



# PARYAVARAN DARPAN

# पर्यावरण दर्पण

BCCL's Environment Newsletter

बीसीसीएल की पर्यावरण समाचार पत्रिका



World  
Environment  
Day

June 5<sup>th</sup>

**BHARAT COKING COAL LIMITED**

*A Mini Ratna Company*

*A Subsidiary of Coal India Limited*

*Koyla Bhawan, Dhanbad – 826005*





# Environment in news

**Goldman Environmental Prize to Lee Anne Walters, the founder of a citizen's movement that help expose the water crisis in Michiqan**

**Major oceans will have more plastics than fishes by 2050 – Central Marine Fisheries Research Institute, Kochi**

**Himalayas wettest, warmest on record in recent decades- Snow & Avalanche Study Establishment**

**The Great Pacific Garbage Patch –Plastic dumped in Pacific Ocean is bigger than France, Germany & Spain combined!**

**Bathing in Ganga can expose people to high levels of faecal coliform bacteria – CPCB statistics**

**India most vulnerable to Climate Change among 67 countries – HSBC Report**

**Eggshells of Olive Ridley Turtles found – Versova Beach confirmed as the nesting site!**

**35 countries show solidarity for Paris Climate Agreement!**

**30% of Coral died in catastrophic 2016 Heat Wave in Great Barrier Reef**

## From the CMD's Desk....



I'm happy to learn that the environment department of BCCL is going to release the combined 10<sup>th</sup> edition of its newsletter "PARYAVARAN DARPAN" on the occasion of the World Environment Day. As we all know that the World Environment Day is the biggest annual event for positive environmental action and takes place every 5<sup>th</sup> June. It is run by the United Nations Environment Programme with the aim to raise global awareness about our environment. India is the global host of 2018 World Environment Day. Indian philosophy and lifestyle has long been rooted in the concept of co-existence with nature. By hosting World Environment Day 2018, the Indian government is accelerating its leadership on an issue of tremendous magnitude.

The central theme for this year is 'Beat Plastic Pollution'. 50% of the plastic we use is single-use or disposable. With 'Beat Plastic Pollution' as the theme for this year's Environment Day, the world is coming together to combat single-use plastic pollution. Plastic is a menace which we have to get rid of. We have to come together and explore sustainable alternatives and urgently reduce the production and excessive use of single-use plastic polluting our environment and threatening human health. Plastic bags takes 500 to 1,000 years to disintegrate, estimate scientists. I urge my colleagues to help in curbing this menace and minimize the use of plastics in your life.



Clean Environment is a necessity, not a luxury. It is our duty to make it available for our future generations. BCCL is committed towards Environment Protection. We have inaugurated two new washeries – Dahibari and Patherdih NLW; and proposal of setting up of new washeries is in pipeline. We are the trendsetter in the field of Eco-Restoration. Our Eco Restoration sites are appreciated by public and media alike. Recently, Hon'ble Secretary (Coal), Government of India dedicated the Eco-Restoration Park at GKKC Colliery, Kusunda Area to the people of Dhanbad. The Eco-Cultural park at Lodna Area is exemplary in terms of Restoring degraded areas and Biodiversity.

BCCL's Environment newsletter published on the occasion of Environment Day is a great way to create awareness about environment. And I give the team of the Environment Department, which is doing great job both in corporate office and at operational area level, my best wishes.

In the end, I want to say one thing - try to plant trees as much as you can. Plant them on your birthdays and anniversaries to make it even more special. Gift your loved ones plants. Minimize the use of Plastic. Save the Nature and nature will save you. Happy Environment Day to all.

**Ajay Kumar Singh**

**Chairman-cum-Managing Director  
Bharat Coking Coal Limited**





## Message

It gives me great pleasure to know that Environment department is going to release its 10<sup>th</sup> issue of newsletter “Paryavaran Darpan” on the occasion of World Environment Day on 5<sup>th</sup> June 2018.

I believe that this newsletter will serve as a window for public awareness and will provide a platform to bring forth the ideas/initiatives to augment the coal production by minimizing the environmental damage to its surroundings.

I congratulate the team members of Environment Department and wish the newsletter a grand success.

**K. S. Rajshekhar**

Director (Finance)  
Bharat Coking Coal Limited



## Message

At BCCL, Coal Production and environment protection goes hand in hand. We have been working dedicatedly for the eco-restoration of Mined out degraded land and every effort is being made to restore the degraded land to its original pre-mining conditions and even better! Publication of Paryavaran Darpan on a regular time scale to create awareness for the protection of our mother earth for the future generation reflects our commitment towards Environment Management.

On the special occasion of World Environment Day, I take this opportunity to request all my fellow colleagues to dedicate themselves completely for protection of the environment. I also congratulate the team of the Environment Department for their endeavour to bring out this Newsletter for creating awareness amongst people.

Environment Department of BCCL is assisting in making Mining areas green. We are moving from black towards green. The efforts of restoring the degraded mined out lands and conserving biodiversity are highly appreciable.

People, nowadays are quite well informed and they understand the role that environment plays in their lives. The successful initiatives of Earth Hour are an example. The environmental issues are now taking the shape of a revolution. We have to understand that the Earth does not merely belong to the Human Beings. It is equally home to all other plants, animals and insects and we need to be considerate towards all the organisms on the Earth. I wish great success to this newsletter.

**Debal Gangopadhyay**

Director (Technical)  
Bharat Coking Coal Limited





## Message

The environment issues in the coal mining sector are quite complex and require multi-disciplinary actions for their fulfilment. The whole fabric of industrialization, economic growth and development is closely interwoven around the environment. Development at the cost of Environment is not acceptable, CIL has an ambitious target of achieving 1 BT of Coal Production by 2020 to meet the demand of the nation. The target of one billion coal production now poses a greater challenge for CIL to protect and safeguard the environment. BCCL have realized the necessity of creating awareness for environment protection. We are also using Social Media to make people aware about the environmental initiatives taken up by us.

I am hopeful that this newsletter will provide a significant platform for sharing the best practices and propagating awareness towards eco-friendly activities. I wish the team of Paryavaran Darpan my best wishes and success for this newsletter.

**N. K. Tripathi**

Director (Technical)  
Bharat Coking Coal Limited



## Message

I am happy to know that the Environment Department is releasing the combined tenth & eleventh issue of its environmental newsletter “Paryavaran Darpan” on the occasion of World Environment Day. It serves as a platform providing opportunity to sensitize people about environment. Mining is an important part for the growth of economy. BCCL is a Public Sector Undertaking engaged in mining of coal and allied activities. Land degradation is considered as an unavoidable by-product of mining. Mining operations have several impacts on the people living in the vicinity of the mines. BCCL is taking all possible measures to ensure that the extraction of coal is not done at the expense of degradation of environmental resources. The conditions to check the environmental damage are being strictly adhered to. Our Eco- Restoration sites are exemplary and one of the best in the country and are appreciated by national as well as international experts. We are also striving to keep BCCL’s colonies and offices Plastic –free.

Sustainable Development is the need of the hour. It is important for us to find a balance between the availability of resources and their utilization. Environment Team is doing a commendable work of creating awareness among people towards Saving the Environment through their newsletter. I congratulate the team members and wish the newsletter "Paryavaran Darpan" a grand success.

**R. S. Mahapatra**

Director (Personnel)  
Bharat Coking Coal Limited



# A PEEK INSIDE....

## Patron

**Shri D. Gangopadhyay**

Director (Tech) Operation

## EDITORIAL TEAM

### Chief Editor

**A.K.Singh**

GM Kusunda

### Dy.Chief Editor

**Dr.EVR Raju**

HOD/ Dy.GM  
Environment Dept

## Members

**Kumar Ranjeev**

Sr. Manager (Min)  
Environment Dept

**Vaishali Singh**

Assistant Manager  
Environment Deptt.

**Pallavi Priya**

Assistant Manager  
Environment Deptt.

Editorial	1-2
BEAT PLASTIC POLLUTION	3-5
पर्यावरण एवं परिवेश	6
प्लास्टिक प्रदूषण समाप्ति एवं सुरक्षात्मक उपाय	7-9
वाटिका	10
Eco – Mining Tourism	11-14
Let's make everyday Environment Day!	15-16
Glimpses of past.....	17-31
कविताएँ	32-33
ENVIRONMENT	34
Environmental Impact of Coal Washeries	35-36
Indoor Air Pollution- The Silent Killer	37-38
विश्व पर्यावरण दिवस, 2018	39-41
Air Pollution and human health	42-45
धरती मेरी माँ	46



The 5<sup>th</sup> Day of June every year is marked as World Environment Day (WED) by United Nation Environment Programme (UNEP). It is the United Nation's principal vehicle for encouraging worldwide awareness and action for the protection of our environment. First held in 1974, it has been a flagship campaign for raising awareness on emerging environmental issues from marine pollution, human overpopulation, and global warming, to sustainable consumption and wildlife crime.

