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पर्यावरण दर्पण

बीसीसीएल की पर्यावरणीय
समाचार पत्रिका



*Inspired by Nature. For
Climate. For Our Future*

IMPORTANT RULES & LEGISLATIONS

Year	Act / Law	Key Environmental Significance
2016	Compensatory Afforestation Fund Act, 2016	Created National and State CAMPA funds for afforestation, forest regeneration, wildlife protection, and related activities.
2016	E-Waste (Management) Rules, 2016	Established a producer-driven framework for collection, recycling, and environmentally sound disposal of electronic waste, reducing pollution, conserving resources, and promoting a circular economy in India.
2016	Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016	Established a comprehensive framework for the safe handling, recycling, disposal, and international movement of hazardous wastes, thereby protecting human health, preventing environmental pollution, and promoting resource recovery.
2022	Energy Conservation (Amendment) Act, 2022	Introduced provisions for a carbon credit trading system, promotion of non-fossil energy use, and strengthened energy efficiency measures.
2023	Biological Diversity (Amendment) Act, 2023	Amended the Biological Diversity Act, 2002 to facilitate research, encourage traditional medicine sectors, and simplify access and benefit-sharing provisions.
2023	Forest (Conservation) Amendment Act, 2023 renamed Van (Sanrakshan Evam Samvardhan) Adhiniyam)	Modified applicability of forest conservation provisions and provided exemptions for certain strategic and infrastructure projects.
2023	Jan Vishwas (Amendment of Provisions) Act, 2023	Decriminalized and rationalized several environmental compliance provisions under environmental laws including the Environment Protection Act and Air Act.
2023	Green Credit Rules, 2023	Introduction of a market-based incentive mechanism that rewards voluntary environmental actions such as afforestation, resource conservation, and ecosystem restoration, thereby promoting sustainable development and enhancing India's environmental stewardship.
2023	Environment (Utilisation of Crop Residue by Thermal Power Plants) Rules, 2023	Promotes the productive use of agricultural residues as biomass fuel in thermal power plants, reducing stubble burning, improving air quality, lowering greenhouse gas emissions, and supporting a circular economy.



Message

It gives me immense pleasure to extend my heartfelt greetings to all employees, stakeholders, and readers on the occasion of World Environment Day 2026 and the release of the 23rd Edition of “Paryavaran Darpan”. This significant occasion reminds us of our collective responsibility to protect, conserve, and nurture the environment for the well-being of present and future generations.

The theme of World Environment Day 2026, *“Inspired by Nature. For Climate. For Our Future.”*, underscores the urgent need to learn from nature, restore ecological balance, and adopt sustainable practices that strengthen climate resilience and ensure a better tomorrow. This theme resonates deeply with the vision and commitment of Bharat Coking Coal Limited towards sustainable and responsible mining.

As a responsible corporate organization and a key energy provider to the nation, BCCL continuously strives to balance the growing energy demands of the country with environmental protection and in integrating environmental sustainability into every sphere of its activities.

BCCL is carrying out extensive afforestation and ecological restoration initiatives over there command areas, degraded Forest lands and riverbanks with the objective of conserving forests and rejuvenating natural ecosystems. Further, innovative approaches like Miyawaki plantations to enhance carbon sequestration potential is also being taken up.

At the same time, BCCL is steadily diversifying into cleaner and renewable energy avenues through the expansion of solar power initiatives and the harnessing of Coal Bed Methane potential. Further, the Company has strengthened its pollution control measures through the deployment of advanced air quality monitoring systems, fog cannons, and mist sprinklers. These initiatives reflect BCCL’s steadfast commitment towards sustainable mining practices, reduction of carbon footprint, and promotion of environmentally responsible operations.

On this important occasion, I urge all employees, stakeholders, and citizens to adopt environmentally responsible practices in their daily lives and actively participate in conserving natural resources. Collective and consistent efforts, however small, can bring meaningful change and help build a greener, cleaner, and more sustainable future.

I extend my best wishes for the continued success of “Paryavaran Darpan” in spreading environmental awareness and inspiring collective action towards conservation and sustainability.

Manoj Kumar Agarwal
Chairman-cum-Managing Director
Bharat Coking Coal Limited



Message

It gives me immense pleasure to note that “Paryavaran Darpan” has now reached its 23rd edition, continuing its valuable role as a platform for showcasing BCCL’s commitment towards environmental sustainability, ecological restoration, and responsible mining practices. On the occasion of World Environment Day 2026, we reaffirm our commitment to the global campaign focused on climate action under the theme “Inspired by Nature. For Climate. For Our Future.” and the call for collective action through #NowForClimate. The theme highlights the urgent need for sustainable development, ecological resilience, and nature-based solutions to address the growing climate crisis. As a key contributor to India’s energy security, BCCL recognizes that environmental responsibility must go hand-in-hand with industrial growth.

BCCL has strengthened its environmental management through enhanced monitoring systems, pollution-control measures, ecological restoration, community-centric greening initiatives and sustainable mine closure initiatives. Grant of EC for New Moonidih Washery, deployment of CAAQMS, fog cannons, and groundwater monitoring systems reflect the Company’s commitment towards environmentally responsible mining. Eco-restoration parks, Green Credit initiatives, and “Ek Ped Maa Ke Naam” campaigns continue to promote biodiversity, eco-awareness, and sustainable mine reclamation. Further, community development and livelihood planning with the vision of Just Transition is now under implementation.

Let us collectively work towards building a sustainable and environmentally responsible future for the coming generations.

Sanjay Kumar Singh
Director (Technical) Operations,
Bharat Coking Coal Limited



संदेश

मुझे यह जानकर अत्यंत प्रसन्नता हुई कि बीसीसीएल का पर्यावरण विभाग विश्व पर्यावरण दिवस 2026 के अवसर पर अपने न्यूज़लेटर “पर्यावरण दर्पण” का 23वाँ संस्करण जारी करने जा रहा है। इस वर्ष के पर्यावरण दिवस का विषय “Inspired by Nature. For Climate. For Our Future.” हमें प्रकृति के संरक्षण, जलवायु संतुलन तथा आने वाली पीढ़ियों के सुरक्षित भविष्य हेतु सामूहिक प्रयासों की प्रेरणा देता है।

बीसीसीएल सदैव पर्यावरण संरक्षण एवं सतत विकास के प्रति प्रतिबद्ध रहा है। कोयला उत्पादन के साथ-साथ वृक्षारोपण, जल संरक्षण, धूल नियंत्रण, हरित ऊर्जा के उपयोग, अपशिष्ट प्रबंधन तथा जैव विविधता संरक्षण जैसे अनेक प्रयासों के माध्यम से कंपनी पर्यावरणीय संतुलन बनाए रखने हेतु निरंतर कार्य कर रही है। हमारा विश्वास है कि प्रकृति के साथ सामंजस्य स्थापित कर ही हम जलवायु परिवर्तन की चुनौतियों का प्रभावी समाधान कर सकते हैं और भविष्य को सुरक्षित बना सकते हैं।

विश्व पर्यावरण दिवस 2026 हमें यह संकल्प लेने का अवसर प्रदान करता है कि हम प्रकृति से प्रेरणा लेकर पर्यावरण-अनुकूल जीवनशैली अपनाएँ तथा अपने कार्यस्थलों और समाज में जागरूकता फैलाएँ। प्रत्येक व्यक्ति का छोटा प्रयास भी जलवायु संरक्षण और हरित भविष्य की दिशा में महत्वपूर्ण योगदान दे सकता है।

बीसीसीएल अपने सामाजिक दायित्वों का निर्वहन करते हुए पर्यावरण संरक्षण के साथ-साथ सामुदायिक विकास, स्वास्थ्य, शिक्षा तथा आजीविका संवर्धन के क्षेत्र में भी सतत कार्य कर रहा है। कंपनी द्वारा संचालित विभिन्न जनकल्याणकारी योजनाएँ समाज के समग्र विकास के प्रति उसकी प्रतिबद्धता को दर्शाती हैं।

विश्व पर्यावरण दिवस 2026 के अवसर पर मैं पर्यावरण विभाग को उनके सराहनीय प्रयासों तथा “पर्यावरण दर्पण” के 23वें संस्करण के प्रकाशन हेतु हार्दिक बधाई एवं शुभकामनाएँ देता हूँ। मुझे विश्वास है कि यह प्रकाशन पर्यावरण जागरूकता बढ़ाने और प्रकृति एवं जलवायु संरक्षण के संदेश को जन-जन तक पहुँचाने में महत्वपूर्ण भूमिका निभाएगा।

मुरली कृष्ण रमैया
निदेशक (मानव संसाधन)
भारत कोकिंग कोल लिमिटेड



Message

World Environment Day is an important occasion that reminds us of our shared responsibility towards protecting and preserving the environment for future generations. The theme for World Environment Day 2026, *"Inspired by Nature. For Climate. For Our Future."*, emphasizes the need to learn from nature and adopt sustainable practices that help address climate challenges while ensuring a better tomorrow.

