CHIEF VIGILANCE OFFICER**  
**BHARAT COKING COAL LIMITED**



## संपादकीय

इस वर्ष यू.एन द्वारा विश्व पर्यावरण दिवस का विषय # BeatPlasticPollution है। आज के दौर में प्लास्टिक हमारे जीवन का एक अभिन्न हिस्सा बन चुका है। खरीदारी से लेकर भोजन तक, हर जगह प्लास्टिक का उपयोग होता है। लेकिन क्या आप जानते हैं कि प्लास्टिक में मौजूद रसायन हमारे पर्यावरण और स्वास्थ्य के लिए अत्यधिक हानिकारक हैं? इसका अत्यधिक उपयोग प्लास्टिक प्रदूषण का मुख्य कारण बनता है, जो हमारे ग्रह, वन्यजीवों और मानव स्वास्थ्य को कई तरह से नुकसान पहुँचा रहा है। यह प्रदूषण आज के समय में सबसे गंभीर पर्यावरणीय समस्याओं में से एक है।

मनुष्य इस पर इस हद तक निर्भर हो गया है कि चाहकर भी इसे छोड़ नहीं पा रहा है। सूरज की रोशनी, हवा और समुद्री लहरों के कारण प्लास्टिक कचरा छोटे-छोटे कणों में बदल जाता है, जो हमारे वायुमंडल, जल स्रोतों और अन्य पर्यावरणीय प्रणालियों में रह जाते हैं। इन माइक्रोप्लास्टिक का आकार बहुत छोटा होता है, जिससे यह हमारे शरीर में प्रवेश कर जाता है, चाहे वह साँस के माध्यम से हो या पानी के द्वारा। माइक्रोप्लास्टिक जल स्रोतों से हमारे घरों तक पहुँचने वाले पेयजल प्रणालियों और हवा में भी प्रवेश करता है। अनजाने में इन माइक्रोप्लास्टिक का सेवन हम इंसान भी कर रहे हैं, जिसके कारण हम गंभीर बीमारियों का सामना कर सकते हैं।

प्लास्टिक प्रदूषण दिन-प्रतिदिन बढ़ता जा रहा है, और यह सबसे अधिक चिंताजनक समस्या बन चुकी है क्योंकि प्लास्टिक को नष्ट होने में बहुत समय लगता है। हमें प्लास्टिक के पुनर्चक्रण पर गंभीरता से विचार करना होगा और व्यक्तिगत रूप से भी जिम्मेदारी निभानी होगी, तभी हमारी पृथ्वी सुरक्षित रह सकेगी। स्पष्ट रूप से, इस दिशा में और अधिक गंभीरता के साथ काम करने की आवश्यकता है।

प्लास्टिक हमारे चारों ओर है - लेकिन हम इसे बदल सकते हैं, हर दिन इसका कम उपयोग करके शुरुआत करें। अक्सर, हम आसानी से अपने द्वारा उपयोग किए जाने वाले एकल-उपयोग वाले प्लास्टिक आइटम को अधिक पर्यावरण के अनुकूल आइटम से बदल सकते हैं। समय के साथ, ये सरल बदलाव हमारे लैंडफिल और महासागर में बहुत कम प्लास्टिक जोड़ सकते हैं।

हमारी उपभोक्ता पसंद व्यवसायों को स्पष्ट संकेत भेजती है और इससे बड़े बदलावों को प्रोत्साहन मिल सकता है। प्लास्टिक का कम इस्तेमाल करने वाली जीवनशैली अपनाना डरावना हो सकता है क्योंकि प्लास्टिक हमारे जीवन के कई पहलुओं का हिस्सा है। किसी भी आदत को बदलने के लिए, हम छोटे कदम उठा सकते हैं जो बड़े बदलावों की ओर ले जाते हैं। पूर्णता से ज्यादा प्रगति पर ध्यान देना याद रखें।

विश्व पर्यावरण दिवस के अवसर पर पर्यावरण दर्पण का नया अंक समर्पित है एवं उम्मीद है कि यह अंक पर्यावरण के प्रति अपनी जिम्मेदारी के निर्वहन में सजगता लाने में सहायक होगा।

शुभकामनाओं सहित  
प्रधान संपादक

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**Shri Manoj Kumar Agarwal**  
*Director (Technical), P&P*

### **EDITORIAL TEAM**

**Rajiv Chopra**  
*General Manager (Min. /Env.)*  
*Environment Deptt.*

**Adarsh Kumar**  
*Deputy Mgr. (Env.)*  
*Environment Deptt.*

**Preeti Jhirwal**  
*Deputy Mgr. (Env.)*  
*Environment Deptt.*

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## **MIYAWAKI PLANTATION: A REVOLUTIONARY TECHNIQUE FOR URBAN AFFORESTATION**

In a time when urban growth and tree clearing endanger biodiversity and exacerbate climate change, the Miyawaki method of planting has surfaced as a symbol of optimism for revitalizing greenery in constrained areas. Created by Japanese botanist Dr. Akira Miyawaki, this ground-breaking technique establishes dense, indigenous forests much more quickly than traditional approaches.

The Miyawaki technique includes planting various native tree and shrub species in close proximity, replicating the characteristics of natural forest ecosystems. In contrast to conventional plantations that typically utilize monoculture (the cultivation of a single species),

Miyawaki forests are multi-layered, replicating the natural composition of a forest consisting of shrubs layer, sub- tree layer, Tree layer and canopy layer. This stratification allows the forest to develop rapidly and sustains a diverse array of flora and fauna.



The Miyawaki plantation technique offers a highly effective and sustainable approach to afforestation within urban environments. It tackles multiple ecological issues, including biodiversity decline, greenhouse gas emissions, and the prevalence of urban heat islands. By utilizing high-density planting, choosing native species, and minimizing human intervention, the Miyawaki method presents an innovative strategy for rehabilitating damaged land and enhancing environmental well-being. As its adoption grows globally, this method has the potential to significantly contribute to the development of greener, more sustainable cities.

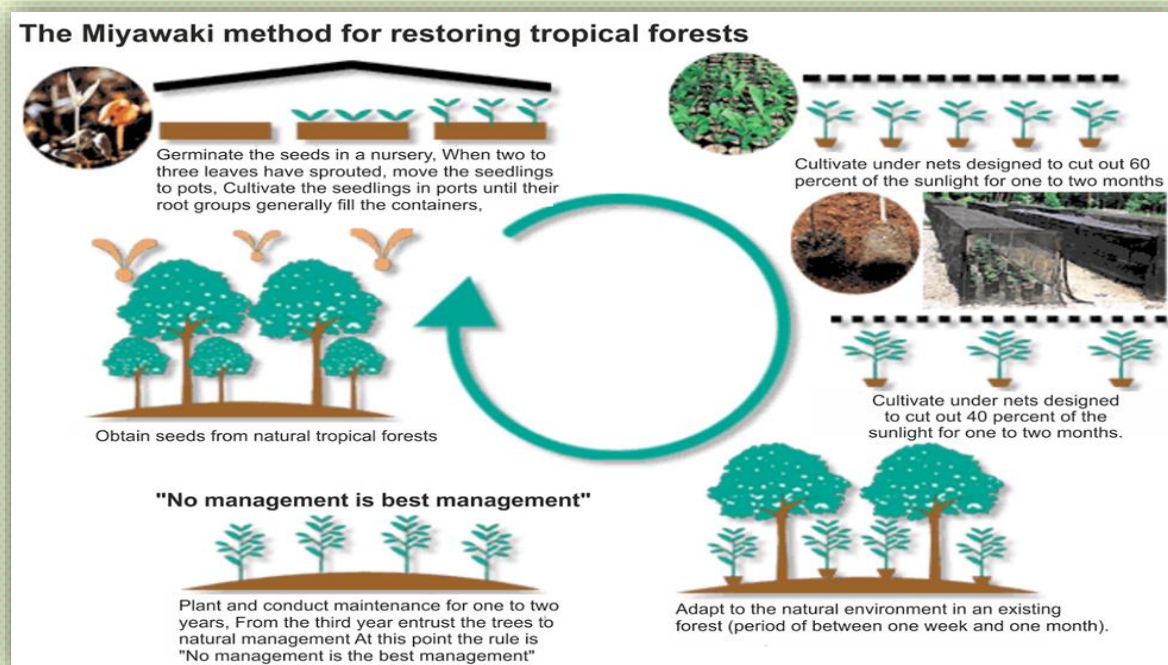
The Miyawaki method has become increasingly popular globally, particularly in India, where it has been effectively utilized in urban parks, educational institutions, industrial zones, and alongside highways. Cities such as Delhi, Mumbai, Bengaluru, and Chennai have embraced this approach to enhance green spaces in limited areas.