WED has grown to become a global platform for public outreach, with participation from over 143 countries annually. Each World Environment Day is organized around a theme that focuses attention on a particularly pressing environmental concern. Major corporations, NGOs, communities, governments and celebrities worldwide adopt the theme every year to advocate environmental causes. Last year's theme was "Connecting people to Nature". The theme for 2018 is "Beat Plastic Pollution". With this theme for 2018 WED edition, the world is coming together to combat single-use plastic pollution.

Every year the official celebration of World Environment Day takes place in the global host country. This year, this noble cause will be celebrated in our country 'India'. India has exhibited its exemplary global leadership on Environment Protection Issues like climate change earlier, and now will help galvanize greater action on plastics pollution on the occasion of World Environment Day. Plastic Pollution is a global emergency affecting every aspect of our lives. It is polluting the water we drink, the food we eat and even the air we breathe. It is destroying our beaches, oceans and the whole marine eco-system. India will be leading the drive to save our oceans and planet.

Ministry of Environment, Forest and Climate Change (MoEFCC) has shown its enthusiasm in celebrating World Environment Day in all these years. Several competitions such as poster, debate and essay competitions are organised on school levels. Students from all over the country participate in these initiatives contributing to the greater goal of awareness. The Ministry has also instituted a scheme of national awards to encourage identified categories of highly polluting industries and operations to take significant steps for prevention of pollution. These awards are granted each year to units which make significant and measureable contribution towards development and or use of clean technologies, products or practices that prevent pollution and find innovative solutions to environment problems. This year India is hosting the WED celebrations and MoEFCC is introducing various innovative ideas for this grand celebration at Rajpath/India Gate, New Delhi.

World Environment day is celebrated at Coal India Limited Head office every year. The Chairman CIL hoists the Environment Flag and employees pledge to protect environment. Pics of celebration.



BCCL also celebrates World Environment Day every year with full conviction and responsibility. Various competitions are organised for school students and employees on the occasion of WED and the participants and winners are recognised by the CMD and functional directors of the company on the official ceremony on 5<sup>th</sup> June.



launch this 10<sup>th</sup> edition of our Environment Newsletter 'Paryavaran Darpan' on this occasion. This newsletter has proven to be a leader in fulfilling one of the important responsibility of spreading awareness among individuals regarding conservation of Environment.

Oath ceremony, Cleanliness drives, Plantation drives, banners, pamphlets distribution etc. are some of the other campaigns held on the occasion of WED for spreading awareness among the employees and locals about the true significance of this day. This year apart from the above activities, we are going to



Above all, World Environment Day is the "people's day" for doing something to take care of the Earth. That "something" can be focused locally, nationally or globally; it can be a solo action or involve a crowd. Everyone is free to choose. The earth is getting polluted day by day so, we need to protect our environment by conducting many awareness program all over the world. It is our duty to keep our environment clean.

Editorial Team  
Paryavaran Darpan

## BEAT PLASTIC POLLUTION

When Cyclone Ockhi with tidal waves of up to 4.35 metres in height hit Mumbai's beaches on December 5 and 6, Mumbai woke up to heaps of garbage deposits on its beaches. Around 80,000 to 1,00,000 thousand kilograms of garbage out of which most of the waste was plastic washed ashore.

Nature has its own way of returning what we give to her!!!

Mankind has come under its own created menace, dragging along others species to the brink of an expected collapse of ecosystem. Plastics and plastics everywhere!. American nature photographer Justin Hofman took a photograph of a tiny seahorse grasping onto a pink ear bud in murky water. The shot was taken at a reef near Indonesia's Sumbawa Island. It reflects the extent to which we human beings have failed not only out land and air but also the vast oceans.



From being one of the biggest littering items to choking water bodies to threatening marine life, plastic waste is one of the biggest menaces and needs serious attention in the coming year.

A shark washed up ashore on Kovalam beach, in Kerala and post-mortem report revealed almost 50kgs

of plastic in the shark's belly. Incidents like this have ceased to affects us. Going into the facts, roughly, 500 billion plastic bags are used around the world in a year and around 8 million tonnes of plastic is dumped in oceans each year, which comes roughly one truck of waste every minute. Plastic bottles are the biggest contributor in waste piling up as 1 million bottles are bought every minute throughout the world. Fifty per cent of plastic waste is single-use or disposable. Plastic waste contributes to 10 per cent of the total waste generated in the world. Even these statistics have failed to awaken human being from their deep slumber of eco-insensitivity.

Time has come to take proactive measures to rescind this grave peril and the responsibility lies not only with the government but with each one of us. Of course we blame the lack of stringent laws responsible for the irresponsible behaviour of the citizens but we cannot evade the fact that as citizens we have done our best to evade



the duties expected from us. Though the ban on polythene bags below 50 microns in thickness across the country was implemented in 2016, most states have so far failed to enforce it.

Instead of harping on the lack of necessities, if we focus on the availability of opportunities for creating a difference, we will be amazed by our own capabilities. On this World Environment DAY, we should all pledge on the honour of our conscience to “Beat the Plastic Pollution”. Charity begins at Home. We should start at our home by saying NO to plastics used even in insignificant chores of day to day life. We need to adopt the mantra of reuse and recycle in our daily lives. The following easy adoptions will contribute to “BEAT PLASTIC POLLUTION”

- ❖ Just say no to straws
- ❖ Use reusable produce bags for buying vegetables/fruits/grocery
- ❖ Give up gum
- ❖ Buy boxes, not bottles
- ❖ Reuse glass containers
- ❖ Use reusable bottles and cups
- ❖ Don't use plasticware
- ❖ Return reusable containers
- ❖ Recycle
- ❖ Support Plastic Bans
- ❖ Avoid Microbeads
- ❖ Stop buying plastic bottled water. Get a reusable bottle and refill it.

And last but not the least -Make your voice heard! Keep talking to your friends, relatives, and neighbours about plastic pollution and our environment. Use the facts and research you’ve found here to help your community understand the issue, so they can also go plastic free. Only together can we achieve a world free of plastic pollution.



Mariya Ahsan  
Assistant Manager(Env)  
BCCL.

# how to use less plastic

#littlefinfighters

say no to littering -  
pick up your trash



say no to plastic  
bottles



use a reusable  
bottle



use reusable  
shopping bags when  
out



say NO to plastic straws  
and cutlery - use stuff  
you can use more than  
once



## DITCH PLASTIC TODAY

## DITCH PLASTIC TODAY

## पर्यावरण एवं परिवेश

पर्यावरण परिवेश बनाता, प्रेम-राग व द्वेष बनारा ,  
प्रकृति का उपहार पर्यावरण, धरती का श्रृंगार पर्यावरण ;  
झेल रहा हर मार पर्यावरण,  
अब तो जागो हे मनु संतान, स्वर्ग बन रहा क्यों समशान ।  
निर्जन जंगल में भी प्यासा झरना जल से प्यास बुझाता ,  
मानवाधिक समाज में व्यवस्थित जल भी पीने से  
सकुचाता ।  
वायु प्रदूषित, ध्वनि प्रदूषित, जल प्रदूषित,  
कलुषित मानसिकता से दुनियाँ का हर पल प्रदूषित ,  
प्रदूषण दूर भगाना है, हर मानव हो कर्तव्यनिष्ठ ऐसा  
संकल्प जगाना है ।  
स्वच्छ पर्यावरण हर जीवन का आधार है ,  
स्वस्थ मानसिकता के बिना कल्पना भी बेकार है ।  
अनपढ़ किसान तो अच्छे थे नहीं जलाते थे पराली ,  
कच्चे थे नाली-नाले पर दिखती न थी बदहाली ।  
स्वच्छ - स्वच्छ का ढोल बजाते, कराते खजाना खाली ,  
झेल रहे स्वकर्मों का फल, दूजे को देते गाली ।  
करले जितना सोध परीक्षण जुटाले संसाधन हथियार ,  
पल पल भारी पड़ता जग पर प्रदूषण का मार ।

