



पर्यावरण दर्पण

बीसीसीएल की पर्यावरण समाचार पत्रिका

Paryavaran Darpan

BCCL's Environment Newsletter



BHARAT COKING COAL LIMITED

A Mini Ratna Company (A Subsidiary of Coal India Limited)

Koyla Bhawan, Koyla Nagar, Dhanbad-826005

ENVOPEEDIA

NGT bans nylon, synthetic manja--The use of 'Chinese' kite strings, made of nylon or any synthetic material which is non-biodegradable, was banned with immediate effect by the National Green Tribunal on the grounds that it posed threat to life and the environment.

Falling sea level caused volcanoes to overflow-- During the transition to the last ice age approximately 80,000 years ago global temperature declined, while the carbon dioxide content of the atmosphere remained relatively stable. Scientists have now discovered that a falling sea level may have caused enhanced volcanic activity in the ocean.

Impacts of climate change on the ocean--Arctic sea-ice is already completely lost during the summer and that sea temperatures have already risen by more than 2°C. Climate science needs to be effectively communicated to the public so that citizens demand climate action.

National Board for Wildlife clears 18 projects out of 25 projects in some of the most crucial wildlife zones of the country, including five tiger reserves.

Humans turning Earth into Plastic Planet--Humans have created 8.3 billion metric tonnes of plastics since early 1950s, and most of it now resides in landfills or the natural environment. Of that total waste, only 9 per cent was recycled, 12 Of that total waste, only 9 per cent was recycled, 12 percent was incinerated and 79 per cent accumulated in landfills or the natural environment.

NGT bans waste dumping within 500 mts. from Ganga.--In a series of guidelines issued by the National Green Tribunal to check pollution in river Ganga, the tribunal on Thursday directed authorities to impose a penalty of Rs 50,000 on people dumping waste in the river in Haridwar to Unnao stretch. The NGT also declared 100 metres from edge of the river Ganga as 'no-development zone'.



MESSAGE

BCCL family wishes “**A VERY HAPPY INDEPENDENCE DAY**”. The 71st Independence Day will see an illuminated India and BCCL is proud to have played its role in helping India attain this status.

71 years ago we made a tryst with destiny, pledging of dedication to the service of India. Today, India is being looked upon as one of the fastest growing economies and day is not far when India will be counted among one of the Developed Nations.

The coal industry in the last 71 years has its own journey, from private coal mining to nationalized coal mining to environmentally responsible coal mining. The focus has shifted from mining coal to mining coal with environmental sensitivity and societal accountability. BCCL has done substantial ecological restoration of the mined out degraded land. Further, as per Eco-Tourism programme of BCCL, visit of school children are being organized at various ecological restoration sites to create awareness about environment. BCCL is the pioneer coal company to raise grains, sugarcane and fruits on the OB Dump in the GKKC site. This has been possible by the dint of hard labor and determination of our people. The environment protection & conservation activity has drawn appreciation from various quarters. The ecological restoration sites stand testimony to the commitment of BCCL to the environment.

Launching this magazine in the e-form reaffirms BCCL’s allegiance to Environment. One ream of paper requires 6% of a tree. This tree saving initiative taken by Environment Department is truly laudable.

I congratulate Environment Department on the launch of the Eighth issue of “Paryavaran Darpan” in Digital form which justifies the theme of “Save Paper Save Environment Save Earth”.

Once again I extend my warm wishes to all on the eve of 71st Independence Day.

JAI HIND!

GOPAL SINGH
CHAIRMAN CUM MANAGING DIRECTOR
BHARAT COKING COAL LIMITED



MESSAGE

It is a great pleasure to know that the Environment Department is going to release the 8th issue of its quarterly newsletter “Paryavaran Darpan” on the occasion of 71st Independence Day, i.e. 15th August 2017.

The Environment Department is fulfilling one of the most important responsibilities toward the society by spreading awareness for environment and cleanliness through this newsletter. Publishing this newsletter in digital form is yet another step towards green environment, supporting the noble thought of Paperless and Green Offices.

I congratulate the team members of Environment Department and wish this newsletter “Paryavaran Darpan” a grand success.

K S RAJASHEKHAR

**DIRECTOR (FINANCE)
BHARAT COKING COAL LIMITED**



MESSAGE

Sensitivity towards environment is one of the pivotal responsibilities of every industry. Over-population, deforestation, rapid industrialization, globalization and various other human activities are few of the reasons due to which the earth and its environment is becoming loaded with diverse pollutants. Environmental pollution is one of the major threats faced by our planet today. Now days it is very important to look for sustainable development, thinking and acting on this front we should have a balance between the availability of resources and its utilization.

Pollution in India is a big environmental issue which everyone must be aware of, because creating awareness among people can help in reducing the pollution. BCCL has done tremendous work of Ecological Restoration on the OB dumps, an efficient attempt to restore the surrounding environment. Carbon sequestration study of the ecological sites has been conducted and it was proved that our ecological restoration sites will do sufficient carbon sequestration like natural forest in the coming years.