BCCL as an organization, we recognize that economic growth and environmental stewardship must progress together. Our organization remains committed to promoting sustainability, resource optimization, and a greener future for all. Economic progress achieves true value only when it is balanced with ecological preservation and social responsibility.

In the journey of protecting our beautiful environment, I would like to quote, "The efforts we invest today will shape a healthier, more vibrant planet for generations to come."

I congratulate, Environment department for taking initiatives for sustainable development in coal mines Areas of BCCL and release of the 23rd issue of its newsletter "Paryavaran Darpan" on the occasion of World Environment Day-2026 which bring awareness among the stakeholders of coal mining about the Environmental issues and developments.

On behalf of Team Finance, BCCL, I extend my best wishes to all on the occasion of World Environment Day-2026 and appeal to every stakeholder to actively contribute towards building a greener and more sustainable future.

Rajesh Kumar
Director (Finance)
Bharat Coking Coal Limited



Message

“Paryavaran Darpan” continues to reflect BCCL’s evolving journey towards sustainable and responsible mining. I am pleased to note the release of its 23rd edition on the occasion of World Environment Day 2026. This year’s global theme, “Inspired by Nature. For Climate. For Our Future.”, reminds us that climate action and ecological stewardship must become integral to every sphere of development. The global call for #NowForClimate reinforces the urgency to act collectively for a resilient future.

At BCCL, environmental sustainability is no longer limited to compliance—it is becoming a core part of our operational vision. During FY 2025-26, significant progress has been made in strengthening environmental monitoring systems, expanding afforestation and ecological restoration works, enhancing dust suppression infrastructure, implementing mine closure activities, and promoting community-oriented green initiatives. Our eco-parks, biological reclamation projects, groundwater monitoring systems, plantation drives, and adoption of modern pollution-control measures demonstrate BCCL’s commitment towards balancing energy security with environmental responsibility while steadily reducing its carbon footprint and supporting the principles of a just transition towards a sustainable future. The enthusiastic participation of employees, students, local communities, and stakeholders in campaigns like “Ek Ped Maa Ke Naam” and “Vriksharopan Abhiyan” reflects a growing collective awareness towards sustainability.

The path ahead demands innovation, accountability, and continuous environmental consciousness. I congratulate the Environment Department and all associated teams for their dedicated efforts and for bringing out another meaningful edition of “Paryavaran Darpan”.

Let us continue working together to build a cleaner, greener, and climate-resilient future.

Rajeev Kumar Sinha
Director (Technical) - Projects & Planning
Bharat Coking Coal Limited



Message

World Environment Day serves as a global reminder of our shared responsibility towards protecting and preserving the environment for future generations. It inspires governments, industries, institutions, and individuals to work collectively towards building a cleaner, greener, and more sustainable future.

The theme for World Environment Day 2026, “Inspired by Nature. For Climate. For Our Future.”, emphasizes the importance of adopting sustainable practices and learning from nature to address the challenges of climate change. It reminds us of our collective duty to conserve natural resources, restore ecological balance, and promote environmentally responsible development.

As one of the leading coal producing companies in the country, Bharat Coking Coal Limited (BCCL) remains committed to integrating environmental sustainability into its operations. The company has undertaken several initiatives such as afforestation and green belt development, reclamation of mined-out areas, scientific overburden dump management, dust suppression measures, water conservation, and continuous environmental monitoring. These efforts reflect BCCL’s commitment to responsible mining and environmental protection.

Environmental protection is not only a statutory obligation but also a moral responsibility. Sustainable development can be achieved only when economic growth is balanced with ecological preservation and social responsibility. In this regard, transparency, accountability, ethical governance, and collective participation play an important role in strengthening environmental stewardship across all levels of the organization.

On this occasion of World Environment Day 2026, let us reaffirm our commitment towards protecting nature and building a sustainable future for generations to come. I appreciate the efforts of the Environment Department, BCCL, in bringing out the 23rd Edition of “Paryavaran Darpan” and conveying important environmental messages through this publication. I extend my best wishes for the continued success of their initiatives in promoting environmental awareness and sustainability.

Deepti Patel
Chief Vigilance Officer
Bharat Coking Coal Limited

A PEEK INSIDE....

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संपादकीय

विश्व पर्यावरण दिवस केवल एक औपचारिक आयोजन नहीं, बल्कि प्रकृति एवं समाज के मध्य संतुलन स्थापित करने का सामूहिक संकल्प है। वर्तमान समय में जलवायु परिवर्तन सम्पूर्ण विश्व के समक्ष एक गंभीर चुनौती बनकर उभरा है। बढ़ता वैश्विक तापमान, अनियमित वर्षा, जल संकट, जैव विविधता में कमी तथा पर्यावरणीय असंतुलन यह संकेत देते हैं कि विकास एवं पर्यावरण संरक्षण के मध्य संतुलन स्थापित करना समय की सबसे बड़ी आवश्यकता है।

भारत जैसे विकासशील राष्ट्र के लिए ऊर्जा सुरक्षा, औद्योगिक विकास एवं आधारभूत संरचना का विस्तार अत्यंत आवश्यक है। कोयला क्षेत्र देश की आर्थिक प्रगति एवं ऊर्जा आवश्यकता का महत्वपूर्ण आधार रहा है। परंतु इसके साथ पर्यावरणीय दायित्वों का निर्वहन भी उतना ही आवश्यक है। आज आवश्यकता इस बात की है कि विकास की प्रक्रिया प्रकृति के संरक्षण के साथ आगे बढ़े तथा प्राकृतिक संसाधनों का विवेकपूर्ण एवं वैज्ञानिक उपयोग सुनिश्चित किया जाए।

भारत सरकार द्वारा सतत विकास, हरित ऊर्जा, कार्बन उत्सर्जन में कमी तथा पर्यावरण संरक्षण की दिशा में अनेक महत्वपूर्ण पहलें की जा रही हैं। LIFE - Lifestyle for Environment जैसे अभियान जनभागीदारी को प्रोत्साहित करते हुए पर्यावरणीय चेतना को नई दिशा प्रदान कर रहे हैं। इसी क्रम में औद्योगिक संस्थानों की भूमिका और अधिक महत्वपूर्ण हो जाती है।

भारत कोकिंग कोल लिमिटेड एक जिम्मेदार सार्वजनिक उपक्रम के रूप में ऊर्जा उत्पादन एवं पर्यावरण संरक्षण के मध्य संतुलन स्थापित करने हेतु निरंतर प्रयासरत है। खनन क्षेत्रों में वृक्षारोपण, ओ.बी. डम्प का हरित विकास, धूल नियंत्रण हेतु फॉग कैनन एवं मिस्ट स्प्रेण्डर का उपयोग, वर्षा जल संचयन तथा खदान जल प्रबंधन जैसी अनेक पहलें पर्यावरणीय उत्तरदायित्व के प्रति हमारी प्रतिबद्धता को दर्शाती हैं। पारिस्थितिक पुनर्स्थापन के माध्यम से खनन प्रभावित क्षेत्रों को पुनः हरित एवं उपयोगी बनाने की दिशा में निरंतर कार्य किया जा रहा है।

पर्यावरण संरक्षण केवल नीतियों अथवा संस्थानों की जिम्मेदारी नहीं है; यह प्रत्येक नागरिक का नैतिक दायित्व है। छोटे-छोटे प्रयास - जैसे जल संरक्षण, वृक्षारोपण, ऊर्जा बचत एवं प्लास्टिक उपयोग में कमी, भी बड़े परिवर्तन का आधार बन सकते हैं।

आइए, विश्व पर्यावरण दिवस के अवसर पर हम सभी प्रकृति संरक्षण, सतत विकास एवं स्वच्छ भविष्य के निर्माण हेतु सामूहिक संकल्प लें। यही आने वाली पीढ़ियों के प्रति हमारी सच्ची जिम्मेदारी होगी।

आइये, हम सभी मिलकर जल, जंगल एवं भूमि के संरक्षण का संकल्प लें तथा आने वाली पीढ़ियों के लिए हरित एवं सुरक्षित भविष्य का निर्माण करें।

**शुभकामनाओं सहित
प्रधान संपादक**

Greening Initiatives by BCCL

Bharat Coking Coal Limited, while fulfilling the nation's energy requirements, remains committed toward environmental protection and sustainable development through various greening and ecological restoration initiatives. Recognizing the importance of environmental conservation in mining regions, BCCL has undertaken extensive afforestation, biological reclamation, and ecological restoration programmes within as well as outside its leasehold areas.