ओजोन की छतरी का छेदा, भेदा समुद्र का सीना ,  
बैठ रहे हैं पर्वत श्रेणी दिखता थीर कोई ना ।  
प्रदूषण के दुष्प्रभाव सब दिखने लगे हैं नंगे ,  
नालों में डुबकी लगाते जपते हर हर गंगे ।  
पर्णकुटी से महलों में आये संतों ने भी रोया ,  
प्रदूषण के दुष्प्रभाव से संत कि गरिमा खोया ।  
हर मानक को ताख पर रखकर करता नर मनमानी ,  
दिन नहीं दूर वह दिखता मुश्किल होगा पीना पानी ।  
गंगा कि महिमा और भूले भगीरथ का कीर्तिमान ,  
छबि जिसकी दुनियाँ में न्यारी, होता नित गुणगान ।  
हर व्यक्ति एक वृक्ष लगायें हरियाली को वापस लायें ,  
जल संरक्षण कि दिशा में अपना भी एक कदम बढ़ायें ।  
पर्यावरण को स्वच्छ बनायें प्रदूषण मुक्त भारत बन जाये ।  
क्यों ना करें साकार ‘ हम सुधरेगे जग सुधरेगा ’ ,  
आज का जब एक पल सुधरेगा, आने वाला कल सुधरेगा ।  
सुरक्षा क्यों हर जीवन माँगे, क्यों ना विचरण करे आजाद ,  
दिखे प्रफुल्लित और अहलाद, पहुँचे जन – जन तक संवाद  
प्रदूषण मुक्त पर्यावरण जिन्दाबाद – जिन्दाबाद ।

भागीरथ कुमार महतो

क्लर्क, सिजुआ क्षेत्र



## प्लास्टिक प्रदूषण समाप्ति एवं सुरक्षात्मक उपाय

तन प्रदूषित, मन प्रदूषित, तो होगा प्रदूषित व्यवहार  
पर्यावरण गर हो प्रदूषित, होगी रोगों की भरमारा।

कहने की आवश्यकता नहीं कि विश्व पर्यावरण दिवस प्रत्येक वर्ष 5 जून को मनाया जाता है, जो कि किसी न किसी महत्वपूर्ण थीम पर आधारित होता है। इस वर्ष का विश्व पर्यावरण दिवस इस अर्थ में और भी अधिक महत्वपूर्ण हो जाता है कि उसकी मेजबानी की कमान भारत को सौंपी गई है जिसका थीम है-“प्लास्टिक प्रदूषण को समाप्त करना” (Beat Plastic Pollution) संयुक्त राष्ट्र पर्यावरण कार्यक्रम (UNEP) के प्रमुख एरिक सोलहिम ने इसकी घोषण की जिसकी पुष्टि केंद्रीय वन एवं पर्यावरण मंत्री डा. हर्षवर्द्धन ने 19 फरवरी 2018 को की है। उल्लेखनीय है कि विगत वर्ष विश्व पर्यावरण दिवस की मेजबानी कनाडा ने की थी।

जलवायु परिवर्तन एवं पर्यावरण आज पूरे विश्व के लिए अत्यंत महत्वपूर्ण मुद्दा बनकर उभरा है। विगत 15-20 वर्षों से दिनों-दिन यह समूचे विश्व का ध्यान आकर्षित कर रहा है तथा पर्यावरण प्रदूषण से उत्पन्न खतरों से निपटने तथा इसके लिए सुरक्षात्मक उपाय सुनिश्चित करने हेतु राष्ट्रीय व अंतर्राष्ट्रीय स्तर पर सम्मेलन व सेमिनार आयोजित किए जा रहे हैं। पर्यावरण का सबसे बड़ा शत्रु वाहनों से निकलने वाला धुआं है जिससे निजात पाने के लिए विगत दिनों पर्यावरण मंत्री डा. हर्षवर्द्धन ने देश के प्रथम विद्युत चार्जिंग सुविधा केंद्र का शुभारंभ किया। समय-समय पर विश्व स्वास्थ्य संगठन, संयुक्त राष्ट्र पर्यावरण विभाग एवं अन्य पर्यावरण जागरूक संस्थाओं द्वारा विभिन्न देशों के पर्यावरण प्रदूषण संबंधी आंकड़े जारी किए जाते हैं जिसमें भारत में प्रदूषण का स्तर काफी उच्च स्तर पर रहता है यानि पर्यावरण प्रदूषण प्रदूषित देशों की सूची में भारत की स्थिति अति शोचनीय रहती है और उसमें भी दिल्ली एवं अन्य महानगरों के आंकड़े तो चौकाने वाले रहते हैं। इसलिए मेरा मानना है कि -

यदि करेंगे नहीं हम पर्यावरण की परवाह ,

तो प्रदूषित वातावरण रोक देगा, हमारी सांसो का प्रवाह।

गत वर्ष दिल्ली सरकार ने वाहनों से होने वाले प्रदूषण से बचाव हेतु औड-इवन नंबरों की गाड़ियों को सप्ताह में तीन-तीन दिन चलाने का प्रयोग शुरू किया था परंतु यह उपाय कारगर साबित नहीं हुआ और दिल्ली सरकार को अपने कदम वापिस खींचने पड़े। दूषित जल, कूड़े- कचरे एवं प्लास्टिक पदार्थों से भी पर्यावरण प्रदूषण का खतरा दिनों-दिन बढ़ता जा रहा है। कल कारखानों से निकलने वाली चिमनियों का धुआं, कोल डस्ट, धान पुआल अलाव इत्यादि से भी वायु-प्रदूषण बढ़ रहा है। वैसे कोल डस्ट नियंत्रण हेतु कोल इंडिया और उसकी सहायक कंपनियों ने जल छिड़काव के अतिरिक्त अनेक सुरक्षात्मक उपाय किए हुए हैं। भारत कोकिंग कोल

लिमिटेड ने ओवन बर्डन(O.B) कोल डंपों(गैर उपयोगी कोयले के जमाव) को इकोलोजिकल रेस्टोरेशन पार्क (Ecological Restoration Parks) के रूप में विकसित करके उसे पर्यावरण प्रदूषण से नियंत्रण के अतिरिक्त पर्यटकीय आकर्षण का केंद्र बनाया हुआ है जिसमें मुख्यतः, इकोलोजिकल गोकुल पार्क(लोदना क्षेत्र), तेतुलमारी एवं निचितपुर पार्क(सिजुआ क्षेत्र), दामोदा, मुराईडीह एवं फुलारीटांड पार्क(बरोड़ा क्षेत्र) तथा गोंदुडीह (कुसुंडा क्षेत्र) धनबाद-झरिया कोयलांचल क्षेत्र में स्थित हैं। अन्य सहायक कंपनियों ने भी इसी तर्ज पर इकोलोजिकल पार्क विकसित किए हुए हैं।



फिलवक्त इस वर्ष के थीम ‘ प्लास्टिक प्रदूषण को समाप्त करने ’ पर चर्चा करते हैं।

आए दिन हम देखते हैं कि पशु मुख्यतः गायें जिसे भारत में ‘गौमाता’ का दर्जा दिया जाता है वे चारे के अभाव में प्लास्टिक एवं उससे बने पदार्थों को खा/निगल जाती हैं जो बाद में हजम न होने के कारण उनकी बीमारी का कारण बन जाता है और अनेक मामलों में तो जानलेवा साबित होता है। सोशल मीडिया पर ऐसे अनेक दृश्य देखने को मिल जाएंगे जहां प्लास्टिक का ढेर कूड़े में पड़ा मिलेगा विशेषतौर पर रेलवे पटरियों के दोनों पार या झुग्गी- झोपड़ियों वाले स्थल पर। ऐसे दृश्य किसी भी विदेशी पर्यटक अथवा पर्यावरण विशेषज्ञ को विचलित करने वाले होते हैं जब हम कूड़े के ढेर में प्लास्टिक का अंबार पड़ा देखते हैं।

वैसे सरकार ने प्लास्टिक थैलियों के प्रयोग पर रोक लगायी हुई है फिर भी दुकानदार लुके-छिपे उसमें ग्राहकों को सामान देते हैं। विडंबना तो यह है कि ग्राहक स्वयं दुकानदार को प्लास्टिक की थैली देने का आग्रह करते हैं। इस पर सरकार को सख्ती से पेश आना होगा। इसकी रोकथाम तथा जागरूकता बढ़ाने के निमित्त निम्नलिखित उपाय किए जा सकते हैं :-