### **Key Features:**

- **High Biodiversity:** Multiple species are planted together to create a resilient ecosystem.
- **Fast Growth:** Due to close planting and natural competition for sunlight, trees grow up to 10 times faster.
- **Dense Canopy:** A Miyawaki forest becomes self-sustaining in just 2 to 3 years and can become 30 times denser than traditional plantations.
- **Low Maintenance:** After the initial 2-3 years of care, the forest becomes self-sustaining, requiring minimal human intervention.
- **Climate and Environmental Benefits:** These micro forests contribute to carbon sequestration, reduce the urban heat island effect, improve air and water quality, and enhance biodiversity.

### Steps involved in Miyawaki Plantation:

- **Site Selection and Soil Testing:** Identify suitable land and assess soil health.
- **Soil Preparation:** Improve soil with organic compost, cocopeat, and aerating agents.
- **Species Selection:** Choose 20–40 native species suitable for the region.
- **Dense Planting:** Plant 3-5 saplings per square meter, ensuring species diversity.
- **Mulching and Watering:** Apply mulch to retain moisture and water regularly for the first two years.
- **Maintenance:** Regular weeding and monitoring during the establishment phase.



### Advantages of Miyawaki plantation:



1. Environmental Restoration: Helps restore degraded land and improve soil fertility.
2. Carbon Sequestration: Dense forests capture more CO<sub>2</sub>, playing a vital role in climate change mitigation.
3. Urban Cooling: Acts as a natural air conditioner and improves air quality.
4. Noise Reduction: Acts as a buffer against urban noise pollution.
5. Biodiversity: Supports pollinators, birds, and small mammals, thereby enriching local ecosystems.

### Challenges and Limitations:

1. Miyawaki is proved to be an effective method in small to medium-sized spaces and may not be feasible for large-scale afforestation efforts due to space and cost constraints.
2. Miyawaki forests are not a replacement of natural forest because it doesn't have ability to bring rain and also lacks medicinal properties.
3. High initial investment in soil preparation, plant procurement, and initial maintenance.
4. Selection of appropriate native species and understanding the local ecosystem is critical for the success of the Miyawaki method which requires expertise in forestry and ecological restoration.

### “पर्यावरण का संकल्प”

धरती माता की पुकार  
प्रदूषण से मुक्त करो, धरा को सजाओ  
पेड़ लगाओ, हरियाली लाओ  
भविष्य के लिए धरा को बचाओ

वायु शुद्ध, जल निर्मल हो  
पृथ्वी का हरित रूप खिले  
प्रकृति का सम्मान करो  
भविष्य की पीढ़ियों के लिए धरा को बचाओ

हरित क्रांति का संदेश फैलाओ  
स्वच्छता और संरक्षण का संकल्प लो  
धरती माता का आभार व्यक्त करो  
भविष्य के लिए धरा को सुरक्षित बनाओ

सत्यम कुमार  
(ई अन म), कोयला भवन

## **BEAT PLASTIC POLLUTION: A CALL TO ACTION FOR WORLD ENVIRONMENT DAY 2025**

Our modern lives are interwoven with plastic. Its versatility, durability, and low cost have made it an indispensable material in countless applications. However, its availability in abundance has fueled an unprecedented environmental adversity. Globally, we produce over 400 million tonnes of plastic each year, with half of it designed for single use. Shockingly, less than 10% of all plastic ever produced has been recycled. The rest ends up in landfills, is incinerated, or, alarmingly, pollutes our natural environment – our oceans, rivers, soils, and even the air we breathe.

India has emerged as the world's largest contributor to plastic pollution, producing approximately 9.3 million tonnes of plastic waste annually and accounting for nearly 20% of global plastic emissions. This staggering figure surpasses that of other major polluters, including Nigeria (3.5 million tonnes), Indonesia (3.4 million tonnes), and China (2.8 million tonnes)

### **The consequences are devastating:**

- **Marine Pollution:** Millions of tonnes of plastic waste enter our aquatic ecosystems annually, posing a severe threat to marine life. Animals become entangled in plastic debris, mistaking it for food, leading to injury, starvation, and death. Our oceans are becoming plastic soups, with microplastics – tiny fragments resulting from the breakdown of larger plastics – now found in every corner of the marine environment.
- **Terrestrial Troubles:** Plastic pollution on land is equally alarming. It contaminates soil, hindering agricultural productivity and harming terrestrial wildlife. Microplastics from agricultural practices, sewage sludge, and landfills are accumulating in our soils, with unknown long-term consequences.
- **A Human Health Hazard:** Microplastics are not confined to the environment; they are entering our bodies through the food we eat, the water we drink, and the air we inhale. Studies have found microplastics in human blood, lungs, and even placentas. While the full extent of the health impacts is still being investigated, concerns are mounting about potential links to inflammation, toxicity, and other adverse effects.

### **Key Factors Driving Plastic Pollution in India:**

- **High Consumption and Mismanagement:** India's rapid urbanization and population growth have led to increased plastic consumption. However, waste management systems often fail to keep pace, resulting in significant amounts of plastic waste being mismanaged or improperly disposed off.



- **Open Burning and Dumping:** A substantial portion of plastic waste is burned openly or dumped in landfills, releasing harmful pollutants into the air and soil.
- **Single-Use Plastics:** Despite a ban on certain single-use plastic items in 2021, many products remain in circulation, contributing to the ongoing pollution problem.

### Turning the Tide: Solutions are Within Reach

While the scale of plastic pollution is daunting, it is not an, with its theme "Beat Plastic Pollution," aims to galvanize global action and highlight the solutions that are already available and those that need to be scaled up. The focus is on a holistic approach, emphasizing the principles of the 5 R's:

- **Refuse:** Say no to unnecessary single-use plastics. Choose alternatives like reusable shopping bags, water bottles, and coffee cups.
- **Reduce:** Minimize your overall plastic consumption. Opt for products with less packaging or packaging made from sustainable materials.
- **Reuse:** Find new purposes for plastic items instead of discarding them after a single use. Get creative with containers, bags, and other plastic products.
- **Recycle:** Properly dispose of recyclable plastics to give them a new life. Understand your local recycling guidelines and ensure items are clean and sorted correctly.
- **Rethink:** Challenge the current linear "take-make-dispose" model of plastic production and consumption. Support innovative solutions, sustainable alternatives, and circular economy approaches where resources are kept in use for as long as possible.

### Initiatives and Solutions:

- **Plastic Waste Management Rules (PWM Rules):** Introduced by the Ministry of Environment, Forest and Climate Change (MoEFCC), these rules aim to manage plastic waste through measures like Extended Producer Responsibility (EPR), which holds producers accountable for the lifecycle of their products.
- **Swachh Bharat Mission (SBM) and Swachh Survekshan:** These initiatives focus on improving waste management practices, promoting cleanliness, and encouraging community participation in reducing plastic waste.
- **Community-Based Recycling Programs:** Programs like the 'Recycling Hope' initiative by the United Nations Development Programme (UNDP) empower communities, particularly women, to engage in waste management and recycling activities, promoting sustainable practices and creating livelihoods.
- **Innovative Recycling Practices:** In areas like Dharavi, Mumbai, communities have adopted plastic weaving techniques to repurpose plastic waste into useful products, providing economic opportunities and reducing waste.

## A Future Free From Plastic Pollution:

Addressing plastic pollution in India requires a multifaceted approach involving stringent regulations, community engagement, innovative recycling practices, and public awareness. While challenges persist, ongoing efforts at various levels offer hope for mitigating the impact of plastic waste on the environment and public health.

World Environment Day 2025 provides a crucial opportunity to amplify the message: we can and must beat plastic pollution. By embracing the 5 R's, fostering collaboration, and driving innovation, we can envision a future where our planet is no longer choked by plastic waste. Let June 5th be a turning point, a day of renewed commitment and decisive action towards a healthier, cleaner, and more sustainable world for all. Join the movement, lend your voice, and together, let's #BeatPlasticPollution.



*Some initiatives by BCCL for raising awareness about sustainable alternatives to “Single Use Plastic”.*



## World Environment Day 2024 celebration



**Competitions for Employees of BCCL**



**Sampling Distribution**



**Competitions for Spouse**



**Release of Paryavaran Darpan on World Environment Day 2024**



## Vriksharopan Abhiyan in BCCL

Ministry of Coal, Government of India, launched Vriksharopan Abhiyan- 2024 on 25th July 2024 to enhance the greenery in and around the coalfield, with an aim to increase the share of coal sector in the forest cover and contribution to the India's commitment in COP-21. Vriksharopan Abhiyan-2024 has been launched by Hon'ble Minister of Coal, Shri G. Kishan Reddy from Panchvati Eco-Park, BCCL. At BCCL, the Abhiyan was presided over by Shri G. Kishan Reddy, Hon'ble Union Minister of Coal and Mines in presence of Shri Dhullu Mahto, MP Dhanbad; Sri Amrit Lal Meena, Secretary (Coal); Commissioner CMPFO; DC, Dhanbad; Shri P.M. Prasad, Chairman CIL; Shri Samiran Dutta, CMD, BCCL along with Directors of BCCL. In the celebration of Vriksharopan Abhiyan 2024, BCCL participated with great enthusiasm and carried out plantation and ensured public participation in the greening of the mining areas by plantation and sapling distribution.