Till the financial year 2025-26, BCCL has carried out biological reclamation over an area of 1646.54 hectares within its leasehold, comprising plantation of approximately 35,09,949 saplings, including 36,044 gabion plantations. These reclamation activities have significantly contributed toward the restoration of degraded mining landscapes, stabilization of overburden dumps, and improvement of the local environment.



Afforestation site at Barora Area

In addition to plantation activities within mining lease areas, BCCL has also undertaken plantation over 172 hectares of degraded forest land in the Dhanbad Forest Division outside its leasehold areas. Avenue plantation comprising 10,474 saplings has been carried out along National Highways, roads, and transportation routes to enhance roadside greenery and improve environmental aesthetics.



Afforestation site at Govindpur Area

Under the Green Credit Programme initiated by the MoEF&CC, BCCL has actively participated by undertaking plantation activities over 67 hectares of land in the states of Bihar and Jharkhand. These efforts reflect the organization's commitment toward supporting national initiatives aimed at increasing green cover and ecological sustainability.

During the financial year 2025-26, plantation activities were undertaken over an area of 112.75 hectares, which included 9.15 hectares of plantation within leasehold areas including gabion plantation, 100 hectares of plantation over degraded forest land, and 3.6 hectares of gabion plantation outside leasehold areas along roadsides. These initiatives have played an important role in improving green cover, reducing dust pollution, and promoting ecological balance in mining-affected regions.

Apart from afforestation activities, BCCL has also carried out grassing over 20 hectares of temporary overburden dumps for slope stabilization and prevention of dust generation. Such measures help in controlling soil erosion, stabilizing mine dumps, and improving environmental conditions in operational areas.

Further strengthening its commitment under the Green Credit Programme, BCCL has taken up plantation activities over two land parcels covering a total area of 17 hectares at Giridih, Jharkhand during the year 2025-26, at an estimated cost of ₹2.09 crore. These initiatives demonstrate BCCL's continued efforts toward environmental restoration, sustainable mining, and creation of greener landscapes for future generations.

In addition to afforestation and biological reclamation activities, BCCL has also undertaken the development of eco-parks over reclaimed mined-out areas and overburden dump sites with the objective of restoring ecological balance and strengthening community engagement in mining regions. These eco-parks have transformed previously degraded landscapes into green recreational spaces, promoting environmental awareness and providing aesthetic and ecological benefits to the local communities residing near mining areas.



Parasnath Udyaan, AKWMC, Katras



Several eco-parks developed by BCCL have gained popularity among local residents, including Vrindavan Eco Park in Kusunda Area, Parasnath Udyan in Katras Area, Govardhan Eco Park and Netaji Subhash Chandra Bose Eco Park at Kuya in Bastacolla Area. In addition, Panchvati Eco Park at Koyla Nagar has emerged as an important green space promoting environmental consciousness and community participation.

Further expanding its greening initiatives, BCCL has developed two new eco-parks during the financial year 2025-26 at New Akashkinari in Govindpur Area and Moonidih in WJ Area. These initiatives reflect BCCL's continuous efforts toward ecological restoration, enhancement of green cover, and development of sustainable community-oriented environmental infrastructure in mining-affected regions.



Vrindavan Eco- park, GKKC Kusunda Area



Netaji Subhash Chandra Bose Eco-Park, Moonidih, WJ Area





Govardhan Eco-park, Bera, Bastacolla Area



Netaji Subhash Chandra Bose Eco-Park, New Akashkinari, Govindpur Area



From Black Earth to Green Horizons: Reimagining Coal Mining in the Era of Climate Change

World Environment Day serves as a reminder that environmental protection is no longer a matter of choice; it is a collective responsibility. Across the globe, nations are grappling with the realities of climate change—rising temperatures, erratic rainfall, shrinking biodiversity, and increasing environmental degradation. In this evolving scenario, industries traditionally associated with environmental impacts, particularly coal mining, stand at a critical crossroads. The challenge before us is not merely to extract resources for development, but to redefine how development itself is pursued.

Coal has long been the backbone of India's energy security and industrial growth. It has powered homes, industries, railways, and economic expansion for decades. Yet, the environmental concerns associated with mining activities cannot be overlooked. Land degradation, dust pollution, subsidence, deforestation, and greenhouse gas emissions have emerged as serious concerns in the larger context of climate change. As environmental awareness grows, the mining sector is increasingly expected to balance economic necessity with ecological responsibility.

However, the narrative surrounding coal mining is gradually changing. Modern mining practices are now placing greater emphasis on sustainability, scientific reclamation, and ecological restoration. Environmental management has evolved from being a regulatory obligation to becoming an integral component of responsible mining operations. This transformation reflects a growing recognition that industrial progress and environmental stewardship must go hand in hand.

In this context, Bharat Coking Coal Limited (BCCL) has undertaken several initiatives aimed at minimizing environmental impacts and restoring ecological balance in mining areas. Afforestation drives, plantation over reclaimed mine lands, dust suppression systems, rainwater harvesting structures, mine water treatment, avenue plantations, and scientific mine closure practices are contributing toward greener and healthier surroundings. Reclaimed overburden dumps that once appeared barren are gradually being transformed into green belts supporting vegetation and biodiversity.

Ecological restoration is not merely about planting trees; it is about reviving ecosystems, improving soil stability, restoring hydrological balance, and creating sustainable landscapes for future generations. At BCCL, efforts are continuously being made to integrate environmental considerations into operational planning. Such initiatives demonstrate that even in sectors traditionally considered environmentally intensive, meaningful positive change is possible through commitment, innovation, and collective effort.

As a woman working in the field of environmental management within the mining sector, I have personally witnessed the gradual shift in mindset toward sustainability and environmental accountability. The challenges are undoubtedly significant, but so are the opportunities for

transformation. Today, environmental professionals are not only monitoring impacts but also contributing actively toward solutions that align industrial growth with ecological preservation.

The theme of World Environment Day inspires us to rethink our relationship with nature and reaffirm our commitment to sustainable development. Climate change is a global challenge that requires cooperation across governments, industries, institutions, and individuals. Every reclaimed landscape, every planted sapling, and every restored ecosystem becomes a small yet meaningful step toward a more resilient future.

The road ahead demands continuous innovation, stronger environmental governance, and greater public participation. Yet, there is reason for optimism. The growing emphasis on ecological restoration and sustainable mining practices reflects an encouraging transition toward environmental consciousness. With sustained efforts and collective responsibility, it is possible to transform mining landscapes into symbols of regeneration and hope.

The future of development lies not in choosing between industry and environment, but in creating harmony between the two. On this World Environment Day, let us renew our resolve to protect, restore, and nurture the environment—so that progress remains meaningful, inclusive, and sustainable for generations to come.

He who plants a tree plants a hope – Lucy Larcom.



Vaishali Singh
Manager (Env.), BCCL

BCCL's Contribution Towards Financing an Equitable Energy Transition in Jharkhand: From Planning to Implementation

The global discourse on energy transition has increasingly emphasised the importance of ensuring that the shift towards sustainable energy systems remains inclusive, equitable, and socially responsible. For a coal-producing nation like India, where millions depend directly and indirectly on the coal economy, the concept of a “Just Transition” assumes critical importance. In this context, Bharat Coking Coal Limited (BCCL), a subsidiary of Coal India Limited, has emerged as a responsible and forward-looking organisation committed to balancing energy security with environmental stewardship and socio-economic development.