- सर्वप्रथम सरकार प्लास्टिक की थैलियों के प्रयोग व बिक्री पर सख्त-नियम बनाए एवं नियम तोड़ने वालों पर दंडात्मक कार्रवाई करें।
- प्लास्टिक व उससे बने पदार्थों के निर्माण पर यथासंभव रोक लगाई जाए।
- प्लास्टिक थैलियों व पदार्थों के ढेर को मिट्टी में दबा दिया जाए अथवा जलाकर समाप्त कर दिया जाए।
- आम जन में प्लास्टिक थैलियों व पदार्थों का प्रयोग न करने हेतु जागरूकता फैलाई जाए।
- इसके दुष्परिणामों से जनता को अवगत कराने के लिए नुक्कड़ नाटक एवं घर-घर जाकर स्वयं सेवी संस्थाओं, केंद्रीय प्रतिष्ठानों, सरकारी कार्यालयों के वालंटियर्स द्वारा अभियान चलाया जाए।
- प्लास्टिक पदार्थों की समाप्ति से जहां पर्यावरण शुद्ध होगा, प्रदूषण में कमी आएगी वहीं स्वच्छता अभियान को भी बल मिलेगा।
- उच्च शिक्षा में भी पर्यावरण इंजीनियरिंग की शिक्षा को बढ़ावा दिया जाए और प्रत्येक सरकारी तथा गैर सरकारी प्रतिष्ठानों में पर्यावरण विभाग की मौजूदगी सुनिश्चित की जाए।
- पर्यावरण विशेषज्ञों एवं पर्यावरण क्षेत्र में उत्कृष्ट कार्य करने वाले कर्मचारियों/अधिकारियों को समय-समय पर सम्मानित कर प्रोत्साहित किया जाए।

संक्षेप में इतना कहना ही काफी है कि-

प्लास्टिक पर लगा लगाम,  
शुद्ध पर्यावरण को करें सलाम।



राजपाल यादव  
महाप्रबंधक(कार्मिक)  
बी.सी.सी.एल



## वाटिका

चुन्नु-मुन्नु पेड़ लगाना।  
एक फूलवारी तुम बनाना।  
पंछी उड़ कर आएंगे,  
घोसला बनाएंगे।  
तितली उड़ती आएगी।  
रंग बिखेरती जाएगी।  
फूल तुम लगाओ।  
खुशबु तुम फैलाओ।  
लाल, पीले, नीले रंग से,  
फूलवारी सज जायेगी।  
छोटा सा जमीन का एक टुकड़ा,  
अपने नाम कर जाना।  
फल-फूलों का उपहार  
तुम दुनिया को देते जाना।



श्रद्धा प्रसाद  
वरिष्ठ प्रबंधक (सी.पी.)  
वाशरी डिविजन

## Eco – Mining Tourism

The mining activities have been continuously going on for more than 100 years in Jharia Coalfield which is one of the oldest coalfields of India. Dhanbad is called the Coal capital of India. BCCL produces coal in an eco-friendly manner with due regard to safety, conservation and quality and is doing an ambitious project of transforming mined out areas into green ecological restoration sites. This endeavour by BCCL has been widely acclaimed by experts. It is the most appropriate ecologically as well as socio-economically compatible measure, which caters to the needs of local community and brings back the degraded landscape to its original forest cover completely in a period 5-10 years.



**Eco- Cultural Park at Lodna Area**



**Beautiful pathway at Eco-Restoration Park, GKKC,  
Kusunda Area**

During the visit by Sri Piyush Goyal, Hon'ble Minister of Railways and Coal, it was advised to promote Eco-tourism in the coal mining areas. He emphasized on the need to develop the eco-parks and promote the eco-tourism for the benefit of local

people. The establishment of ecology and recreational activities over mined out degraded land would serve the dual purpose - Development of ecotourism in the area as well as Restoration of the degraded mined out land. This not only will put the degraded OB dump to a sustainable use and make it green but also helps in the improvement in the life of the



people living the vicinity. Not to mention the improvement in the aesthetic value!

The development of Eco-Restoration areas is BCCL is exemplary and is appreciated by national as well as international experts. These Eco Restoration sites not only helped in restoration of the ecology over the degraded land but also are developing fast as attraction for the local people for recreational activities. BCCL communicated with different schools and educational institutes in Dhanbad to arrange educational/ ecological tours to these sites to make them aware about how mine reclamation is done and other environmental mitigation measures that BCCL is taking under the “Promotion of Eco- Mining tourism Program”.

More the 400 students from various schools of Dhanbad have visited Eco-Cultural Park, Lodna area and Eco-Restoration Park, GKKC, Kusunda in 2018 along with their teachers. They were amazed to see the lush green ecological restoration site in the midst of mining area.



**Students from Dhanbad Public School watching an OC Mine in Lodna area**



**Students from D.A.V. Public School visiting Eco Restoration Park, GKGC, Kusunda Area**

The students and teachers admitted that their views on Mining being an enemy of environment were changed after visiting this site.

They were astonished to see the beauty of the sites and the efforts for ecological restoration successfully yielding results. Viewing

crops like paddy, wheat, mustard etc. grown in the park was a surprise for them.



Foreign Delegates from SME, USA visited the Eco-Cultural Park at Lodna area and were amazed to see the greenery amongst coal mines.



Eco-Mining tourism is a nice endeavour which helps in community development by providing the sustainable alternate source of livelihood to people living in the vicinity of mines along with an aim to conserve biological diversity, and maintain the sustainable use of resources. This initiative has set a new example of turning a degraded land into an asset for the company, community as well as environment. The degraded land which was earlier of no use to the community is now a source of livelihood, recreation and rejuvenation to them! We are promoting ecotourism in order to make a bridge between development and environment and to generate income as well as employment opportunities for local communities, and conserve biodiversity. Through ecotourism, BCCL aims to volunteer the honourable PM's "Swachh Bharat Abhiyan" program by encouraging environmental Conservation consciousness among visitors and locals by giving them an opportunity to have direct contact with their natural environments.




**Students from D.P.S. visiting Eco Restoration Park, GKKC, Kusunda Area**





**Students from D.A.V. Public School at Lotus Pond, Eco-Cultural Park, Lodna Area**


The Eco-Mining Tourism programme of BCCL was widely appreciated.


  
**DAV PUBLIC SCHOOL**  
KUSUNDA, AREA-VI, BCCL, DHANBAD-828116  
Affiliated to C.B.S.E.Delhi  
Affiliation No. - 3430019 School No. - 08020

Date : 26.12.2017


FEEDBACK REPORT

It was a great pleasure to stay for some time at eco restoration site of Kusunda. Really It is an unbelievable place that on Coal-Dump how forest persist? We enjoyed a lot there. Our students especially of class X learnt a lot about reforestation. There we had seen different types of plants such as Bel, Aswagandha, Sagwan, Kaju, Sheesham, Amrud and many more medicinal plants. People think BCCL as a destroyer but I think they should visit this eco restoration site to change their views. On the contrary it is a protector of environment by creating eco restoration site. We are glad to meet Mr. Raj Kumar, Senior Manager (Mining) who guided us about the eco-restoration.

Teacher Incharge :-  


PRINCIPAL  


MANAGED BY - DAV COLLEGE, MANAGING COMMITTEE, CHITRA GUPTA ROAD, DELHI  
Address - Gauthi More, Kusunda, Dhanbad - 828116 / tel- 03262330025 / e-mail- dav.kusundabyho@gmail.com / web- www.davpublicschool.com

  
**DHANBAD PUBLIC SCHOOL**  
AFFILIATED TO CBSE (10+2)  
AFFILIATION NO. : 3430086  
E-mail- dav.dhanbadpublicschool@gmail.com Website- www.dhanbadpublicschool.com

Ref.:DPS/OG/2018/1036 Date: 20/01/2018


To  
Dr. EVR Raju  
Dy.G.M. (Environment)  
Environment Department  
Koyla Bhawan, Koyla Nagar  
Dhanbad - 826005

Respected Sir

Thank you for providing the students of Dhanbad Public School the opportunity to visit the ecological Restoration Site under UCC at Lodna.

The trip was highly educative and informative as the students discovered the innovative steps taken by BCCL to restore the ecological balance utilizing the abandoned mines of the coal belt.

The school will always look forward to be a part of such educational initiatives taken by BCCL in future.

Yours truly  
  
Mrs. S. Mahajan  
Principa

Location Road P.O. : K.C. Ashrafi, Dhanbad - 826005, JHARKHAND  
☎ 0326 2227161 / 2227162 Fax : 0326 2227035  
120/11, Bhubaneswar Road, Dhanbad - 826005

## Let's make everyday Environment Day!

Environment day is celebrated on 5<sup>th</sup> June every year to raise global awareness about the significance of a healthy environment and to inspire the people across the world for the active participation to save the earth.

The origin of environmental movement traces its roots to the publication of 'Silent Spring' by Rachel Carson in 1962. This book documented the adverse effects of indiscriminate use of pesticides on the environment & brought environmental concerns to the public and was met with fierce opposition from Chemical companies but it resulted in reversal of national pesticide policy and eventually led to nationwide ban on DDT for agricultural uses. This was named as one of the 25 greatest science books of all time by Discover Magazine.