*Launch of Vriksharopan Abhiyan-2024 by Shri G. Kishan Reddy, Hon'ble Minister of Coal & Mines at Panchvati Eco-Park, BCCL on 25.07.2024 and Shri Satish Chandra Dubey, Hon'ble Minister of State for Coal and Mines on 8.09.2024*

In addition to the Panchvati eco-park at BCCL, HQ, 13 sites were also connected virtually and live telecast was broadcasted whereas 05 sites observed the Vriksharopan abhiyan-2024 offline. Hon'ble MP Dhanbad Shri Dhullu Mahto was present at Panchvati Eco-Park, Koyla Nagar. 10 other public representatives participated in the event at different sites in BCCL. At these virtually connected sites, plantation was carried out by the public representatives, BCCL Management, employees and public as well. The saplings were also distributed to the public for plantation at the different location like parks, private lands, residential Areas etc. In the event, 10 nos of dignitaries with more than 1000 people participated in the Vriksharopan Abhiyan 2024 at BCCL.

On this single day on 25.07.2024, BCCL planted 15,720 plants at 18 different sites and distributed 12,300 saplings to the locals. However, on 26.07.2024, 300 nos of plants have also been planted. A total of 28320 plants (including 16020 plantations and 12,300 distributions) have been planted on the occasion of Vriksharopan Abhiyan -2024.



## ACCREDITED COMPENSATORY AFFORESTATION (ACA)

Coal mining projects involving forest land also require Forestry Clearance (FC) along with the environment clearance & other statutory clearances before starting mining activities. A major challenge in obtaining forest clearance is the identification of suitable Compensatory Afforestation (CA) land, however few relaxations have been provided in case of Public Sector Undertakings (PSU's). MoEF&CC has issued guidelines on January 24, 2023, for ACA, with an aim of streamlining the FC approval process, reducing CA costs, and enhancing afforestation efforts. The ACA guidelines encourage both government institutions and private landowners to undertake afforestation on fallow lands, thereby increasing the Trees Outside Forests (TOF) and supporting biodiversity.

BCCL's commitment to environmental sustainability is evident in its adherence to ACA guidelines and its efforts in restoration of ecological balance in mined out degraded lands. The success of ecological restoration not only demonstrates BCCL's dedication to responsible mining practices but also sets a benchmark for other coal mining entities across the country. As BCCL continues to expand its afforestation efforts, it remains focused on contributing to India's environmental goals and promoting a greener, more sustainable future.

### Preconditions of raising ACA:

- Non-forest land which is free from all encumbrances should be considered for ACA
- Non-forest land, including mined out and biologically reclaimed non-forest land, ownership of which vests with the State PSU or Central PSU, may also be considered for ACA.
- Demarcation of land: Land should be properly demarcated and fenced to ensure its protection from various biotic factors.
- Minimum Area: Such land should cover an area of minimum ten hectares to be considered for afforestation towards ACA.
- Contiguous to forest Area: Afforestation over land of any size situated in the continuity of land declared or notified as forest under any law, Protected Area, Tiger Reserve or within a designated tiger or wildlife corridor, may be considered for ACA.
- Canopy density: Afforestation shall be counted towards ACA if such land has vegetation composed predominantly of trees having canopy density of 0.4 or more and the trees are at least five years old.

### Benefits of ACA scheme:

- A system of proactive afforestation to be used for obtaining prior approval under section 2 of the Act by way of raising advance afforestation over a non-forest land free from any encumbrance.

- Compensatory afforestation undertaken in advance will avoid any delays that could be caused due to fund flow or administrative/technical procedures.
- It will promote the onset of flow of ecosystem goods and services in advance and open a new area for investment in the forest sector.
- It will encourage afforestation over fallow lands thereby helping in achieving the national targets as envisaged in the National Forest Policy, 1988.
- Alternative non-forest land that may be made available would be in a suitable block thereby facilitating appropriate protection measures; and
- Proposed scheme will expedite afforestation works which will ultimately increase the total carbon sequestered thereby helping to achieve the NDCs targets.

In brief, ACA serves as a tool for the coal industry to balance its environmental impact and contribute to a more sustainable future. By ensuring that mining operations are accompanied by appropriate afforestation efforts, ACA helps to protect biodiversity, mitigate climate change, and promote responsible resource extraction.

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### Paryavaran Darpan's Call

Reflect on our earth, so dear and so bright,  
Pollution's shadow looms, day and night.  
Let's reduce, reuse, and recycle with care,  
For a greener tomorrow, we must prepare.

Our actions today, shape the future's fate,  
Let's plant trees, and let nature participate.  
Conserve water, energy, every single day,  
For a sustainable world, we'll find a way.

With every step, we can make a change,  
Let's protect our planet, it's not too strange.  
\*"Reflect, Act, and Sustain"\*, let this be our creed,  
For a healthier world, we'll plant the seed.  
(Let's unite, for a greener earth we'll fight)

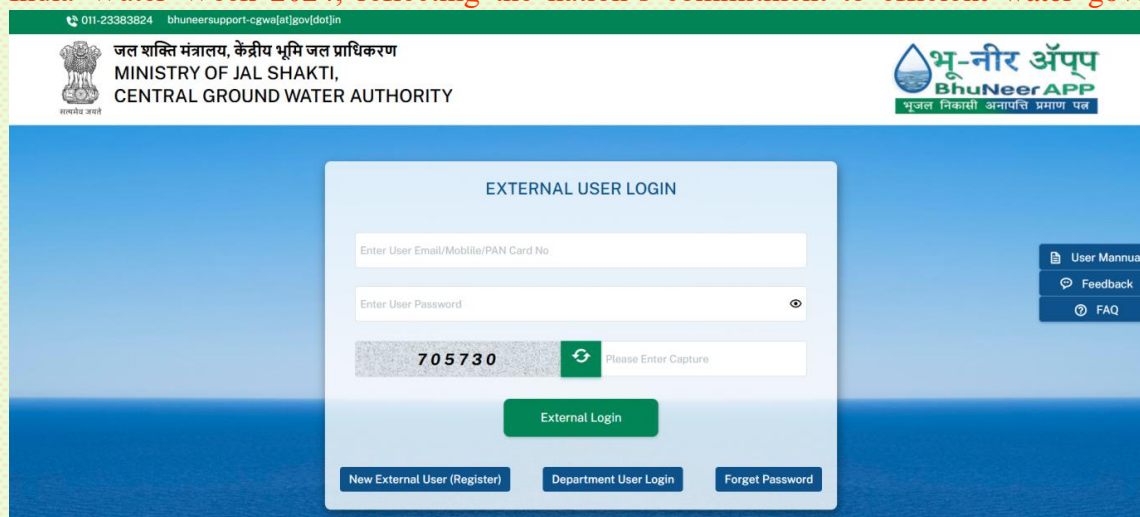
Ayush Kumar Rai



## GROUNDWATER REGULATION IN INDIA: THE ROLE OF THE “BHU-NEER” PORTAL

Groundwater is one of India’s most vital natural resources, sustaining agriculture, drinking water supply, and industry. However, unsustainable extraction has led to alarming levels of groundwater depletion in several parts of the country. Recognizing this challenge, the Government of India has taken a significant step toward sustainable water management with the launch of the “Bhu-Neer” portal, an innovative digital platform for managing groundwater withdrawal permits.

The Bhu-Neer portal developed by the Central Ground Water Authority (CGWA- has been constituted under the Environment (Protection) Act, 1986 to regulate and control the development and management of groundwater resources in the country) in collaboration with the National Informatics Centre (NIC), was launched on 19<sup>th</sup> September 2024 by the Hon’ble Ministry of Jal Shakti, Shri C.R. Paatil. It was introduced during the ceremonial conclusion of India Water Week 2024, reflecting the nation’s commitment to efficient water governance.



The screenshot displays the 'EXTERNAL USER LOGIN' interface of the Bhu-Neer APP. At the top, a green header bar contains the contact number '011-23383824', the email 'bhuneersupport-cgwa[at]gov[dot]in', and the logos of the Ministry of Jal Shakti and the Central Ground Water Authority. The main content area features a light blue login box with the following elements: a text input field for 'Enter User Email/Mobile/PAN Card No', a password input field with a toggle icon, a CAPTCHA image showing '705730' and a 'Please Enter Capture' prompt, a green 'External Login' button, and three links at the bottom: 'New External User (Register)', 'Department User Login', and 'Forgot Password'. To the right of the login box, a vertical menu includes links for 'User Manual', 'Feedback', and 'FAQ'.