Operating in the historic Jharia Coalfields, BCCL recognises that an equitable energy transition extends far beyond environmental sustainability. It involves safeguarding livelihoods, supporting local communities, creating alternative economic opportunities, and ensuring that development remains inclusive for future generations. Guided by the national vision of Aatmanirbhar Bharat and Viksit Bharat 2047, BCCL continues to integrate sustainability and social transition principles into its operational and strategic framework.

A significant policy development strengthening this vision is the Government of India's notification of Coking Coal as a Critical and Strategic Mineral under the Mines and Minerals (Development and Regulation) Act, 1957. This recognition highlights the strategic importance of domestic coking coal in ensuring supply-chain resilience for the steel sector and supporting the objectives of the National Steel Policy. As one of the country's premier coking coal producers, BCCL plays a pivotal role in supporting India's industrial growth while simultaneously adopting sustainable mining practices.

BCCL has undertaken several initiatives aimed at reducing environmental impacts and promoting ecological restoration. Through scientific mine planning and systematic reclamation measures, the company has successfully carried out biological reclamation over 1646.54 hectares of mined-out land with plantation of more than 35 lakh saplings. Continuing its commitment to environmental conservation, BCCL has planned plantation activities over an additional 117 hectares during FY 2026–27.

The reclaimed areas are also being transformed into eco-parks and eco-mine tourism destinations, creating spaces for community engagement, environmental awareness, and sustainable land utilization. Such initiatives demonstrate how mined landscapes can be repurposed into productive and socially beneficial assets.

To address environmental concerns associated with mining operations, BCCL has deployed advanced dust suppression systems, fog cannons, mechanical sweepers, and Continuous Ambient Air Quality Monitoring Stations (CAAQMS). These measures contribute significantly towards improving air quality management in and around mining areas and ensuring safer working and living conditions for employees and nearby communities.

In alignment with India's clean energy goals, BCCL is also making notable progress in renewable energy development. The company has planned a substantial solar power capacity of 534 MWp as part of its long-term carbon neutrality roadmap. So far, rooftop solar projects with a capacity of 7.97 MW and a 20 MW ground-mounted solar power project have already been installed and commissioned. Additionally, two more ground-mounted solar projects with a combined capacity of 50 MW are planned during FY 2026–27.

BCCL is also promoting resource efficiency through productive utilisation of overburden materials via OB-to-sand initiatives, thereby supporting circular economy principles within mining operations. Another noteworthy contribution is the supply of surplus treated mine water for community use, benefiting more than three lakh people annually in water-stressed areas surrounding the mining regions.

Recognizing that human development lies at the heart of a Just Transition, BCCL has incorporated social sustainability and livelihood generation into its planning process. The Mine Closure Plans prepared in accordance with Government guidelines include provisions for entrepreneurship development, livelihood generation, and welfare initiatives for Project Affected People (PAPs). Furthermore, as per the latest "Guidelines for Preparation of Mining Plan and Mine Closure Plan for Coal and Lignite Blocks – 2025," BCCL has prepared Community Development & Livelihood Plans (CDLPs) focusing on skill development, women empowerment, sanitation, and welfare of vulnerable sections of society.

Importantly, BCCL has also made provisions for the creation of a dedicated corpus fund for Just Transition activities in the event of final mine closure. This corpus is envisioned to support sustained livelihood opportunities and socio-economic rehabilitation in consultation with district administration and stakeholders, thereby ensuring long-term community resilience.

The company's efforts towards skill development and alternative livelihood generation further reinforce its commitment to inclusive growth. BCCL has collaborated with reputed institutions such as CIPET Ranchi, Atal Community Innovation Centre (ACIC), IIT (ISM), and Central Tool Room, Kolkata to provide industry-relevant skill training to local youth and PAPs. Training programmes include mechanical and industrial engineering trades such as CNC machining, turning, milling, and welding, aimed at enhancing employability in diverse sectors.

Special emphasis has also been placed on women empowerment through initiatives designed for Self-Help Group (SHG) women. Training programmes in jute handicraft production are equipping women with practical skills to design and produce bags, mats, decorative items, and utility products, thereby promoting entrepreneurship and financial independence.

In collaboration with Agriculture Technology Management Agency (ATMA), BCCL is also facilitating training programs in mushroom cultivation, beekeeping, vermicomposting, and other sustainable agricultural practices for PAPs and local communities. These initiatives are helping diversify income opportunities beyond mining-dependent livelihoods.

BCCL firmly believes that achieving an equitable energy transition requires collaborative action among government agencies, industries, financial institutions, academia, and local communities. Through its integrated approach encompassing environmental restoration, renewable energy adoption, community welfare, skill development, and sustainable livelihood promotion, BCCL is setting an example of responsible mining and inclusive development.

As India advances towards a cleaner and more sustainable future, BCCL remains committed to ensuring that the journey of energy transition is not only environmentally responsible but also socially equitable and economically inclusive for the people of Jharkhand.



Chirag Chopra
Dy. Mgr. (Env.), BCCL.

Celebration of World Environment Day 2025

The theme for World Environment Day 2025, “Beat Plastic Pollution”, emphasized the urgent need to reduce plastic waste and adopt environmentally responsible alternatives for a cleaner and healthier future.

To strengthen community relations and reaffirm its commitment toward environmental sustainability, Bharat Coking Coal Limited actively celebrated World Environment Day 2025 across its headquarters and different operational areas. The celebrations reflected BCCL’s continued efforts to promote environmental consciousness among employees, stakeholders, and the local community while fostering a greener and more sustainable corporate culture.

As part of the celebrations, a large-scale jute bag distribution programme was organized to encourage the use of eco-friendly alternatives to single-use plastics. The initiative aimed at creating awareness regarding the harmful impacts of plastic pollution and motivating people to adopt sustainable habits in their daily lives.

Plantation drives were also carried out at various locations to promote greenery and ecological balance. Employees, officials, and members of the local community actively participated in the plantation activities, reaffirming their collective commitment toward environmental protection and restoration.



Jute Bottle Bag Distribution at BCCL HQ



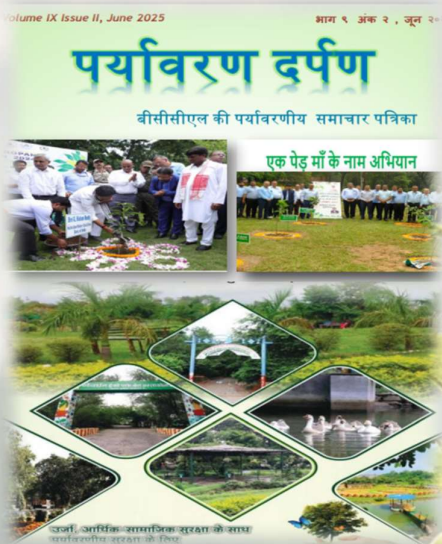
Quiz and Essay competition at BCCL HQ

Various environment-related competitions and awareness programmes were organized to encourage participation and creativity among employees, their family members, and school children. Activities such as quiz competitions, essay writing, and creative events like clay bottle painting helped spread environmental awareness in an engaging and participative manner. These initiatives not only enhanced awareness regarding sustainable living but also inspired individuals, especially younger generations, to contribute actively toward environmental conservation.



Workshop on 'No Plastic' organized by Environment Department, Lodna Area at VTC

Through these activities, BCCL transformed the observance of World Environment Day into a vibrant movement promoting sustainability, community participation, and environmental responsibility. The celebrations reflected the organization's ongoing commitment toward building a cleaner, greener, and environmentally conscious future.