This is a known fact that the collective influence of humans was small before the dawn of the Industrial Revolution. However, advancements in technology occurring since then, have made it possible for us to undertake widespread changes that affect several facets of the environment. The condition of our environment is deteriorating day by day because of industrialization, deforestation, technological development, global warming, pollution, etc. It is very necessary to address these issues in order to control the negative environmental changes.

World Environment Day was first celebrated in 1973, inspired by the United Nations Conference on the Human Environment. This event is celebrated globally as the environmental issues cannot be solved individually by any one country. Also, all of the world is responsible and liable for the deteriorating conditions of Environment, not just one or two countries or institution. The motive of celebrating this day is to join hands for a better tomorrow and understanding the role of sustainable development and eco-friendly development. It is run by the UNEP and its annual celebration is organized by the different host city every year declared by the United Nations. First time it was celebrated in 1974 with the theme of 'Only one Earth'. The host city of this year is India and the theme is 'Beat Plastic Pollution'.



We need to understand that the complexity of nature puts it way beyond our ability to fully understand how it works. It's our prerogative to take measures to mitigate the damage done to environment so far and to prevent more damage from happening. It is said that only good environment produces good society. Annually the prime minister of India, plant tree sapling at his official residence on Environment Day. And to celebrate this day, many schools, universities and other institution do the same and plant tree saplings. Here are few things that we, as responsible citizens can do as our bit on Environment Day:

- Build a little garden. Start with a planting a sapling on every occasion.
- Not just your home garden, Take care of public trees and gardens as well.
- Keep your surroundings clean. Not just your home but the roads around it as well.
- Take public transportation and carpooling whenever possible.
- Say 'NO' to non -reusable plastic products.
- Buy items made from recycled products.
- Adopt the 3R's technique in life - Reusing the most of available resources, Reducing the overuse and Recycle the resources provide by nature.
- And most importantly, make your kids aware about this issue so that they can be the active agents of this campaign in future.

Take a small step every day to save the earth. Let's make everyday Environment day!



Vaishali Singh  
Assistant Manager  
Environment Deptt., BCCL

## *Glimpses of past.....*

*November 2017*



**Environment Department, BCCL  
bagged fifth consecutive prize for  
exemplary Environment  
Management among all the  
subsidiaries on the occasion of CIL  
Foundation Day at Kolkata**

**The ninth edition of Environment  
Newsletter 'Paryavaran Darpan'  
was unveiled on 1<sup>st</sup> November  
2017, CIL Foundation Day  
celebration at Community Hall,  
BCCL, Dhanbad.**





December 2017



**Dignitaries from DIW-German Institute of Economic Research  
& University of Cape Town visited GKKC ecological restoration site on 2<sup>nd</sup> December 2017**



**Sh. Gopal Singh, Former Chairman, Coal India  
Limited doing Plantation at Nehru Complex,  
Koyla Nagar on 6<sup>th</sup> December 2017.**





**Students from D.A.V. Public School visiting Eco Restoration Park, GKKC, Kusunda Area on 21<sup>st</sup> December 2017.**

*January 2018*

**Inauguration of the book on 'Eco-Restoration & Sustainable livelihood – Success Stories' at International Conference in TERI –SAS, New Delhi.**







**Sh. Sushil Kumar, Secretary (Coal), Government of India, dedicated the GKKC Ecological Restoration Park, Kusunda area to the public of Dhanbad on 18<sup>th</sup> January 2018.**



**Sh. Sushil Kumar, Secretary (Coal), Government of India, inaugurated the Dahibari Coal Washery on 19<sup>th</sup> January 2018.**





**Students from Dhanbad Public School visiting Eco Cultural Park, Lodna Area on 14<sup>th</sup> January 2018.**



**Republic Day Celebration at BCCL**





**Students from  
Delhi Public  
School visiting  
GKKC Eco-  
Restoration  
Park, Kusunda  
Area on 30<sup>th</sup>  
January 2018.**

**D(P), BCCL  
paying  
respects to  
Mahatma  
Gandhi on his  
Death  
Anniversary**





February 2018



**Shri. Sushil Kumar, Secretary, Ministry of Coal, Govt. of India chaired a review meeting of Coal India Ltd. at the Headquarters of Central Coalfields Ltd. (CCL) in Ranchi.**



**Training for Trainers was organized in HRD, BCCL on 14<sup>th</sup>-15<sup>th</sup> February 2018 by TERI-SAS for the project – ‘Sustainable Livelihood activities on Reclaimed OC Mines: Technology enabled integrated approach in Indian Coal Sector.’**

March 2018



**Sh. Ajay Kumar Singh,  
CMD, BCCL, was awarded  
with First Prize for  
Rajbhasha  
Implementation by Sh.  
Kiran Rijiju, Union  
Minister of State for  
Home Affairs of India.**

**Shri. Gopal Singh,  
Former Chairman, CIL  
chaired CIL's 55th  
Safety Board meeting  
at its HQ in Kolkata  
on 23<sup>rd</sup> March 2018.  
In which safety &  
occupational health  
issues of CIL & its  
subsidiaries were  
discussed.**







**Shri. Susheel Kumar, Secretary, Ministry of Coal, Government of India, inaugurated Patherdih 5.0 MTPA NLW Coal Washery on 16<sup>th</sup> March 2018.**



**Shri. Susheel Kumar, Secretary, Ministry of Coal, Government of India, laid the foundation stone of 164 Ha Biodiversity-cum-Ecomining Tourism Park at Muraidih in BCCL.**



April 2018



**Former Chairman, CIL paying tribute to Dr. B.R. Ambedkar on 14<sup>th</sup> April 2018, Ambedkar Jayanti at CIL , Kolkata.**



**CMD, BCCL paying tribute to Dr. B.R. Ambedkar on 14<sup>th</sup> April 2018, Ambedkar Jayanti at BCCL, Dhanbad.**





**Public Hearing for Cluster XVII for grant of EC on 27<sup>th</sup> April 2018 at CV Area, BCCL.**







**Proud selected candidates in IIT-JEE(Advanced) through CCL's Laal-Laadli Scheme.**



#### April 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					



**भारत कोकिंग कोल लिमिटेड**  
एक लिस्टेड पब्लिक कंपनी  
(कोल इंडिया लिमिटेड का एक अंग)  
कोयला झारखंड, कोयला नगर, धनबाद-826005



[www.bhil.co.in](http://www.bhil.co.in) Tel:0326 2230028, 2230133-349 BCCL Environment @BCCLIndia



#### June 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30



**भारत कोकिंग कोल लिमिटेड**  
एक लिस्टेड पब्लिक कंपनी  
(कोल इंडिया लिमिटेड का एक अंग)  
कोयला झारखंड, कोयला नगर, धनबाद-826005



[www.bhil.co.in](http://www.bhil.co.in) Tel:0326 2230028, 2230133-349 BCCL Environment @BCCLIndia

**Environment Department, BCCL is showcasing its good work related to Environment through Calendar distribution**

May 2018



**International Labour Day's celebration at CIL, Kolkata**



**International Labour Day's celebration at BCCL, Dhanbad**



**Coal India Ltd. celebrated 'World Day for Safety & Health at Work' at its corporate office in Kolkata.**



**Quality Awareness Drive was organized in BCCL, Dhanbad from 07.05.2018 to 19.05.2018 flagged by CMD, BCCL.**





**For the first time in India in underground mines, suspended-diesel-hydraulic monorail locomotive system has been installed in Moonidih XV Seam Incline No. 1, BCCL as an equipment for man riding and material transport.**



**Canteen inauguration in Koyla Bhawan by CMD, BCCL on 18<sup>th</sup> May 2018.**



## कविताएँ



कुमारी माला

प्रबंधक कार्मिक  
महुदा कोल वाशरी  
पश्चिमी वाशरी जोन,  
महुदा।

हरे-भरे ये पेड़ धरा के  
देखो हैं श्रृंगार  
कभी नहीं कटने दो इनको  
सदा करो इनसे प्यार  
ये ऐसे दोस्त हैं,  
जो केवल देना जानते हैं,  
इनके उपहार को हम फल, छाया और  
शुद्ध हवा के रूप में जानते हैं  
अगर होंगे पेड़ हरे,  
जीवन में खुशियां होगी हरदम,  
दूर रहेगी रोग-बीमारी,  
प्रदूषण भी होगा कम,  
कम होगी ग्लोबल वार्मिंग  
जीवन बन जाएगा चार्मिंग।



आओ संकल्प ले, मिलकर हम  
करेंगे बढ़ते प्रदूषण को कम ।  
अपनायेंगे स्वच्छता हरदम, शुद्ध  
रखेंगे वातावरण।  
ज्यादा पेड़ लगाएंगे।  
सुंदर वातावरण बनाएंगे।  
अगर शुद्ध रहेगा वातावरण।  
सुंदर बन जाएगा जीवन।