### **Purpose and Key Features:**

The Bhu-Neer portal is a centralized and user-friendly digital platform aimed at regulating groundwater withdrawal across India. Its primary objective is to ensure transparency, efficiency, and sustainability in groundwater usage. With a modern interface and advanced digital tools, the portal simplifies the once cumbersome process of acquiring No Objection Certificates (NOCs) for groundwater extraction. Some of its key features include:

- PAN-based single ID system, which makes user registration and tracking seamless.
- Issuance of NOCs with QR codes to enable real-time verification and avoid fraud.
- A centralized database that provides access to essential legal, regulatory, and compliance information related to groundwater usage.
- Facilities for tracking application status, seeking clarifications, and paying statutory charges online.

By replacing the older NOCAP system, Bhu-Neer offers a more streamlined and accessible interface. The platform embodies the vision of the Prime Minister's "Ease of Doing

Business" initiative, making regulatory interactions with the government faceless, efficient, and transparent. Through digital transformation, the portal eliminates bureaucratic hurdles, making it easier for industries, businesses, and infrastructure developers to comply with groundwater regulations.

### Impact on Sustainability and Governance

The Bhu-Neer portal has far-reaching implications for water sustainability in India. By promoting data-driven decision-making and providing a robust regulatory mechanism, it enables better monitoring and management of groundwater resources. It also supports national and state-level policies aimed at reducing over-extraction and promoting equitable water access.

It is mention that only fresh and renewal application shall be applied in BHUNEER APP at present. However, the fresh applications which are under process in NOCAP and due for NOC issuance should not be re-applied in BHUNEER APP portal. Also, Extension/expansion/modification cases are to be applied in NOCAP only

Furthermore, it raises awareness about sustainable practices and acts as a deterrent to unauthorized withdrawal of groundwater, thereby playing a critical role in conserving this precious resource for future generations.

BCCL has obtained NoC for Groundwater Abstraction from CGWA for clusters of BCCL. In compliance to the obtained NOCs, piezometers have been installed to monitor ground water level and Digital Water Level Recorder is installed for the same. Also, BCCL has installed tamper-proof digital water flow meters with telemetry on all the ground water abstraction structures within its premises.



**Digital Flow meters installed in BCCL**

**Conclusion:** The launch of the Bhu-Neer portal marks a landmark development in India's water governance framework. By leveraging digital technology, the Ministry of Jal Shakti and CGWA have paved the way for transparent, sustainable, and people-centric groundwater regulation. As water becomes an increasingly scarce commodity, tools like Bhu-Neer will be indispensable in ensuring that development does not come at the cost of environmental degradation.



## WORKSHOP ON “ENVIRONMENT AND SUSTAINABILITY”

Coal India Limited, organised a workshop on Environment and Sustainability at the corporate headquarters in Kolkata on 03.02.2025. The event was marked by insightful discussions on the company’s ongoing green initiatives and long-term commitment to sustainable practices.

In the workshop senior executives from the corporate headquarters and executives from all subsidiaries participated. Our Chairman, Shri P.M. Prasad, focussed on sustainability and green initiatives and highlighted the company’s commitment to environmental responsibility. Shri Achyut Ghatak, Director (Technical) CIL set the tone for the workshop and emphasized Coal India's role in driving sustainable practices.

Environmental expert Dr. Rakesh Singh, spoke on “Mine Reclamation” and “Pollution Control in Coal Mines & Challenges in Implementation” during the workshop. He addressed environment personnel from all the subsidiaries and discussed practical issues being faced on the ground. He further emphasized upon the requirement of timely environmental compliance and ensuring best environmental practices in coal mining areas.

Shri Debasish Nanda Director (Business Development) CIL, Shri Mukesh Choudhary Director (Marketing) CIL, Shri Mukesh Agrawal Director (Finance) CIL, and Shri Brajesh Kumar Tripathy, CVO, CIL were also present on the occasion.

### Glimpse of the workshop:







## Evolution of Industrial Classification by CPCB: A Step toward Harmonized Environmental Governance

As India scales its industrial output to meet global economic demands, aligning environmental regulation with sustainability goals is crucial. The latest reforms in industrial classification mark a major stride in simplifying compliance while protecting ecological balance. The Central Pollution Control Board (CPCB), established under the Water (Prevention and Control of Pollution) Act, 1974, serves as the apex body for coordinating and supporting the environmental regulatory framework in India. In collaboration with State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs), the CPCB provides technical guidance and enforces uniformity in pollution control mechanisms across states and union territories.

### Evolution of Industrial Classification Framework

The classification of industries based on their pollution potential has undergone significant transformation over the years. Initially formalized in 2012, the CPCB introduced a standardized categorization system comprising red, orange, and green categories. These categories were intended to represent varying levels of environmental impact, with “Red” being highly polluting and “Green” being relatively non-polluting.

In 2016, the CPCB introduced a more refined and scientific approach through the development of a Pollution Index (PI)—a scoring methodology aimed at quantitatively assessing the pollution load of industrial activities. This framework introduced a new “White” category, encompassing industries with negligible pollution potential (PI score  $\leq$  25), thereby exempting them from the requirement of obtaining environmental clearance.

By 2020, the classification system expanded to include non-industrial sectors, such as Sewage Treatment Plants (STPs), under the same regulatory umbrella to ensure a comprehensive and inclusive environmental governance framework.

In a series of stakeholder-driven revisions between 2023 and 2025, the Pollution Index methodology was further revised to improve accuracy and address regional inconsistencies. A significant outcome of this revision was the introduction of the “Blue” category, created specifically for essential environmental services—notably those associated with domestic pollution management. For instance, STPs operating within mining township settlements are now categorized under the Blue category, reflecting their critical, yet relatively low-polluting role in environmental management.

These systematic revisions were necessitated by the observation that SPCBs and PCCs were previously using inconsistent criteria for industrial classification, leading to regulatory fragmentation. The updated framework seeks to standardize environmental compliance criteria nationwide.

### Understanding the Pollution Index (PI)

At the core of the modern classification system lies the Pollution Index (PI)—a composite numerical score that encapsulates the environmental risk associated with an industry. The PI is calculated based on three major components:

#### Water Pollution Potential (PIw):

- Represents the likelihood and severity of water contamination.
- Factors considered include the volume and toxicity of effluents, specific pollutants discharged, and the adequacy of treatment systems.

#### Air Pollution Potential (PIa):

- Quantifies the emissions of air pollutants and the effectiveness of control technologies.
- Parameters include emission type and quantity, stack height, and pollution control equipment efficiency.

#### Hazardous Waste Generation Potential (PIh):

- Assesses the generation, storage, and disposal practices of hazardous wastes.
- Includes volume, toxicity, and the environmental safety of waste handling methods.

Each of these components is scored individually based on defined criteria, and the overall Pollution Index (PI) is computed as the sum of PIw, PIa, and PIh.

#### Revised Industry Classification Categories (2023–2025)

Based on the total Pollution Index score, industries are classified into the following five categories:

Category	Overall PI	Characteristics	Industries (Examples)
Red	>80 (Highly polluting)	<ul style="list-style-type: none"> <li>• Significant discharge of pollutants into air and/or water.</li> <li>• Generation of substantial amounts of hazardous waste.</li> <li>• Require strict environmental safeguards and monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>• Large-scale chemical manufacturing</li> <li>• Petroleum refineries</li> <li>• Tanneries</li> <li>• Hazardous waste treatment facilities)</li> </ul>
Orange	>=55 & <=80 (Moderately Polluting)	<ul style="list-style-type: none"> <li>• Moderate discharge of pollutants.</li> <li>• Require pollution control measures to minimize environmental impact.</li> </ul>	<ul style="list-style-type: none"> <li>• Medium-scale manufacturing</li> <li>• Food processing industries</li> <li>• Electroplating</li> </ul>
Green	>=25 & <55	<ul style="list-style-type: none"> <li>• Lower discharge of pollutants.</li> <li>• Generally require standard pollution control measures.</li> </ul>	<ul style="list-style-type: none"> <li>• Assembly industries</li> <li>• Service industries</li> <li>• Small-scale manufacturing with less polluting processes</li> </ul>



White	<25	<ul style="list-style-type: none"> <li>Minimal environmental impact.</li> <li>May not require consent under the Water Act and Air Act</li> </ul>	<ul style="list-style-type: none"> <li>Manufacturing of electronic components (certain types)</li> <li>Garment making</li> <li>Renewable energy generation (solar, wind)</li> </ul>
Blue	Not based on PI score	<ul style="list-style-type: none"> <li>Focus on treating and managing waste generated by households and communities.</li> <li>Vital for public health and environmental protection.</li> </ul>	<ul style="list-style-type: none"> <li>Sewage treatment plants</li> <li>Municipal solid waste (MSW) processing and disposal facilities</li> </ul>

In a significant move towards regulatory reform and environmental transparency, the Ministry of Environment, Forest and Climate Change (MoEF&CC) has implemented major amendments through the Jan Vishwas (Amendment of Provisions) Act, 2023, and the Water (Prevention and Control of Pollution) Amendment Act, 2024. These changes have amended critical sections of India's environmental legislation: Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 and Section 25 of the Water (Prevention and Control of Pollution) Act, 1974, respectively.