Release of Paryavarana Darpan on World Environment Day 2025



Sapling plantation on World Environment Day 2025

कोयले की धरती, हरियाली के सपने

पर्यावरण, पर्यावरण, पर्यावरण,
आओ मिलकर रचें नया वातावरण।

धनबाद की धरती आज पुकारे,
आओ मिलकर इसकी हरियाली सँवारे।
कोयले की पहचान के संग ये ठानें,
नए सपनों के पौधे हर राह में लगाएँ।

आज Bharat Coking Coal Limited भी संदेश दे रहा,
हरियाली का दीप हर दिल में जला रहा।
उद्योग के संग ये संकल्प उठाएँ,
स्वच्छ और सुंदर कल मिलकर बनाएँ।

पर्यावरण, पर्यावरण, पर्यावरण,
आओ मिलकर रचें नया वातावरण।

सिर्फ पेड़ों से जीवन नहीं चलता,
सोच से भी इंसान बदलता।
मन में प्रेम और व्यवहार में मिठास हो,
प्रकृति के लिए हर दिल में एहसास हो।

आज धनबाद से एक आवाज़ उठे,
हर घर में हरियाली का दीप जले।
हरियाली सिर्फ धरती पर नहीं,
अपने विचारों में भी उजियारा पले।



**Deepak Kumar, S/o Lt. Obin Rawani
General Assistant, AMP Colliery,
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दामोदर की अमर कहानी

दामोदर मैं क्या बतलाऊं तेरी अमर कहानी रे।
हमने तुझको बहुत सताया किया बहुत मनमानी रे।

तेरे घाट पर खेला कूदा तुझमें मकर स्नान किया।
तेरे किनारे फले फल से कलेवा और जलपान किया।
तेरे गोद में बचपन बीता अब गुजरे जवानी रे।
दामोदर मैं क्या बतलाऊं तेरी अमर कहानी रे।

तुझमें पावन हो भक्तों ने मंदिरों की सीढ़ी चढ़ा।
तेरे जल में वजू बनाकर बरसो हमने नमाज पढ़ा
तुझसे जन्म मरण का रिश्ता तू युग युग का वरदानी रे।
दामोदर मैं क्या बतलाऊं तेरी अमर कहानी रे।
हमने तुझको बहुत सताया किया बहुत मनमानी रे

तू दया का सागर तूने हम सब का श्रृंगार किया।
और हम ठहरे दुष्ट मानव मिलकर तेरा संहार किया।
तेरा नहीं कोई चाहने वाला सोचकर होता हैरानी रे।
दामोदर मैं क्या बतलाऊं तेरी अमर कहानी रे।
हमने तुझको बहुत सताया किया बहुत मनमानी रे।

तेरी संस्कृति अनोखी और तेरा सभ्यता निराला।
तेरी तैरती मछलियों से हमने आजीविका संभाला।
तू है लाजवाब हमारा तेरा नहीं कोई सानी रे।
दामोदर मैं क्या बतलाऊं तेरी अमर कहानी रे।
हमने तुझको बहुत सताया किया बहुत मनमानी रे।

नईम एजाज (धनबाद)

Harnessing Coal Mine Fire and OB Dump Linked Microbial Resources for Enhanced Ecosystem Recovery

Introduction

Coal mining plays a vital role in supporting industrial development, energy security, and economic growth in India. Despite its socioeconomic significance, extensive coal extraction has resulted in severe environmental degradation, particularly in mining-intensive regions. Traditional mine reclamation approaches primarily rely on engineering-based interventions, such as topsoil application, and plantation. Although these methods are essential, they are often expensive, time-intensive, and only partially effective due to the absence of active soil microbial communities required for nutrient cycling, organic matter decomposition, and root development. Therefore, there is an increasing need for sustainable, biologically driven reclamation strategies that restore soil functionality from the microbial level upward.

Exploration of Functional Microorganisms and Extremophiles

A major objective of this investigation is to isolate, screen, and characterize nutrient-recycling microorganisms from coal-mining areas and adjacent forest ecosystems. The study primarily focuses on functional microorganisms involved in nitrogen cycling, including ammonia-producing and ammonia-oxidizing bacteria, phosphorus solubilization, sulphur oxidation and pH regulation, carbon sequestration and organic matter accumulation, and indole acetic acid (IAA) production for enhanced root development and plant growth promotion.

In addition to nutrient-recycling microorganisms, the study also investigates extremophilic microorganisms isolated from coal mine fire zones and overburden dumps. These environments are characterized by elevated temperatures, toxic gaseous emissions, and metal-rich substrates that impose severe selective pressures on microbial communities. Such harsh environmental conditions favour the survival of highly stress-tolerant microorganisms possessing unique physiological and metabolic adaptations.

Study Area and Sampling Strategy

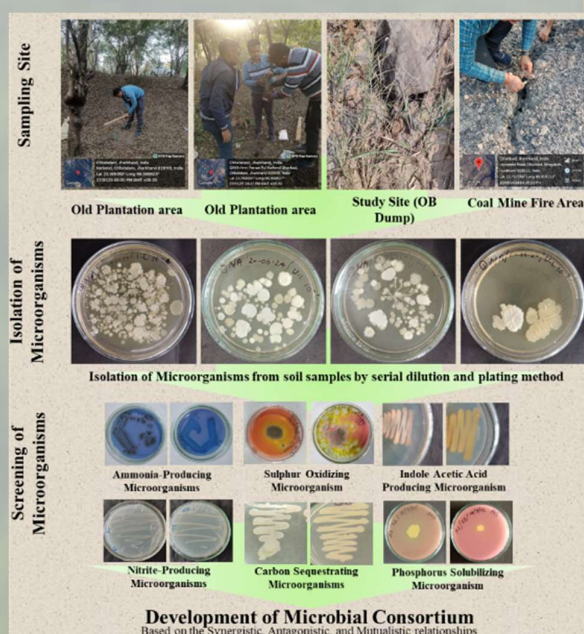
The study was conducted at Gopalichak Colliery situated in the Pootkee–Balihari region of Bharat Coking Coal Limited (BCCL), India. Soil and microbial samples were collected from four ecologically distinct locations, including an active overburden dump opposite Nehru Park, a coal mine fire-affected zone, a freshly reclaimed mine site, and an old plantation site located approximately five kilometres away from the mining area. These sites represented different stages of ecological degradation and reclamation, enabling comparative assessment of microbial diversity and soil characteristics across the reclamation gradient.

A total of 36 samples were collected from nine sampling locations at four depth intervals within the 0–20 cm soil profile. Microbial isolation and culturing resulted in the recovery of 131 microbial species from the collected samples, reflecting substantial variation in microbial diversity among the different study sites. The active overburden dump yielded 34 microbial species, while the freshly reclaimed site showed 28 species. In contrast, the old plantation site exhibited the highest microbial diversity with 69 species. The progressive increase in microbial diversity from degraded to reclaimed sites indicates gradual ecological stabilization and enrichment of soil microbial communities with increasing reclamation age and vegetation development.

Microbial Characterization and Consortium Development

The isolated microorganisms were subjected to extensive qualitative and quantitative screening based on their ecological functions and physiological characteristics. Various biochemical assays were performed to evaluate their functional attributes, including nutrient recycling potential, plant growth-promoting activities, and stress tolerance capabilities. In addition, 16S rRNA gene sequencing was employed for molecular identification and characterization of microbial diversity, enabling the selection of compatible and functionally efficient strains for the development of a microbial consortium.

Simultaneously, comprehensive physicochemical analyses of the collected soil samples were conducted to assess the environmental conditions influencing microbial distribution and soil fertility. The analyses included evaluation of soil texture, moisture content, bulk density, and porosity, along with measurements of soil pH, electrical conductivity, salinity, and resistivity. Further assessments were carried out for total dissolved solids, total organic carbon content, macro- and micronutrient concentrations, and heavy metal contamination levels.



Comprehensive overview from field sampling to laboratory-based isolation and functional characterization of soil microorganisms, emphasizing their potential role in accelerated post-mining reclamation and soil ecosystem restoration.

Significance and Broader Implications

This research, conducted at the CSIR–Central Institute of Mining and Fuel Research (CIMFR), Dhanbad, by the Environment Management and Sustainability Group, contributes to the development of sustainable and biologically driven mine reclamation technologies. By integrating nutrient-recycling microorganisms with extremophile-derived bioactive compounds, the study proposes an eco-friendly and scalable strategy for accelerating ecological restoration of post-mining landscapes.

Arvind Kumar Mishra, Director, CSIR-CIMFR
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Guardians of Tomorrow: Protecting the Environment Today

The theme “Paryavaran Darpan” reminds us that nature reflects our actions. If we protect the environment, we can ensure a healthy and safe future for coming generations. World Environment Day is celebrated every year on 5th June to spread awareness about the importance of protecting our environment and addressing the issues that cause environmental damage.