पेड़ लगाओ पेड़ बचाओ  
जीवन को हरा-भरा बनाओ  
छाया ये हमको देते हैं  
फल भी हमको देते हैं  
बाढ़ से हमें बचाते हैं  
गर्मी दूर भगाते हैं।  
प्रदूषण से हमें बचाते हैं  
जीवन हमको देते हैं।  
हम भी पेड़ लगाएंगे।  
धरती को हरा-भरा बनायेंगे।



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## ENVIRONMENT

A clean environment is very necessary to live a peaceful and healthy life. An environment is gifted by the nature to nourish the life on the earth. Everything which we use to continue our lives comes under the environment. Our environment plays a very significant role in making possible the existence of healthy life on the earth. Our whole life is dependent on environment. The problem of pollution has become very serious in recent years. The people of the developed nations try to solve these problems. But in India we have not paid attention to it. Our future generations will suffer from the harmful effect of pollution if we do not tackle the problems now. Pollution of all these kinds results from the greed of man for getting more and more money. We must have balanced and planned industrial growth in order to check this pollution. Town and city should be planned carefully. We should plant more and more trees and the cutting down of trees should be stop. Vehicles must use some new techniques so that they may not produce deafening noises. The recent growing concern for the quality of our environment has strengthened the concept of environmental monitoring which requires regular periodical measurement of environment. Environment management aims at the study of the problems and checking pollution so that the environment. Perhaps we should adopt a holistic view of nature we should care of it in the most appropriate manner. Only then can we possibly solve the problem of environment pollution.

Dukhishyam Patra  
Gen. Mazdoor cat-1  
Bhojudih Coal Washery unit (3104)  
EWZ Area.

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## Environmental Impact of Coal Washeries

Industries concerned with extraction and exploitation/ utilization of natural resources pose threat to the ecology and environment of the system. Coal Industry is no different. However, coal is one of the most crucial and important commodity required for the growth of a Country like India, heavily relying on it for the electricity generation and steel making.

### Role of Coal Washing

Coal Washing is the process of removal of impurities from the combustible matter rich in calorific value. It reduces the ultimate requirement of coal/coke per unit of electricity or iron; and thus reduced carbon footprint of the fuel. However, like any other industry, it has its prospects and consequences on the environmental degradation.

### Cause of Concern

Coal Washery is a factory consisting of electric powered heavy machineries involved in size reduction, screening and separation of coal from extraneous matters. If necessary precautions are not taken, it can negatively impact the environment in following manner:-

- (1) Storage and crushing unit in a coal preparation are prone to emission of dust particles in the atmosphere. If necessary dust suppression measures and enclosed operations are not in place, it will result in increased density of particulate matters in the air.
- (2) Coal Washing in India is a wet process with intensive water consumption. Proper water reclamation units such as filtration and thickening of fines and recycling of industrial water for industrial and/or domestic usage through treatment plants is necessary to prevent water losses and pollution of nearby water bodies. Use of petroleum products such as grease and industrial lubricants, hydraulic fluids and fuel oil may seep in and contaminate ground water.
- (3) Noise pollution is unavoidable part of any heavy machinery. Though, by resorting to standard operating procedures, isolating



industrial unit from the population centers and adequate forestation in the vicinity, its effects can be minimized.

### Necessity of Coal Washing

Despite its negative aspects, coal washing essentially helps in minimizing the magnitude of potential environmental degradation from the end utilization industries i.e. Power Plants, Steel Plants, Cement and Sponge Iron Industries.

- (1) It reduces fuel requirement per unit of output by Upgradation of run-off mine coal. Consequently minimizing pollutant emission from combustion of extra fuel.
- (2) Coal fines produced during mining (usually a dry process) and washing process are sold with adequate moisture content (inherent property of the wet processing) to prevent emission of dust particles during transport.
- (3) Further, it improves economics of downstream processes. By cutting down cost of transportation of non-combustibles; handling cost of process rejects such as slag in steel plants and ash in power plant; and consumption of other inputs in the downstream processes it not only minimizes environmental effects but also improves economy of operation.

### Conclusion:

Coal Mining and Utilization is a necessary evil in current scenario; and will continue to remain in demand till capacity for exploitation of alternative sources of energy are developed. However, by resorting to efficiency and standard operating procedures, coal washeries will essentially reduce the environmental of the mining and metallurgical/power industry while keeping its own contribution to the pollution at a minimum.



Pawan Kumar  
Dy. Manager (CP)  
Bhojudih Coal Washery

## **Indoor Air Pollution- The Silent Killer**

Indoor Air Quality (IAQ), as the name suggests, refers to the air quality inside and around a closed structure, house, building etc. It has a significant impact on its occupants with respect to their health and comfort. The degrading of indoor air quality by harmful chemicals and other materials leads to Indoor Air Pollution (IAP). Major indoor pollutants includes Carbon Monoxide, Volatile Organic Compounds (VOCs), Biological Agents (bacteria, fungi, viruses, house dust, microbial VOCs), Asbestos, Organic chemicals, Ozone, PAH (polycyclic aromatic hydrocarbon), Molds, pollens and Particulate Matters. These pollutants are largely emitted from cigarettes, traditional cooking fuel such as cow dung, wood and coal, candles, aerosol sprays, building materials in older homes, poorly maintained air conditioners, printers, humidifiers, insect infestation, pets etc. IAP can be upto 10 times worse than ambient air pollution. This is because, confined areas let the potential pollutants to build up more than that in open spaces. Poorly ventilated homes can have indoor smoke concentrations of respirable particles of more than 100 times the acceptable levels with mostly women and young children being exposed to these extremely high levels. Daily averages of pollutant level emitted indoors often exceed current WHO guidelines and acceptable levels. Some of the minor health risks due to IAP include allergies, headache, cough etc., but the repercussions can also end up in fatal diseases such as lung cancer, asbestosis, bronchitis, asthma etc. Indoor air pollution has been ranked third among risk factors in the report of the Global Burden of Disease.

In 1992, the World Bank designated indoor air pollution as one of the four most critical global environmental problems in the developing countries, mainly due to huge dependency on traditional fuel for cooking. For example, in India, out of 0.2 billion people using fuel for cooking; 49% use firewood; 8.9% cow dung cake; 1.5% coal, lignite, or charcoal; 2.9% kerosene; 28.6% liquefied petroleum gas (LPG); 0.1% electricity; 0.4% biogas; and 0.5% any other means. Among the 70% of the country's rural population, about 80% households rely on biomass fuel making India to



top the list of countries with the largest population lacking access to cleaner fuel for cooking.

Worldwide more than 1 million people die from chronic obstructive pulmonary disease (COPD) annually due to indoor exposure to smoke emitted from cooking, which generally contains a range of health-damaging pollutants, such as fine particles, ultrafine particles, VOCs, RSC (Reduced Sulfur Compounds), carbon monoxide etc. The indoor pollutant that scientists believe may be most harmful to human health is particles,



including fine particles, which are less than 2.5 micrometers in diameter ( $PM_{2.5}$ ), and ultrafine particles, which are smaller than 1 micrometer ( $PM_1$ ), because they can enter the lungs, and the finer ones enter even the bloodstream or other tissues.



Pallavi Priya  
Assistant Manager  
Env't. Department

## विश्व पर्यावरण दिवस, 2018



धवल तैलंग

प्रबंधन प्रशिक्षु

पर्यावरण विभाग

कोल इण्डिया लिमिटेड

कोलकाता

हम विश्व पर्यावरण दिवसों की श्रृंखला में पैतालीसवें पड़ाव पर हैं और हमारा सौभाग्य है कि यह पड़ाव इस बार हमारा ही घर है | यह अवसर है आत्मावलोकन का | हमारा देश जहाँ नदियों, पहाड़ों, वृक्षों की पूजा की जाती है, वहीं ये सभी पूजित अपनी दयनीय परिस्थिति के कारण हम सब की ओर बड़ी उम्मीद से देख रहे हैं और हमारा दायित्व है की हम इसका उपचार करें |

परिस्थिति भयावह है | हमारे चारों तरफ यदि हम तटस्थ होकर देखें और विचार करें तो हमें शायद पर्यावरण की दीनता का बोध हो और अगर किसी कारणवश ना भी हो तब भी इस दुर्भाग्यपूर्ण अवस्था की सत्यता पर लेशमात्र भी प्रभाव नहीं पड़ने वाला | निश्चय हमें करना होगा कि हम अपनी गलतियों से सीखकर आने वाली पीढ़ी को एक बेहतर भविष्य और बेहतर प्रकृति का उपहार देना चाहते हैं या बनावटी अनभिज्ञता का लबादा ओढ़ कर रक्तरंजित भविष्य |