### White Category Exemptions: Streamlining Low-Impact Industries

Under the revised regulatory landscape, industries categorized as "White", with a Pollution Index (PI) of up to 25, have been granted a significant exemption: they are no longer required to obtain Consent to Establish (CTE) and Consent to Operate (CTO) under the Air and Water Acts. This applies to 39 industrial sectors, as per the classification methodology established in 2016.

However, this exemption is conditional. Units operating under the White category must intimate the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) in writing. These regulatory bodies are responsible for:

- Maintaining a separate list of such units,
- Verifying that no activities beyond those intimated are being conducted.
- This approach reduces administrative burden on clean sectors while ensuring a degree of regulatory oversight.

### Introduction of the Blue Category: Recognizing Essential Environmental Services

A key addition to the classification regime is the creation of a new "Blue" category, specifically designed for Essential Environmental Services (EES). These include sectors critical for:

- Waste collection
- Sewage and septage treatment,
- Municipal solid waste (MSW) processing,

- 
- Other community-level domestic pollution control systems.

Examples: Sewage Treatment Plants (STPs), MSW Processing Facilities.

The Blue category aims to:

- Provide a distinct classification acknowledging the non-industrial, service-oriented nature of these activities,
- Promote targeted regulation and tailored environmental management approaches,
- Encourage infrastructure development in domestic waste management
- Safeguard public health by recognizing the unique pollution profiles of these services.
- Importantly, only the Central Pollution Control Board (CPCB) can approve additions to this category, highlighting its national significance.

### **SPCBs and PCCs: Responsibilities under the Revised Framework**

CPCB has issued written instructions directing all SPCBs and PCCs to immediately adopt the revised classification methodology. A total of 419 sectors/sub-sectors have now been categorized into Red, Orange, Green, White, and Blue classes. The new directives mandate that:

- All pending and future CTE/CTO applications must be processed using the updated classification.
- In cases where CTE was granted under the old classification, the applicability of CTO will be determined based on the revised category.
- Separate lists of industries under each category must be prepared and updated annually, with a submission deadline of 30th June to CPCB.
- A committee shall evaluate applications for incentives to units demonstrating reduced pollution index scores or enhanced environmental performance.

Moreover, CPCB has clarified that sector classification shall not influence loan sanctions or banking decisions, thereby decoupling regulatory oversight from financial vetting.

### **Implications for Environmental Governance**

- The updated classification system serves multiple regulatory purposes:
- Consent Management: Streamlined based on actual environmental impact.
- Surveillance and Inspection: Frequency and scope will align with revised PI-based categorization.
- Environmental Compensation: Calculations will now be more precise and risk-informed.
- Industrial Siting and Planning: Based on pollution risk and environmental sensitivity.

SPCBs and PCCs must prepare and publish a jurisdiction-specific list of categorized industries and submit the same annually to CPCB by June 30th. This aligns with the overarching goal of transparent, data-driven, and sustainable environmental governance.



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## Implications for the Coal Mining Industry: Stricter Compliance, Streamlined Operations

The revised industrial classification framework holds significant implications for the coal sector in coming times, which is traditionally placed under the **Red category** due to its high pollution potential—both in mining operations and coal-based industries such as thermal power generation.

### Possible Key Impacts:

- **Stronger Environmental Safeguards:** Coal mining and coal washeries are expected to maintain higher standards of air, water, and hazardous waste management to retain regulatory approvals under the Red category. This includes continuous emissions monitoring, robust effluent treatment plants, and stricter fly ash or overburden management.
- **Higher Frequency of Inspections:** Red category industries are now subject to more frequent surveillance and inspections by SPCBs, based on the Pollution Index-driven risk assessment. This could lead to increased scrutiny, especially for mines near urban or ecologically sensitive areas.
- **Consent Management Reform:** All existing and future Consent to Establish (CTE) and Consent to Operate (CTO) applications must align with the revised categorization. Mines or associated units granted clearances under previous classifications may need to be re-evaluated based on updated PI scores.
- **Inclusion of Environmental Utilities in Blue Category:** Units like Sewage Treatment Plants (STPs) operating in coal townships are now categorized under the Blue category, ensuring that essential environmental infrastructure supporting the coal industry is recognized separately and regulated appropriately.
- **Potential for Incentives:** Coal companies investing in cleaner technologies (e.g., dry fog dust suppression, underground mining, and mechanized loading) could apply for re-evaluation to achieve a lower PI score, possibly unlocking future incentives or relaxed compliance norms.
- **Public Disclosure and Accountability:** With jurisdiction-wise categorization of industries mandated for annual publication, coal companies will face increasing public visibility, emphasizing the need for sustained environmental compliance and proactive CSR initiatives.

### Conclusion: Sustainable industries

The evolution of the CPCB's industrial classification framework marks a transformative shift in India's environmental governance—moving from a one-size-fits-all approach to a more scientific, stratified, and sector-sensitive model. By leveraging the Pollution Index and introducing new categories like White and Blue, the regulatory system now better reflects the actual environmental footprint of diverse industries and services.

This reclassification not only simplifies regulatory compliance for low-impact sectors but also sharpens oversight for high-risk industries such as coal mining. The revised framework empowers State Pollution Control Boards (SPCBs) and Pollution Control

Committees (PCCs) to implement data-driven consent management, inspection regimes, and environmental compensation mechanisms, while encouraging industries to innovate and lower their pollution load.

For India's coal sector and allied industries, this update signals a clear call for modernization, accountability, and proactive investment in cleaner technologies and essential environmental infrastructure. With clearly defined roles, transparent public disclosures, and harmonized national implementation, the CPCB's new classification system lays the groundwork for balanced industrial growth and long-term ecological sustainability. In essence, this reform is not just a bureaucratic update—it is a strategic milestone in India's journey toward sustainable development, regulatory transparency, and environmental

*Shubham Singh, Asst. Mgr (Envt.), Lodna Area*

### हृदय में पृथ्वी

प्रभात के सत्राटे में, मृदु हवा का आलिंगन है,  
प्राचीन वृक्षों के साए तले, एक अनकही कहानी है।

कहानियों में डूबी जड़ों से, छायाएँ आशा करती हैं,  
प्रकृति की धड़कन सुनो, यही जीवन को कहती है।

ऊँचे खड़े पहाड़ों से, हमें गर्व का एहसास है,  
चाँदनी रातों में ऊमड़े ये बादल, छिपा हुआ एहसास है।

नदियाँ हँसती, कलकलाती, कहानियाँ सुनाती हैं,  
इस पवित्र जमीन की सुंदरता, सबके मन को भाति है।

हम अपनी अभिलाषा में, सिर झुकाए चलते हैं,  
उन छायाओं का पीछा करते, जिन्हें हमने छोड़ा है।

संतुलन की गूँज सुनो, यह नाजुक परहेज है,  
सूरज, हवा और बारिश का, अपनी आशाओं में समावेश है।

आइए सारे टुकड़े संजोएँ, जो हमने खोया है,  
भविष्य के बीज बोकर, प्यार को अपना है।

पृथ्वी के इस धड़कन पर, हर पल में वादा गूँजा है,  
हमारी धरती का यह सम्मान, हमें यही बताना है।

श्रेष्ठता में पिरोई ये पंक्तियाँ, हृदय में छु जाती है,  
पृथ्वी की आवाह सुनो, जीवन जीने की बात बताती है।

संवेदनाओं की इस भूमि पर, चलो फिर से गौर करें,  
प्रेम और करुणा की मान्यता से, नए कर्मों पर कार्य करें।

जगराज सिन्हा,  
सामान्य सहायक  
पुटकी बलिहारी क्षेत्र, बीसीसीएल।

### एक कविता हाथ थाम कर चलते रहिए

पौधें रोपित करें धरा पर, तभी सभी सुख पाएंगे।  
हाथ थाम कर चलते रहिए, पर्यावरण बचाएंगे।।

बंजर धरती मातु हुई है, उजड़े वन उपवन सारे।  
दूषित वातावरण सभी है, ताप सूर्य ले सब हारे।।  
सिंचन पानी से कर बंदे, पेड़ फूल लद जाएंगे।  
हाथ थाम कर चलते रहिए, पर्यावरण बचाएंगे।।

हरित क्रांति की मन में ठानें, परिसर स्वच्छ सुहाते हैं।  
संरक्षण करना पेड़ों का, निर्मल बयार पाते हैं।।  
शपथ सभी हम मिलकर लेवें, दृढ़ता को अपनाएंगे।  
हाथ थाम कर चलते रहिए, पर्यावरण बचाएंगे।।

एक दिवस ऐसा आएगा, धरिणी हरी- भरी होगी।  
पशुओं का जीवन सुखमय हो, पंछी कलरव ज्यों योगी।।

मधुर स्वरों में तान लगायें, मिलकर हम सब गाएंगे।  
हाथ थाम कर चलते रहिए, पर्यावरण बचाएंगे।।