Current Challenges: Today, we are facing serious environmental problems such as pollution, global warming, deforestation, and climate change. Also, rising temperatures, irregular rainfall, floods, droughts, and forest fires are becoming common. At the same time, wars like the Russia–Ukraine war and Israel–Hamas conflicts are also harming the environment by increasing pollution, destroying resources and carbon emissions.

Government responsibilities: Key government responsibilities can be:

- i) **Policy Formulation & Implementation:**
 - a) Enact and enforce laws like the Environment Protection Act, 1986 and Forest Conservation Act, 1980.
 - b) Launch missions such as the National Mission for a Green India (2014) to expand forest cover, improve biodiversity, and enhance carbon sequestration.
- ii) **Monitoring & Regulation:**
 - a) Strengthen pollution control boards to monitor air, water, and soil quality.
 - b) Ensure industries comply with emission norms, waste management rules, and energy efficiency standards.
- iii) **Public Awareness & Community Engagement:**
 - a) Celebrate World Environment Day (5th June) and other campaigns to spread awareness.
 - b) Support grassroots movements and incentivize citizen participation in tree plantation, waste reduction, and eco-friendly practices.

Corporate Responsibility: Industries must balance between development and the sustainability. Coal India Ltd. (incl. BCCL), while meeting the nation’s energy needs, is also taking proactive steps such as tree plantation, water conservation, dust control, etc., to minimise environmental impact. These initiatives indicate how corporations can contribute to ecological balance while driving economic growth.

Our Responsibilities: Environmental protection is not merely the responsibility of governments or organizations; it is the duty of every individual. Simple and small actions can make a big difference. Some of the actions, we can follow on daily basis, are given below:

- i) Avoid single-use plastic water bottles, cups, etc.
- ii) Plant, Maintain & Protect trees
- iii) Switch off the electrical Equipment when not in use
- iv) Use public transport or carpool instead of private cars for a single person

- v) Carry cloth or jute bags to market and avoid the plastic bags
- vi) Use digital copies instead of printouts, and if printing is necessary, print on both sides.
- vii) Avoid throwing flammable items near forests.

Protecting the environment is a shared duty where governments, corporations, and individuals must act together. By making conscious choices today, we become true guardians of tomorrow, ensuring a cleaner, safer, and sustainable world for generations to come.



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हरित निर्माण और टिकाऊ सामग्री: एक तकनीकी दृष्टिकोण

पर्यावरण संरक्षण आज की सबसे बड़ी आवश्यकता है। विशेष रूप से निर्माण और बुनियादी ढांचे के विकास में, जहां कार्बन उत्सर्जन और प्राकृतिक संसाधनों का दोहन अधिक होता है, 'हरित निर्माण' (Green Construction) और टिकाऊ सामग्री का उपयोग समय की मांग है।

पारंपरिक सीमेंट का उत्पादन विश्व स्तर पर भारी मात्रा में कार्बन डाइऑक्साइड उत्सर्जन के लिए जिम्मेदार है। आधुनिक इंजीनियरिंग में इसके विकल्प और पूरक के रूप में फ्लाई ऐश (Fly Ash), ग्राउंड ग्रेन्युलेटेड ब्लास्ट फर्नेस स्लैग (GGBS), और सिलिका फ्यूम जैसे औद्योगिक उपोत्पादों का उपयोग तेजी से बढ़ रहा है। इन सामग्रियों को कंक्रीट में मिलाने से न केवल उसकी मजबूती और टिकाऊपन (durability) में वृद्धि होती है, बल्कि निर्माण का कार्बन फुटप्रिंट भी काफी हद तक कम हो जाता है।

इसके अतिरिक्त, ऊर्जा-कुशल इमारतों के डिजाइन में थर्मल इन्सुलेशन (Thermal Insulation) और प्राकृतिक प्रकाश व्यवस्था का तकनीकी एकीकरण आवश्यक है। स्मार्ट और सस्टेनेबल बिल्डिंग्स वह हैं जो अपने जीवनचक्र (lifecycle) में कम से कम ऊर्जा की खपत करें।

सतत विकास का लक्ष्य केवल ढांचा खड़ा करना नहीं है, बल्कि एक ऐसा पारिस्थितिकी तंत्र बनाना है जो प्रकृति के साथ सामंजस्य बिठा सके। नवीन सामग्रियों और आधुनिक तकनीकी दृष्टिकोण को अपनाकर, हम न केवल अपने पर्यावरण को सुरक्षित रख सकते हैं, बल्कि भविष्य के लिए एक मजबूत और हरित बुनियादी ढांचा भी तैयार कर सकते हैं।



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ESG and Climate Change

In today's world, ESG — Environmental, Social, and Governance — has emerged as an important foundation for sustainable development. Issues such as climate change, pollution, deforestation, heatwaves, floods, and industrial emissions are directly affecting both the environment and society. In a diverse country like India, these environmental challenges appear in different forms across different regions.

The rapid growth of digital media and internet usage has made environmental issues a major topic of public discussion. Today, people understand climate change not only through reports and news articles but also through images, posters, infographics, and digital visuals. Visual communication shared over the internet creates a strong impact on public consciousness and plays an important role in spreading environmental awareness.

The “Environmental” aspect of ESG focuses on climate change, carbon emissions, pollution control, and the conservation of natural resources. The “Social” aspect is connected with society, human well-being, public health, and community awareness, while “Governance” emphasizes responsibility, policies, and sustainable management practices. Climate-related visual communication helps people become more sensitive and aware of environmental protection.

Through Distant Viewing methodology and computational techniques, large collections of climate-related images can be analyzed effectively. These analyses reveal that themes such as heat, pollution, water crises, and human suffering dominate digital environmental imagery. Such insights can support ESG-based policymaking and strengthen environmental communication strategies.

To build a greener and more sustainable future, industries, society, and digital media must work together toward environmental protection. An ESG-based approach will not only strengthen environmental sustainability but also ensure a safer and more sustainable future for coming generations.

Liwash Kumar Mahato
Research Scholar

The Promise of the Pines

The emerald forests breathe a timeless grace,
Where winding rivers carve a wild embrace.
The sapphire oceans hum a mystic tune,
While golden seasons dance beneath the moon.
From soaring eagles to the quiet deer,
The poetry of living Earth is here.

But shadows creep across this vivid land,
As fragile balance slips from careless hands.
The weeping glaciers melt into the sea,
A tragic theft of what was meant to be.
Through clouds of smog, the choking valleys sigh,
While fractured woodlands watch the embers fly.
The oceans suffocate on toxic greed,
Will we awaken to the planet's need?

Yet, in the soil, a fierce resilience lies,
A chance to clear the sorrow from the skies.
For unborn children, dreaming pure and bright,
We must step forward, guided by the light.
Let every action be a healing rain,
To make the withered meadows bloom again.
Inspired by nature, let our voices rise,
To plant the promise in tomorrow's eyes.
For climate, for the Earth, for life's design,
Our future hangs upon a silver line.
Rise up, protectors of the green and blue—
The power to restore the world belongs to you.