प्रकृति के अतुल्य सौंदर्य की उसकी वर्तमान दुर्दशा से तुलना करती हुई कुछ पंक्तियाँ –

सिंधु का मैं ज्वार हूँ  
आकाश का आकार हूँ  
गंगा के निर्मल नीर पर  
हिमराज का अधिकार हूँ

गहराई हूँ, मैं घाट हूँ  
नदियों का चौड़ा पाट हूँ  
जलधि में गिरि घोलती  
सरिता की चलती बाट हूँ



लोरी सुनाती रात हूँ  
मैं चहचहाती प्रात हूँ  
हूँ जेठ की मैं दोपहर  
सावन की मैं बरसात हूँ

चाँद का मैं दाग हूँ  
ज्वालामुखी की आग हूँ  
अंधड़ हूँ मैं तो  
मैं पवन का गुनगुनाता राग हूँ

मैं करकटों का ढेर हूँ  
कूड़े का मैं अम्बार हूँ  
मैं अवनि पर ही कहीं  
अपघात का आधार हूँ

गंगा में बहती लाश हूँ  
दुर्गन्धमय आकाश हूँ  
स्वर्ग जाने की तेरी चाहत में  
जलता श्वास हूँ

मैं बचबचाती नालियाँ  
मैं माँ को पड़ती गालियाँ  
उसकी लुटी इज्जत हूँ मैं  
और उसपे बजती तालियाँ

मैं कलियुगी व्यापार हूँ  
तुझपे ही अब मैं भार हूँ  
कोने में बैठी सिसकियाँ लेती  
मैं तेरी हार हूँ

अब भी समय है मान जा  
तू हद को अपनी जान जा  
लौट कर वापस नहीं आ पाएगा  
अंगड़ाई भी मेरी, नहीं सह पाएगा

तांडव करूँ  
शिव शक्ति हूँ  
मैं प्रकृति हूँ।





## Air Pollution and human health

The article highlights the issues related to outdoor air pollution and its deleterious impact on human health. It is also an attempt to shed some light on the status of air quality in India and its management, incentives of improving air quality and policy framework pertaining to public health.

India is host to the 2018 World Environment Day celebrations and the significance of the pollution free environment has, hitherto been this important as it is now. One of the most important features of this pollution free environment is the quality of air that we breathe. 14 of the 20 most polluted cities in the world, are in India. Through, this article an attempt has been made to bring forth the association between the quality of outdoor air pollution and the associated health impacts.

Epidemiological time series studies are key to understanding the impacts of outdoor air pollution on human health. Epidemiology is the study of health-event patterns in a society. There are serious risks to health from exposure to PM (particulate matter) and O<sub>3</sub> (ozone) in many cities of developed and developing countries. Several studies done in USA, Europe and many parts of Asia have proved instrumental in establishing a positive correlation between short term exposure to air pollutants (PM<sub>10</sub> , NO<sub>x</sub> , SO<sub>2</sub> ) and increase in daily mortality, higher rates of hospital admissions, increases in emergency room utilization, and exacerbation of chronic respiratory conditions in many parts of the world (WHO 2002).

The status of air quality in India is alarming, to say the least, with the criteria pollutants PM<sub>10</sub> and PM<sub>2.5</sub> (particulates), CO, NO<sub>x</sub> , SO<sub>2</sub> and Ozone posing a grave threat to the public health. The sources of pollution in larger cities tend to be related to transport and related resuspended dust, while industrial, construction and biomass burning are major sources of pollution in secondary cities. The trend of urbanization, rise of disposable income coupled with the lack of amenable mass transport system have led to significant increases in motorization. In Delhi, vehicles have increased 51-one times over a thirty year period. Unbelievably, as much as 17% of the cars in India, run in Delhi alone. It has more cars than the total numbers of cars in the individual states of Maharashtra, Tamil Nadu, Gujarat and West Bengal.

Reducing vehicles for personal use is a complex issue for Indian cities, since motorization is also an economic interest. The problem is further compounded by adulteration of fuel (high sulphur diesel (HSD) and gasoline), non-compliance with vehicular emission technologies and norms, poor inspection and maintenance system, inefficient traffic and congestion management and less appreciation of people regarding the usage of public transport. The efforts of the Government in expediting Bharat Stage VI norms to 2020 should be lauded.

PM<sub>10</sub> levels are showing a decreasing trend but still well above the annual National Ambient Air Quality Standards (NAAQS) and WHO Air Quality Guidelines (AQG). SO<sub>2</sub> levels are

compliant with the annual NAAQS. NO<sub>2</sub> levels are mostly compliant NAAQS (National Ambient Air Quality Standards) and WHO AQG. There is a dire need to generate data for PM<sub>2.5</sub> and O<sub>3</sub> as these pollutants pose most widespread health threats. PM<sub>2.5</sub> and O<sub>3</sub> being more critical from health point of view, more focus should be given on this parameter in future as source apportionment of PM<sub>2.5</sub> is done on limited measurements, its monitoring has just been developed and there is not enough data to assess a trend. Several epidemiological studies have linked PM<sub>10</sub> and especially PM<sub>2.5</sub> with significant health problems. PM<sub>2.5</sub> is of specific concern because it contains a high proportion of toxins, and aerodynamically it can penetrate deeper into the lungs. The smaller they are, deeper they go. Therefore, while planning control strategies greater emphasis is to be given on the reduction of PM<sub>2.5</sub> and toxic constituents of particulates.

The highest concentrations of PM<sub>10</sub> generally reported in Asia. Today's burden of disease associated with air pollution is a function of exposures that have occurred over many years in the past. Policy interventions can be targeted to reduce current exposures and the potential for health events in the future. (WHO 2006)

Even relatively low concentrations of air pollutants have been related to a range of adverse health effects. Chronic exposure to particles contributes to the risk of developing lung cancer, cardiovascular and respiratory diseases. The mortality in cities with high levels of pollution exceeds that observed in relatively cleaner cities by 15–20%. Even in the EU, average life expectancy is 8.6 months lower due to exposure to PM<sub>2.5</sub> produced by human activities. Excessive ozone in the air can have a marked effect on human health. It can cause breathing problems, trigger asthma, reduce lung function and cause lung diseases. In Europe, it is currently one of the air pollutants of most concern. Several European studies have reported that the daily mortality rises by 0.3% and that for heart diseases by 0.4 %, per 10 µg/m<sup>3</sup> increase in ozone exposure.

Epidemiological studies have shown that symptoms of bronchitis in asthmatic children increase in association with long-term exposure to NO<sub>2</sub>. Reduced lung function growth is also linked to NO<sub>2</sub> at concentrations currently measured (or observed) in cities of Europe and North America. A recent study done in Delhi also alludes towards this correlation wherein the lung capacity of school going children have been severely affected. SO<sub>2</sub> can affect the respiratory system and the functions of the lungs, and causes irritation of the eyes. Inflammation of the respiratory tract causes coughing, mucus secretion, aggravation of asthma and chronic bronchitis and makes people more prone to infections of the respiratory tract. Hospital admissions for cardiac disease and mortality increase on days with higher SO<sub>2</sub> levels.



Acute respiratory infections (ARIs) are the most common cause of illness and death in children in the developing world. Short term follow-up and time-series studies suggested that air pollutants act as risk factors for respiratory infection. Air pollution exposure increases the incidence of upper and lower- respiratory infections in children. Children may be at greater risk, given the poor environmental and nutritional conditions prevalent in developing countries.

Developing Asia currently differs from the United States and Europe with regard to energy use, air quality, and population health, which are also dynamically changing. The Indian studies highlight that regional differences in demographics (age structure and general health status of the population) may affect health outcomes of interest. Thus, estimates of the risk of mortality associated with air pollution that are based on even the most carefully executed U.S. studies must be used with appropriate caveats. (HEI 2011)

The epidemiological evidences generated help us in setting the standards or guidelines for criteria pollutants. These are integral in safeguarding public health from respiratory and cardiac ailments, mortality and morbidity. The economic value of work and leisure time lost due to the illness by the patient or the caregiver, the medical cost of treatment, the amount paid to avoid the pain and suffering associated with the illness on quantification provide quite an incentive for conducting the epidemiological studies and setting stringent standards. It has been estimated that the annual economic cost of damage to public health from increased air pollution, based on PM<sub>10</sub> measurements for 50 cities with the total population of 110 million, reached 3 billion USD in 2004.