पौधें रोपित करें धरा पर, तभी सभी सुख पाएंगे।  
हाथ थाम कर चलते रहिए, पर्यावरण बचाएंगे।।

रिकु दुबे वैष्णवी  
सामान्य सहायक,



### गमले में पौधा (लघुकथा)

विश्व पर्यावरण दिवस मनाया जा रहा है। हर कोई पौधे लगाने में व्यस्त है। सरकारी से लेकर गैर-सरकारी संस्था में पौधारोपण कार्यक्रम चल रहा है। हाथों में मोबाइल थामे लोग, पौधे के साथ सेल्फी लेने में व्यस्त हैं, ताकि अगले दिन उसे स्टेटस में लगाया जा सके।

“क्या कर रहे हो चुन्नू बेटा?” गांव से आए दादाजी ने चुन्नू से पूछा।

“दादा जी! आज विश्व पर्यावरण दिवस है न, उसी उपलक्ष में गमले में एक पौधा लगा रहा हूँ।” हाथ में खुरपी लिए दादाजी को चुन्नू उत्तर देता है।

इतना सुनते ही दादाजी जोर-जोर से हँसने लगते हैं और कहते हैं “हाँ-हाँ शहर वालों का तो बस यही काम बचा है। पहले पेड़ काटो फिर गमले में पौधे लगाओ।”

“दादा जी! इसमें हँसने वाली बात कौन सी है? और यह क्या बोल रहे हैं आप? ये शहर वाले पेड़ कब से काटने लगे? इन्हें तो अपने कामों से ही यहाँ फुर्सत नहीं है। कोई अपने व्यवसाय में व्यस्त है तो कोई नौकरी में व्यस्त। दादा जी! अब यह केवल सरकार की जिम्मेवारी नहीं है, यह जिम्मेवारी हम सब नागरिकों की भी है कि कैसे पर्यावरण को शुद्ध और धरा को स्वच्छ बनाया जाए।” बड़े तल्लीनता से चुन्नू ने दादाजी को समझाया।

“यह सारी बातें तुम्हारी सोलह आने सच है बेटा। पर आज तुम जहाँ खड़े हो, क्या तुम्हें मालूम है यहाँ कभी घना जंगल होता था। बड़े-बड़े पेड़ होते थे। चारों तरफ हरियाली ही हरियाली होती थी। एक समय में हम स्वार्थी मानवों ने ही पेड़ों को काटकर शहर का निर्माण किया है। बड़ी-बड़ी इमारतें, लंबी-चौड़ी सड़के और कल कारखानों का निर्माण किया है। पेड़ काटने से आज न केवल जंगल के अस्तित्व पर खतरा मंडराने लगा है बल्कि जलवायु परिवर्तन का असर भी दिखने लगा है। कहीं बाढ़ तो कहीं सुखाड़ की स्थिति पैदा हो गई है। गर्मियों के दिन बढ़ गए हैं। हम मानवों को जब इन बातों का एहसास हुआ तो हमने फिर से पर्यावरण की ओर रुख किया।” दादा जी ने विस्तार से चुन्नू को समझाया।

“क्या सच में दादाजी? यहाँ एक बहुत बड़ा जंगल होता था। बड़े-बड़े पेड़ होते थे?” चुन्नू ने उत्सुकतावश पूछा।

“हाँ बेटा! शहरों के विस्तार ने जंगलों को तबाह कर डाला है। और अब लोग पौधे गमले में लगा रहे हैं। यह सब देख मुझे कभी-कभी हँसी आती है तो कभी बहुत दुख होता है।” इतना कहते-कहते दादा जी अपने गांव की यादों में खो जाते हैं और चुन्नू अपने शहर में खो जाता है।

रोशन कुमार सिंह  
लिपिक  
प्रशासन विभाग, सिजुआ क्षेत्र।

## Green Credit Program (GCP): Approach, Challenges and Road Ahead

The Green Credit Program (GCP) is a pioneering market-oriented initiative aimed at encouraging voluntary environmental efforts among a wide range of participants, including individuals, communities, private sector industries, and corporations. It is designed to promote a sustainable way of living and environmental preservation as part of the 'LiFE' initiative introduced by the Prime Minister during the United Nations Climate Change Conference of the Parties (COP 26).

Government of India has notified the Green Credit Rules on 12th October 2023 under the Environment Protection Act, 1986.

### **Objectives of the Green Credit Programme (GCP):**

Incentivize environmental positive actions through market-based mechanism and generate green credit.

Encourage industries, companies and other entities to meet their existing obligations or other obligations under any law for the time being in force, and encourage other persons and entities, to undertake voluntary environmental measures by generating or buying green credit: Provided that the green credit generated or procured to fulfil any obligation in compliance of any law for the time being in force shall not be tradable.

### **Activities covered under GCP:**

According to the Green Credit Rules, 2023, a person or entity desirous of obtaining green credit shall register the activity with the Administrator for any of the activities covered under GCP as mentioned above undertaken by him for grant of green credit. The methodology for calculating the green credit in respect of any activity undertaken shall be such as may be notified by the Central Government on the recommendation of the Administrator.

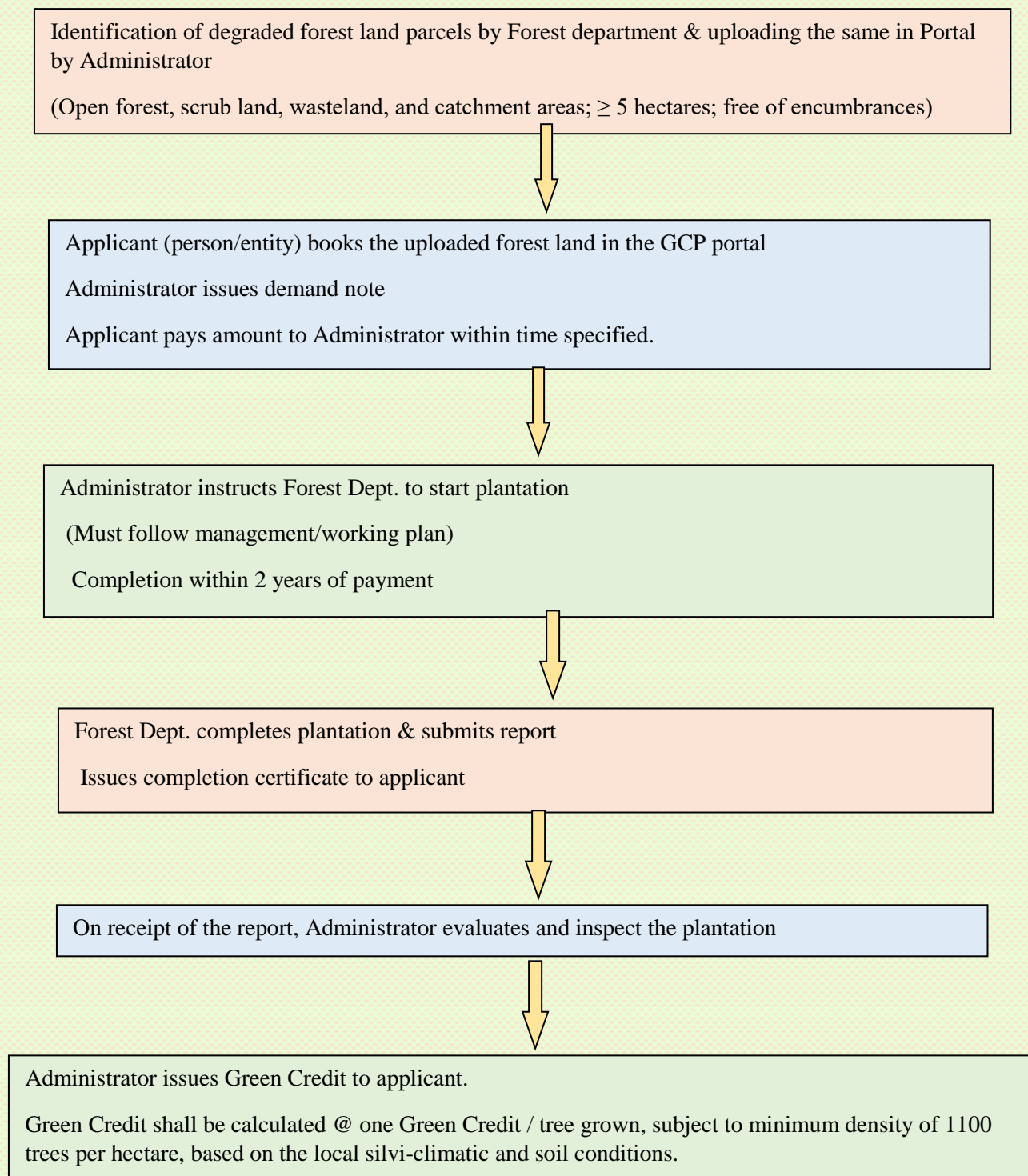


Administrator has been given responsibility to develop the website for registration of activities, evaluation and verification of activities undertaken and award of green credit in respect of such verified activities, electronically

The governance structure of the GCP is supported by an inter-ministerial Steering Committee and The Indian Council of Forestry Research and Education (ICFRE) serves as the GCP Administrator, responsible for program implementation, management, monitoring, and operation.