Ayush Kumar Rai
Class – IX, DPS, Dhanbad
S/O - Sh. Sanjay Kumar Ray
Foreman Electrical, BCCL HQ

आओ मिलकर पेड़ लगाएं

नौतपा के तपे ताप से तपती धरती ।
परिवर्तन ये जलवायु का
जीवन की उन गहराइयों का।

जरा तो सोचें धरती मां का बिन पानी फिर कैसी शाखा।
पेड़ों बिन न जीवन शाखा
बिन हरियाली न जीवन आशा।

रीते होते ताल- तलैया सूखी धरती आए तूफां।
आओ अब हम पेड़ लगाएं
जीवन को खुशहाल बनाएं।

पेड़ों की है छांव निराली जीवन की है राह निराली।
वर्षा के आधार पेड़ हैं
हर जीवन के आधार पेड़ हैं।

घर द्वार हों लता लताएं रंग बिरंगी गहरी लताएं ।
खुशहाली की बगिया लताएं
हर जीवन की खुशियां लताएं।

पेड़ों से बरसेंगे मेघा पेड़ों से हरियाली आभा
हर पंछी फिर चहक उठेंगे
हर चेहरे फिर महक उठेंगे।।



डॉ. शंकरलाल शास्त्री
शास्त्री भवनम् श्रीराम कालोनी
शाहपुरा, जयपुर, राजस्थान

हरित धरा के संदेश

वृक्ष लगा कर हीं करें ,उत्सव की शुरुआत,
पर्यावरण सुरक्षा से ,संकट को दें मात।
सजा लो धरा को आज,फिर ना आएगा कल,
मौत खड़ा है द्वार पर, अब ना मिलेगा पल।
पूछ रहें हैं वन उपवन , क्यों रोता है भुवन,
मुझे काटकर नित्य तुम ,बना रहे हो भवन।
पर्यावरण की रक्षा करो , यही है उत्तम काम
यह देता जीवन हमें, मांगे ना ये दाम ।
अतिवृष्टि अनावृष्टि प्रकोप से, जूझ रहा संसार,
प्रकृति का प्रकोप है ये, अनभिज्ञ है इंसान।
नदियाँ रूठी वन रूठा, रूठ रहा संसार,
भोग विलास के खातिर, छूट रहा परिवार।
एक ऐसा दोहा लिखिए ,जो जग में उत्तम होय,
प्रकृति प्रेम हो सभी में,मनु नफरत ना बोय।
वन संपदा के गोद में, बैठ जाए इंसान,
वैद्य हकीम दूर रहे, खुश रहें भगवान।
गंगा, यमुना, सरस्वती ,ये भारत के ताज,
इन्हें स्वच्छ रखने का प्रण,मानव ले लो आज।
दूषित कर पर्यावरण हम, बताते हैं उत्थान,
प्रकृति में ही जीवन है, मत बन तू अनजान।
बेहाल हुआ है हाल ,प्रकृति पूछे सवाल
अब क्या करोगे मानव? तुम स्वयं बने काल।
गौरैया दिखती नहीं, मोर ,पपीहा दूर,
बिन मौसम बरखा होत,बता किसका कुसूर।
नदी निर्मल है अब शांत, पहाड़ भी है मौन,
मिट्टी का सोंधापन गुण, अब लौटाए कौन।
सांसे ना खरीदेंगे, वृक्ष लगाएंगे हम,
जल संरक्षण करेंगे, होने ना देंगे कम।
अब समय ना गवाईए, यही है समाधान,
पर्यावरण को बचाइए ,तभी बचेगी जान।



पूजा रत्नाकर
लेखिका, समाजसेवी
अध्यक्ष (मैं हूँ धनबाद)

पर्यावरण दर्पण: प्रगति और प्रकृति

जहाँ खदानों की गहराई से, कोयला बाहर आता है,
जिसकी अविरल ऊर्जा से ही, सारा देश जगमगाता है।
पर वक्रत आ गया है कि हम, इस पावन माटी का कर्ज चुकाएँ,
जितना वैभव लें धरती से, उतना ही हम इसे सजाएँ।
तकनीक और पर्यावरण का, ऐसा सुंदर संगम जागे,
तपते कोयलों की वादी में, शीतल मधुर तराना जागे।
आओ संकल्पों की इस आभा को, जन-जन में बिखराएँ,

चलो आज एक कसम हम खाएँ,
प्रगति के संग प्रकृति को सजाएँ।।

अब बंजर ओबी डम्पों पर, पावन हरित वितान तनेगा,
सस्टेनेबल माइनिंग का हर पथ, नव-जीवन का गान बनेगा।
हवा की हर एक साफ़ रवानी, कहती है कि होश सँभालो,
औद्योगिक इस कोलाहल से, प्रकृति का तुम रूप बचा लो।
कल्याणी और सुरसा की ये, पावन धरती मुस्काएगी,
जब कोयले की खुशहाली संग, अपनी हवा शुद्ध हो जाएगी।
इसी शुद्ध दर्पण में अपनी, एक नई छवि को उभरता पाएँ,

चलो आज एक कसम हम खाएँ,
प्रगति के संग प्रकृति को सजाएँ।।

यह सिर्फ़ आज का काम नहीं है, यह तो सदियों का नाता है,
इस माटी को सँवारने वाला ही, सच्चा नायक कहलाता है।
सौर-ऊर्जा की नई लहर से, अब अंधियारों को छँटना होगा,
औद्योगिक विकास के आगे, हर बंजर को अब कटना होगा।
जब हर एक कर्मि अपनी मेहनत से, इस पर्यावरण को सँवारेगा।
हरियाली की घनी चादर से, इस घाटी का रूप निखारेगा,
आओ अपनी इस पावन निष्ठा को, कर्म की राह पर ले जाएँ,

चलो आज एक कसम हम खाएँ,
प्रगति के संग प्रकृति को बचाएँ।।

युग-युग तक यह चक्र चलेगा, पीढ़ी नई दिशा पाएगी,
जब-जब यह दर्पण देखेगी, गौरव से मुस्काएगी।
यह माटी केवल कोयला नहीं, यह तो जीवन का संचय है,
इसके आँचल को हरा रखना ही, हमारी असली विजय है।
प्रगति की ऊँची मीनारों पर, जब नव-विहान लहराएगा,
तब माटी का हर एक ज़र्रा, इस पावन युग को गाएगा।
आओ इस अमर प्रतिज्ञा को, हम अंतस की गहराई में बसाएँ,

चलो आज एक कसम हम खाएँ,
प्रगति के संग प्रकृति को सजाएँ।।

Kaushal Kishore
B.Tech (Civil Engineering Student)
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पर्यावरण संरक्षण और आधुनिक तकनीक : हरित भविष्य की ओर एक कदम

धरती हमें जीवन देती है, इसलिए उसकी रक्षा करना हमारा सबसे बड़ा कर्तव्य है। आज के आधुनिक युग में विज्ञान और तकनीक ने मानव जीवन को सरल बना दिया है, लेकिन बढ़ते औद्योगीकरण, पेड़ों की कटाई और प्रदूषण ने पर्यावरण को गंभीर संकट में डाल दिया है। जंगलों का लगातार कम होना, ग्लोबल वार्मिंग, जल संकट और वायु प्रदूषण आज पूरी दुनिया के लिए चिंता का विषय बन चुके हैं। यदि समय रहते हमने प्रकृति की रक्षा नहीं की, तो आने वाली पीढ़ियों को स्वच्छ और सुरक्षित वातावरण मिलना कठिन हो जाएगा।

पेड़ पृथ्वी का सबसे अनमोल उपहार हैं। वे हमें ऑक्सीजन देते हैं, तापमान को नियंत्रित करते हैं और पर्यावरण का संतुलन बनाए रखते हैं। इसलिए पेड़ों को बचाने के लिए आधुनिक तकनीकों का उपयोग आज अत्यंत आवश्यक हो गया है। वर्तमान समय में Drone Technology के माध्यम से कम समय में हजारों बीज बोए जा रहे हैं। यह तकनीक जंगलों को तेजी से विकसित करने में सहायता कर रही है। इसके अलावा Artificial Intelligence (AI) और Satellite Monitoring की मदद से जंगलों में आग लगने, अवैध कटाई और पेड़ों की बीमारियों का पता पहले ही लगाया जा सकता है।

Smart Irrigation System भी पर्यावरण संरक्षण में महत्वपूर्ण भूमिका निभा रहा है। Sensor आधारित यह तकनीक पेड़ों की आवश्यकता के अनुसार पानी देती है, जिससे पानी की बचत होती है और पौधों की अच्छी वृद्धि होती है। Rainwater Harvesting Technology वर्षा के पानी को संग्रहित कर पेड़ों और खेती के लिए उपयोगी बनाती है। वहीं Solar Energy आधारित water systems बिना बिजली खर्च किए सिंचाई में सहायता करते हैं।

आज Digital Technology भी पेड़ों को बचाने में मदद कर रही है। Online documents, digital books और paperless offices के कारण कागज की मांग कम हो रही है। कागज और प्लास्टिक के अत्यधिक उपयोग से बचकर हम लाखों पेड़ों को कटने से बचा सकते हैं तथा पर्यावरण प्रदूषण को भी कम कर सकते हैं। इसके साथ-साथ लोगों में पर्यावरण के प्रति जागरूकता फैलाना भी बहुत जरूरी है।