By reducing particulate matter pollution from 70 to 20 micrograms per cubic metre as set out in the WHO AQG 2005, it is estimated that we can cut deaths by around 15% and by reducing air pollutants concentration at large, the global burden of disease from respiratory infections, heart disease, and lung cancer which the countries would otherwise would be facing, will be lessened. WHO analysed the country profiles of environmental burden of disease wherein, the people were exposed to mean urban PM<sub>10</sub> level of 84 µg/m<sup>3</sup> and it was found that India suffered 120,600 deaths per year and 1.1 DALYs (disability-adjusted life years)/ 1000 cap/ year due to outdoor air pollution.

At present, most routine air quality monitoring systems generate data based on the measurement of PM<sub>10</sub> as opposed to other particulate matter sizes. Consequently, the majority of epidemiological studies use PM<sub>10</sub> as the exposure indicator. The lack of monitoring data of other pollutants sometimes impairs the possibility of identifying the most relevant indicator for different health endpoints. The retrospective studies of the effects of long-term/chronic exposure to air pollution face major challenges owing to the limited availability of key data (assessment of trends in local sources, air pollution levels and

distributions, particle composition, monitoring methods, migration and lifestyle). (WHO 2006)

We need to identify key institutions, key researchers and give them world class training and proper funding for initiating these studies. There is hardly any interface between health studies that have been conducted in India and their influence on the policy. The air quality researchers and health experts need to work more cohesively. Thus, it is imperative the health policy and air quality monitoring program to address the continuing deficits in public health research in order to reduce the very large disease burden in India.

What gets measured, gets managed;  
What gets managed, can be changed.  
If you can't measure it, you can't improve it.  
(Peter Drucker)

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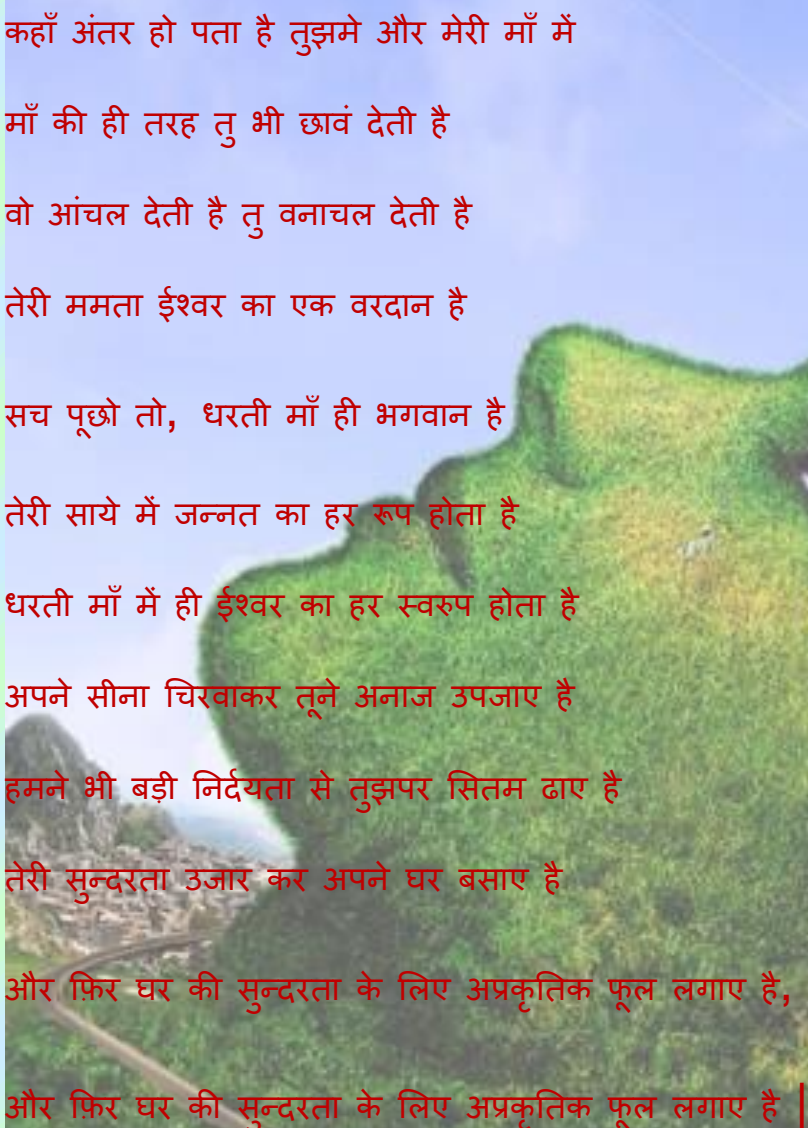
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Amit Sinha  
MT (Environment), BCCL



## धरती मेरी माँ



कहाँ अंतर हो पता है तुझमें और मेरी माँ में  
माँ की ही तरह तु भी छांव देती है  
वो आंचल देती है तु वनाचल देती है  
तेरी ममता ईश्वर का एक वरदान है  
सच पूछो तो, धरती माँ ही भगवान है  
तेरी साये में जन्नत का हर रूप होता है  
धरती माँ में ही ईश्वर का हर स्वरूप होता है  
अपने सीना चिरवाकर तूने अनाज उपजाए है  
हमने भी बड़ी निर्दयता से तुझपर सितम ढाए है  
तेरी सुन्दरता उजार कर अपने घर बसाए है  
और फिर घर की सुन्दरता के लिए अप्रकृतिक फूल लगाए है,  
और फिर घर की सुन्दरता के लिए अप्रकृतिक फूल लगाए है |

सौरभ सुमन

Jr. Chemist

Madhuban Coal Washery,

BLOCK-II, BCCL.

## *Some Plastic Pollution facts*



Every year the world uses 500 billion plastic bags.



Each year, at least 8 million tonnes of plastic end up in the oceans, the equivalent of a full garbage truck every minute.



In the last decade, we produced more plastic than in the whole last century.



50 per cent of the plastic we use is single-use or disposable.

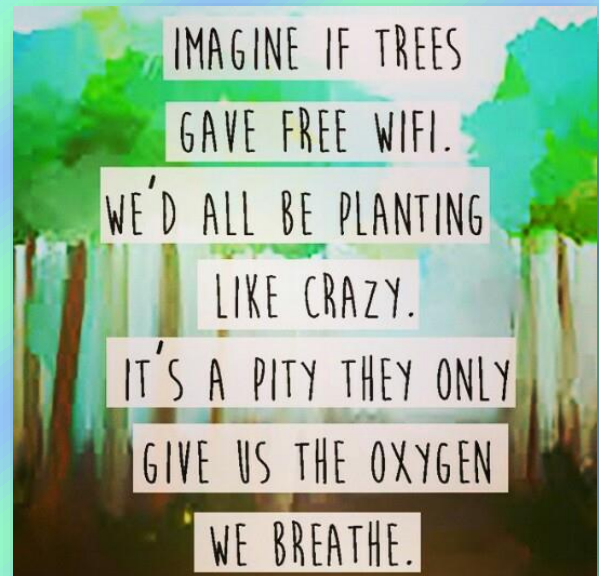
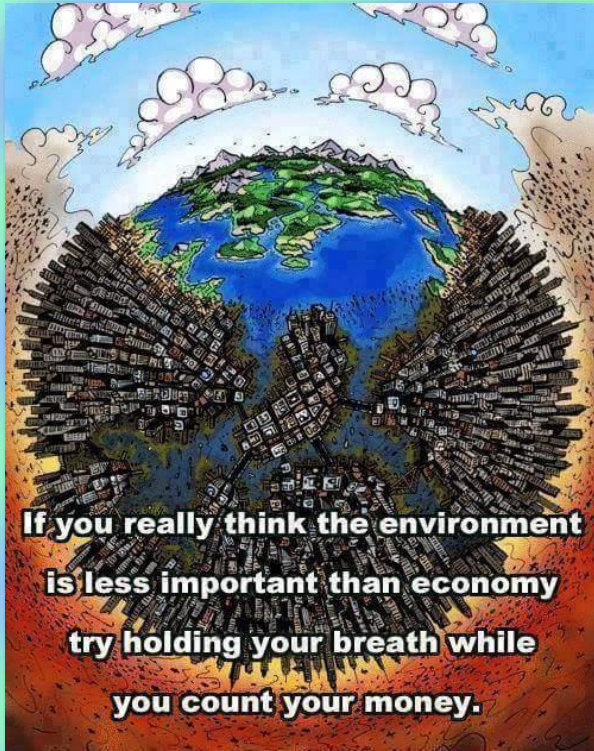


It takes 500-1,000 years for plastic to degrade.



We buy 1 million plastic bottles every minute.





पर्यावरण विभाग  
**भारत कोकिंग कोल लिमिटेड**

एक मिनी रत्न कम्पनी  
(कोल इंडिया लिमिटेड का एक अंग)  
कोयला भवन, धनबाद-826005



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