Methodology for calculation of green credit in respect of tree plantation as notified by Central Government on 22nd February, 2024 is mentioned below:



Green Credit Scheme & BCCL: BCCL has already booked 200 Ha of land parcel on Green Credit portal. Out of which payment has been done for 50 Ha land parcel. Proposal for payment for taking plantation over 17 Ha land parcel booked on portal is under process and demand for 133 Ha land parcel is awaited from ICFRE.

Concerns and Issues of Environmentalist: Several environmentalists criticised the approach of Green credit scheme as unscientific and potentially disastrous for local ecosystems. They are concerned that the use of terms like ‘degraded’ for scrubland and open forests is considered vague and could lead to industrial-scale plantations that may irreversibly alter soil quality, replace and harm ecosystem services.

The regulations have faced criticism for evaluating forests exclusively based on the number of trees, neglecting the complex structure of a healthy forest and the wildlife it supports. These plantations can disturb the equilibrium of ecosystems and fail to sustain the variety of species typically found in a natural forest and may lead to the creation of ‘green deserts’.

The focus on reforesting 'degraded land parcels' exerts pressure on regions which hold significant ecological value such as wastelands, grasslands etc. which are vital for carbon sequestration and preservation of unique biodiversity. The drive for afforestation in these locations may result in the decline of endemic species and the disruption of essential ecological functions.

Ecological experts also indicate that such dense plantations in fragile ecosystem such as scrublands, wastelands etc. would primarily encourage monoculture and heighten the risk of pest infestations, while also disrupting ecological interactions.

Concerned regarding survival and maintenance of such plantation has also been raised considering low survival rate of previous afforestation programme as per CAG reports. Also as per Green Credit Rule, entities don't have a responsibility to ensure the “survival” and “maintenance” of trees.

#### Way Forward:

Green Credit Programme needs to emphasize a transition from merely counting trees to a biodiversity-centric approach to afforestation, aiming to restore a variety of native species and ecosystems instead of solely increasing tree numbers. It is essential to establish additional strategies or mechanism to ensure long term survival and maintenance of such plantation. Public Consultations may also be included to fine tune the system for ensuring that its effectiveness, equitability, and alignment with environmental goals. .

#### Conclusion:

The Green Credit Programme shows potential, however, it necessitates strong standards and meticulous execution. It needs to address challenges related to environmental stewardship while encouraging compliance and innovation through a transparent and consultative approach.



## **Electric Dreams: Are Electric Vehicles Truly the Green Future We Think They Are?**

For years, electric vehicles (EVs) have been championed as clean, green machines — silent, sleek, and seemingly guilt-free. No exhaust, no fumes, no fuel. But behind the quiet hum of an EV lies a more complicated truth: are these vehicles truly helping us conserve energy and reduce emissions, or are we simply shifting the environmental burden somewhere else?

It is undeniable that EVs do not burn petrol or diesel. But they still run on energy, and in India, a significant portion of that energy still comes from coal. As of 2021, coal-fired power plants accounted for nearly 72% of the country's electricity generation (IEA, 2021). So, when an EV is charged with electricity from a coal-based grid, it may still be responsible for substantial greenhouse gas emissions — just not directly from its tail pipe.

The pollution does not disappear; it just moves upstream, to smokestacks instead of exhaust pipes. That is only the beginning. The environmental cost of an EV begins even before it hits the road. Lithium-ion batteries — the heart of electric vehicles — require metals like lithium, cobalt, and nickel. Extracting and processing these minerals is both energy- and water-intensive and often takes place in environmentally fragile or politically unstable regions. These mining operations can cause biodiversity loss, contaminate water supplies, and pose serious risks to human health. Studies have shown that battery production alone can contribute to 25–40% of an EV's total lifecycle emissions, depending largely on the energy source used during manufacturing. While some countries mitigate this impact by using clean hydropower in production, many others still rely heavily on fossil fuels, intensifying the carbon footprint of these so-called green vehicles.

However, looking only at manufacturing tells an incomplete story. Over the full course of their lives — from production to disposal — EVs are far more energy-efficient than traditional internal combustion engine (ICE) vehicles. While ICE vehicles typically convert just 20–30% of the energy in gasoline into motion, EVs can convert 60–80% of their electrical energy into actual movement. Even when charged using coal-heavy electricity, EVs tend to have lower overall greenhouse gas emissions over time, especially in congested urban areas where stop and-go traffic leads to higher fuel consumption in conventional vehicles.

One of the most immediate benefits of EVs is their impact on urban air quality. Unlike ICE vehicles, EVs produce no tailpipe emissions, which means they do not emit particulate matter or nitrogen oxides — two of the biggest contributors to smog and respiratory issues. In cities like Delhi and Mumbai, which regularly top the charts for air pollution, the widespread adoption of electric buses, rickshaws, and delivery vans could drastically reduce air pollutants. In fact, a study by the International Council on Clean Transportation (2020) found that electrifying India's urban bus fleets could significantly cut down on harmful emissions, leading to measurable improvements in public health and fewer pollution-related deaths.

Still, if EVs are to live up to their green promise, more needs to be done. India must work toward decarbonizing its electricity grid, with greater investments in renewable energy sources like solar and wind, which are becoming more affordable and scalable. Integrating

EV charging infrastructure with solar rooftops or community-based microgrids could offer cleaner charging options, especially in semi-urban and rural areas.

Battery recycling is another key challenge. As more EVs hit the roads, India could face a surge in electronic waste unless proper systems for battery reuse and recycling are put in place. Thankfully, advances in recycling technology now allow up to 95% of critical minerals like lithium, cobalt, and nickel to be recovered from used batteries — but the infrastructure and policy support must follow to make this feasible at scale.

A truly sustainable transition to electric mobility must include fair labour practices and a move toward circular economy principles that prioritize reuse and responsible sourcing. Beyond private vehicles, India's EV strategy should also prioritize electrifying public and shared transport systems. Two- and three-wheelers, buses, and freight carriers contribute significantly to traffic emissions and are ideal candidates for early electrification, thanks to their predictable routes and limited range requirements.

So, are EVs the perfect solution to our environmental problems? Not quite. But they are a crucial step toward a cleaner, more sustainable future. Like any major shift, the transition to electric mobility brings trade-offs — from resource extraction and manufacturing emissions to questions of equity and infrastructure. Yet with the right mix of policies, cleaner energy, better recycling systems, and informed public choices, EVs can help reimagine India's transport landscape for the better.

In the end, the question isn't just "Are EVs green?" — It is "How green can we make them?" And the answer depends not only on what we drive, but also on how we generate power, design products, and handle waste — all one silent mile at a time.

**Apurva Garg, Singleiyam Raikhan**  
(M.Tech ESE, IIT (ISM) Dhanbad)



**Waste to Art, BCCL Converted 150 Kg of scrap materials into striking 7 foot**



## **Unlocking the Potential of Mine Tourism in BCCL: Bridging Industry and Society**

Mining has historically been at the heart of industrial development, but its societal perception often lacks the recognition it deserves. To reshape this narrative, mine tourism is emerging as a powerful bridge between the industry and the community—a tool to foster understanding, preserve heritage, and promote inclusive regional development.

Bharat Coking Coal Limited (BCCL) is actively embracing mine tourism not just as an awareness initiative but as a catalyst for sustainable livelihood generation, environmental stewardship, and community engagement. The aim is to showcase the transformation of mining practices—from conventional extraction to technologically advanced, environmentally responsible, and socially inclusive operations.

Mine tourism in BCCL is envisioned to:

- Educate the public on modern, safe, and sustainable mining practices.
- Celebrate the historical significance and contribution of coal mining to national growth.
- Promote environmental conservation and reclamation efforts.
- Provide economic opportunities through local entrepreneurship and small businesses.
- Enhance regional tourism by linking mining sites with nearby natural attractions.

### **Netaji Subhash Chandra Bose Recreation Park, Moonidih Mine, W.J. Area**

As a flagship initiative under BCCL's mine tourism strategy, the Netaji Subhash Chandra Bose Recreation Park is proposed at Moonidih Colliery, one of the most prestigious and technologically advanced underground mines of BCCL.

### **Park Highlights and Features**

- Named in honor of Netaji Subhash Chandra Bose, symbolizing inspiration and national pride.
- Designed as a family recreation hub with landscaped gardens, seating areas, walking paths, and children's play zones.
- Venue for community events, awareness drives, and local cultural programs.
- Opportunities for small vendors, food stalls, and local artisans to generate livelihood.
- Focus on eco-friendly environment, Herbal garden and green development

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## Community Impact and Societal Integration

- **Beneficiary Population:** Approximately 1,500 households across nearby villages and colonies
- **Nearby Villages:** Karitand, Jatudih, Bardubhi, Tetangabad, Baludih, Dubrajpur.
- **Adjacent Colonies:** DM Colony, Baludih Colony, CPP Colony, MT Hostel, Jatudih Colony.