हमें केवल तकनीक पर निर्भर नहीं रहना चाहिए, बल्कि अपनी दैनिक आदतों में भी बदलाव लाना चाहिए। प्रत्येक व्यक्ति को वर्ष में कम से कम एक पेड़ अवश्य लगाना चाहिए और उसकी देखभाल करनी चाहिए। स्वच्छ पर्यावरण ही स्वस्थ जीवन की पहचान है। यदि आज हम जागरूक बनेंगे, तभी आने वाला भविष्य सुरक्षित और हरित बन सकेगा।

पर्यावरण केवल प्रकृति नहीं, बल्कि हमारे जीवन का आधार है। यदि हम तकनीक का सही उपयोग करें और प्रकृति के प्रति अपनी जिम्मेदारी समझें, तो हम धरती को फिर से हरा-भरा और सुरक्षित बना सकते हैं। आइए, हम सभी मिलकर पर्यावरण संरक्षण का संकल्प लें और आधुनिक तकनीक के माध्यम से एक स्वच्छ, सुंदर और हरित भविष्य का निर्माण करें।

**Farheen Zeya
Dhanbad**

The Quiet Revolution Happening on Our Rooftop

Consider the areca palm. It sits quietly in the corner of a drawing room in Dhanbad, its fronds catching the afternoon light, largely unnoticed by the family that placed it there a few years ago. It does not beep. It does not send notifications. Yet, silently and persistently, it performs an extraordinary task: helping improve the air around it.

This is a story about small things with surprisingly large consequences.

In our own quarter, what began as a few flower pots on the rooftop gradually evolved into something larger. We started experimenting with seasonal plants, herbs, aloe vera and small vegetables during the pandemic years. Over time, the terrace changed character entirely. The space became cooler during summer afternoons, butterflies began visiting regularly and somehow the house itself felt calmer. Then, almost naturally, some of the plants migrated indoors. A snake plant appeared near the bedroom window. An areca palm occupied a quiet corner of the drawing room.

At first, these seemed like aesthetic choices. But they reflected a deeper shift in how we related to our immediate environment.

In 1989, NASA scientists faced an unusual challenge while studying life-support systems for space stations. Their research, later published as the Interior Landscape Plants for Indoor Air Pollution Abatement study, found that certain plants could help absorb pollutants such as benzene, formaldehyde, xylene, and trichloroethylene from enclosed environments. Plants like spider plants, peace lilies, bamboo palms, and snake plants demonstrated remarkable adaptability in improving indoor spaces.

Now consider what that means for us on the ground.

Modern urban life has quietly moved indoors. We spend most of our time inside offices, vehicles and air-conditioned rooms with limited ventilation. Ironically, indoor air can often be more polluted than outdoor air due to synthetic furniture, paints, cleaning chemicals and suspended dust particles. In industrial and mining regions, fine particulate matter entering homes further compounds the challenge.

The indoor environment, it turns out, is where the pollution battle is increasingly being fought.

Of course, no single potted plant can magically purify an entire room. Critics are correct about that. But perhaps they misunderstand the real significance of indoor and rooftop gardening. The deeper impact is not merely chemical, it is behavioural.

The person who places a snake plant beside a bedroom window, knowing it continues oxygen exchange during the night, begins thinking differently about the environment itself. They become more conscious about sunlight, ventilation, composting, water usage, and waste segregation. Environmental responsibility slowly shifts from being an abstract global concern to something personal and immediate.

That behavioural change matters enormously.

Rooftop gardens, meanwhile, offer practical environmental benefits particularly suited to Indian conditions. During peak summer, exposed concrete rooftops absorb and radiate significant heat throughout the day. Even a modest layer of greenery can naturally reduce rooftop surface temperatures, improve thermal comfort indoors, and reduce dependence on air-conditioning. Kitchen waste can be converted into compost. Rainwater can be reused for gardening. Small terraces become microhabitats for butterflies, sparrows, bees and beneficial insects that urban spaces increasingly struggle to sustain.

At BCCL, environmental stewardship is often discussed in terms of mine reclamation, afforestation drives, eco-restoration, dust suppression systems and sustainable mining practices. These are essential and large-scale interventions. But reclamation, at its deepest level, is also a habit of mind. It is the repeated, daily choice to restore rather than deplete.

That is what the humble indoor plant teaches us.

Not through grand proclamation, but through the patient daily act of watering, observing, tending. The areca palm in the drawing room does not save the planet. But it reminds the person who tends it that coexistence with nature is not a relic of the past.

It is a practice. And it begins, quite literally, at home.

Arijit Chakrabarty
Dy. Manager (PR),
PR Department

MEDIA COVERAGE

पर्यावरण संरक्षण
की दिशा में बीसीसीएल का सतत प्रयास

खनन प्रक्रिया के दौरान धूल नियंत्रण के लिए इस्तेमाल किए जाते हैं

13 ट्रक-माउंटेड तथा 24 ट्रॉली-माउंटेड फॉग कैनन

कोयला भवन, कोयला नगर, धनबाद

Follow BCCLofficial

पर्यावरण संरक्षण के लिए
बीसीसीएल की पहल

बीसीसीएल द्वारा वित्तीय वर्ष 2025-26 में 112.75 हेक्टेयर क्षेत्र में वृक्षारोपण तथा 20 हेक्टेयर ओबी डंप पर हरियाली विकसित करने की दिशा में काम किया जा रहा है।

कोयला भवन, कोयला नगर, धनबाद

Follow BCCLofficial

आज की सोच,
कल की सुरक्षा

हम कार्बन उत्सर्जन कम करने और पर्यावरण-अनुकूल उपाय अपनाने के लिए प्रतिबद्ध हैं।

कार्बन उत्सर्जन में कमी
स्वच्छ ऊर्जा का उपयोग
सतत विकास की प्रतिक्रिया
पर्यावरण की सुरक्षा, समाज के साथ

GOVARDHAN ECO PARK

BEFORE

OLD OB DUMP SPREAD OVER 7.65 HECTARES

AFTER

LOCATION: BERA COLLIERY, BASTACOLLA AREA, BCCL

NOW:

ECO-PARK • MINE TOURISM • CHILDREN'S PARK, FLOWER GARDEN • TEMPLE • FOUNTAIN

- ✓ Livelihood support to 20 local vendors
- ✓ A rejuvenation space for the community with over 20,000 trees
- ✓ Annual footfall: 12,000

कोयला भवन, कोयला नगर, धनबाद

Follow BCCLofficial

Sustainability is the New Strength

BCCL continues to align progress with environmental responsibility for a balanced future.

Vrindavan Eco Park
BCCL's eco restoration initiative

Before

Established over old OB Dump of GKCC Colliery

After

30,000+ Trees,
Panoramic City View

कोयला भवन, कोयला नगर, धनबाद

Follow BCCLofficial

GOVARDHAN ECO PARK

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कोयला भवन, कोयला नगर, धनबाद

Follow BCCLofficial

BCCL IS COMMITTED

TO TURNING MINED-OUT AND DEGRADED LANDS INTO VIBRANT ECO-PARKS THAT NURTURE BIODIVERSITY AND BRING COMMUNITIES CLOSER TO NATURE.

EXISTING ECO-PARKS INCLUDE:

Parasnath Udyaan, Katras Area

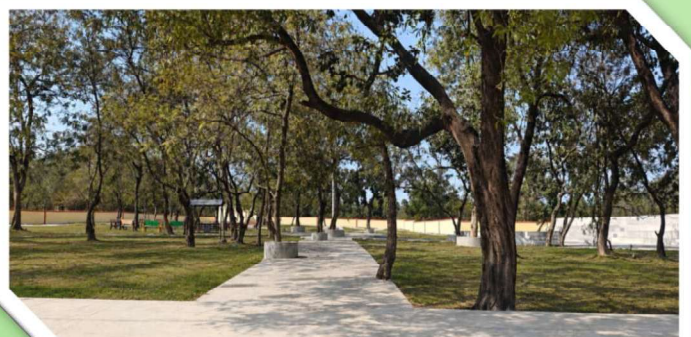


भारत कोकिंग कोल लिमिटेड

एक मिनी रत्न कंपनी

(कोल इंडिया लिमिटेड का एक अंग)

कोयला भवन, कोयलानगर, धनबाद - 826005



Bharat Coking Coal Limited



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