## Objectives of the NSCB Park Initiative

1. **Promote Responsible Mining Tourism**  
Highlight BCCL's journey from traditional mining to safe, modern, and sustainable practices through guided tours, exhibits, and displays.
2. **Foster Recreation and Wellness**  
Offer a natural, green space that encourages physical and mental well-being, making it a haven for individuals and families.
3. **Support Local Economic Development**  
Generate employment and entrepreneurship opportunities by enabling local vendors, artisans, and service providers to operate within the park.
4. **Drive Environmental Awareness**  
Serve as a living model of ecological restoration and mine reclamation, educating visitors on biodiversity and sustainability.

## Upcoming Additions to Enhance Visitor Experience

- **Statue of Netaji Subhash Chandra Bose.**
- **Children's Play Zone**
- **Herbal Garden**
- **Green Walk Zone / Peace Path**
- **Musical Fountain/Pond**
- **Open-Air Gym**
- **Underground Mining Museum**
- **Rain Dance Area**
- **Solar Lighting System**

## The Vision Ahead

The NSCB Park is more than just a recreational area—it is a symbol of transformation, where mining heritage coexists with ecological revival and community well-being. With every new addition and initiative, BCCL reaffirms its commitment to creating a vibrant, inclusive, and sustainable ecosystem for the people of Dhanbad and beyond.



## Hydroponics: A Soilless Solution for Sustainable Agriculture

Hydroponics is when plants are grown in a nutrient rich solution rather than soil. Instead of the roots growing down into dirt, the roots grow into a liquid solution enriched with all the essential nutrients for healthy plants. Hydroponic farming involves suspending plant roots in a nutrient solution, which is constantly aerated to ensure oxygen access. The pH of the solution is carefully controlled to optimize nutrient absorption. This method allows for more efficient use of space, water, and resources, making it a sustainable and eco-friendly alternative to traditional farming.

The mechanism involved with hydroponics is quite simple but impactful. Plant roots absorb the required nutrients from the provided nutrient solution, which are essential for their growth and development. Hydroponic systems often operate in controlled environments, such as greenhouses or indoor grow rooms, where temperature, humidity, and light are optimized. The nutrient solution is regularly monitored and adjusted to ensure optimal plant growth.

Hydroponics farming is supported by a number of components. These components are required for the proper functioning of the overall system and suitable growth of the hydroponic plants. The key components include:

- **Nutrient Solution:** A balanced mix of essential nutrients, such as nitrogen, phosphorus, and potassium, is dissolved in water.
- **Growing Medium:** Plants are supported in a medium like rockwool, coco coir, or clay pebbles, which holds the nutrient solution.
- **Water Delivery System:** The nutrient solution is delivered to the roots through various methods, such as drip irrigation or flooding.



Figure 1: Widely adopted system of hydroponic farming

Hydroponic farming is a revolutionary method of growing plants without soil, using nutrient-rich water solutions instead. This technique has gained popularity due to its numerous benefits, including:

- **Water Conservation:** Hydroponics uses up to 90 % less water than traditional farming methods, as water is recycled within the system.
- **Faster Plant Growth:** Plants grow 30-50% faster in hydroponic systems due to controlled nutrient supply and optimized environmental conditions.
- **Space Optimization:** Hydroponic systems can be stacked vertically, making them suitable for urban areas and small spaces.
- **Year-Round Production:** Hydroponic farming allows for year-round crop production, regardless of season or climate.

Hydroponic systems can be of several types which includes:

- **Nutrient Film Technique (NFT):** A thin layer of nutrient solution constantly flows over the plant roots, suitable for growing leafy greens.
- **Deep Water Culture (DWC):** Plants are suspended in a nutrient-rich solution, with oxygen added to prevent root rot.
- **Drip Irrigation System:** Nutrient solution is delivered directly to the roots through drippers.
- **Aeroponics:** Plants are suspended in the air, with nutrient solution sprayed directly onto the roots.

Despite the numerous benefits of hydroponics, there are also some challenges associated with this method. One of the main challenges is the initial investment required to set up a hydroponic system. This can be a barrier for small-scale farmers or those with limited resources. The high initial investment can be a barrier for small-scale farmers or those with limited resources. Furthermore, hydroponics requires energy for lighting, pumping, and climate control, which can increase operational costs. Labor costs can also be higher due to the need for specialized labor. Other challenges associated with hydroponics include disease and pest management, as the controlled environment can be vulnerable to disease and pests. System failure can also occur, leading to plant loss and economic losses. Finally, scaling up hydroponic operations can be challenging, especially for small-scale farmers or those with limited resources.

In conclusion, hydroponics is a promising solution for sustainable agriculture, offering numerous benefits, including water conservation, increased crop yields, and reduced environmental impact. While there are some challenges associated with hydroponics,

**Shashi Shekhar Mandal, Virendra Gour**  
IIT (ISM) Dhanbad



## **Mission GREEN (Grow, Restore, Enrich, and Empower Nature) Coal Regions: A transformative initiative**

The Ministry of Coal has conceptualized Mission GREEN (Grow, Restore, Enrich, and Empower Nature) Coal Regions with a vision to transform coal and lignite mining regions into sustainable and thriving ecosystems. The initiative seeks to promote ecological restoration, renewable energy production, agro forestry, energy efficiency, a circular economy, and economic empowerment by repurposing de-coaled, unused areas and extending beyond leasehold boundaries. This reflects the principles of Grow, Restore, Enrich, and Empower Nature, aligning with Mission LiFE and actions addressing climate change. The concept of GREEN Coal Regions can be defined as a comprehensive framework aimed at enhancing environmental sustainability, social progress, and economic revitalization in coal regions.

**Activities under Mission GREEN:** Various activities are selected to be taken up under Mission Green such as:

- (i) Afforestation for development of the green cover and reclaim the degraded mined areas; expanding coverage of afforestation under the Tree Outside Forest (TOF) initiative by 2030, Miyawaki plantations.
- (ii) Development of eco-parks for promotion of mine based tourism in coal mining areas and create the recreational sites along with the livelihood opportunities for the local communities
- (iii) Mine water management for the gainful utilization of the mine water after suitable water treatment measures to cater the domestic and agricultural needs for the local communities
- (iv) Promotion and adoption of renewable energy sources mainly solar and energy efficient equipment's to become net zero company and reduce the dependence on conventional energy sources for its operations
- (v) Rejuvenation of traditional water bodies in its vicinity to conserve the natural water reservoirs and needs of the local communities
- (vi) Adoption of the new technologies like coal gasification and clean coal technologies and gainful utilization of OB and the production of M-sand from it; etc..

Along with the aforementioned activities, Mission Green also focuses on the welfare and development of the local communities through educational and skill development programs, healthcare programs and livelihood opportunities avenues for the locals through formation of the self-help groups (SHGs) for various socio-economic activities like green enterprises, forest based startups, horticulture, agroforestry, pisciculture etc.

Implementation Strategy for Mission GREEN:

Coal/Lignite PSUs will be the primary drivers and facilitators of Mission GREEN implementation, responsible for planning, resourcing, execution, monitoring, and reporting

of activities, while actively collaborating with District Administrations and other stakeholders.

#### Mission GREEN Coal Regions & BCCL:

The Ministry of Coal has set ambitious targets for different activities under *Mission GREEN Coal Regions* to BCCL & other Coal/Lignite PSUs for the next five years.

BCCL is in the process of implementing the framework as Mission GREEN (Grow, Restore, Enrich, and Empower Nature) to achieve the targets.

#### Conclusion:

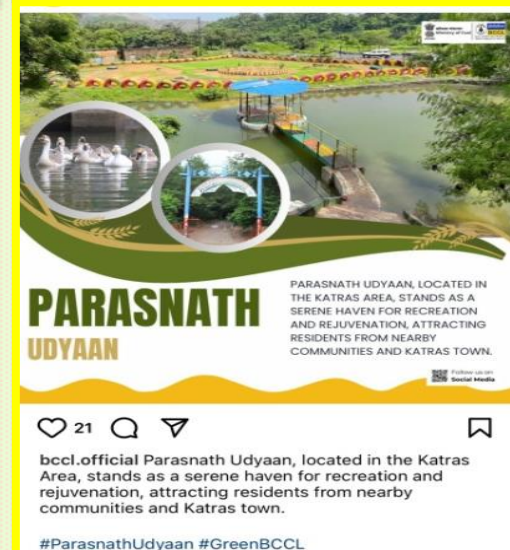
The Mission GREEN Coal Regions regards de-coaled landscapes as pivotal for ecological restoration, economic revitalization, and social change. By prioritizing sustainability, the Ministry of Coal is establishing an international standard for harmonizing industrial advancement with environmental responsibility and community welfare.



Drawing by Ayush Rai



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