On the eve of 71st Independence Day, I would like to congratulate Environment Department on the launch of eight issue of Paryavaran Darpan in Digital Form which will help in protection and conservation of environment.

HAPPY INDEPENDENCE DAY
JAI HIND!

D. GANGOPADHYAY

DIRECTOR (T) P&P
BHARAT COKING COAL LIMITED

A PEEK INSIDE....

Patron

Shri D. Gangopadhyay
Director Technical (P&P)

EDITORIAL TEAM

Chief Editor

A.K.Singh
GM Safety

Dy.Chief Editor

Dr.EVR Raju
HOD/ Dy.GM
Environment Dept

Members

Kumar Ranjeev
Sr. Manager (Min)
Environment Dept

Adarsh Kumar
Assistant Manager
Environment Dept.t

Pallavi Priya
Management Trainee
Environment Deptt.

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From the *EDITOR* ...

It's a great pleasure to present before you the 8th edition of BCCL's Environment Newsletter *Paryavaran Darpan* on the occasion of 71st Independence Day. *Paryavaran Darpan* will be published in Digital form on BCCL's website from this edition. This is an environment friendly approach in the support of our Prime Minister's vision of paperless offices. In this way we are trying to make a contribution to this *GREEN INITIATIVE*, as the deforestation required to produce paper is a top contributor to carbon emissions and environmental destruction.

Talking about the history of this country, there is enough evidence to show that dense forests once covered India. In the course of our journey, from slavery to independence, from underdeveloped nation to a developing nation and now one of the fastest growing economies; these dense forests were cleared for cultivation, infrastructure developments, spreading railway tracks etc. Over the years, as man progressed the forest began gradually depleting. The growing population and man's dependence on the forest has been mainly responsible for this rapid destruction.

Climate change isn't a hoax. Everyone is witnessing the dramatic change in the climate and increased temperature every year, irregular precipitation over the areas, decreased duration of the winter season and continuous rise in sea level. We keep discussing these problems but are reluctant to take even a tiny step towards the remedy. Everyone is aware of the solution to the upcoming disastrous end. The solution are trees, they are our saviors. Trees act as natural pollution filters by absorbing pollutants through the stomata on the leaf surfaces. They absorb the atmospheric Carbon dioxide, and thus, curb out the main source of Global Warming. Also, planting more and more trees will increase the forest cover which will attract the clouds, and gradually all this will help the nature to restore to its original shape.

Even our ancestors and great rulers like Chandra Gupta Maurya and Samrat Ashoka realized the importance of natural resources, forests and biodiversity and stated rules that wild animals and forests should be preserved and protected, and launched several programs to plant trees on a large scale. Shouldn't we follow their footsteps?

A single tree can absorb CO₂ at a rate of 48 lb/year (21.8 kg/year). Now, suppose if every citizen of India plants even a single tree every year then, we will be having 1.25 billion increased population of trees at the end of the year. And hence 27.25 billion kg (27.25 million tonne) of CO₂ out from the atmosphere. This baby step might indeed change the future of our country.

Our freedom fighters led their lives to get our country free from the British rule. Now it is our turn to fight one of the most challenging issue i.e. Pollution. This independence day, lets us strive to make India free from pollution and pledge to preserve and restore its real wealth i.e. rich natural resources and biodiversity, to call it again a *Sone ki Chiriyaa*.

So, this year on our 71st Independence Day let us come together and take a pledge that, "We will plant a tree every year, because HAR EK PED JARURI HOTA HAI". Tree by tree, we can expand the green cover on Earth and make a significant impact on our planet's health. Together, let's promise to make this world a better place to live in!

With this message Team *Paryavaran Darpan* wishes all our readers

HAPPY INDEPENDENCE DAY!

Jai Hind!

Editorial Team,
Paryavaran Darpan

An Interaction with Shri Manwendra Kumar, *Regional Director, RI-II,* *CMPDI*



One of charismatic officers of CMPDI, Shri Manwendra Kumar, General Manager (Mining), has played an important role in resolving BCCL's environmental issues and challenges. He graduated in Mining Engineering from Indian School of Mines in 1986 and joined CMPDI, RI-III in the same year. He had joined RI-II in the year 1998. We had an opportunity to interact with him, excerpt of which is given below.

Q: CMPDI RI II has been closely associated to BCCL's Environmental issues and Management. Kindly share your experience in association with BCCL.

Ans: Since 1998, I have been working in CMPDI RI II. BCCL and CMPDI RI II has been closely associated in solving various issues whether it be obtaining Environment Clearance (EC) of BCCL mines or formulation of the Master Plan. We have worked together in obtaining EC when all the mines were operating in violation and brought the things back on track. With the passing time, we are getting more and more equipped with research facilities as Environmental Labs which has been established in RI-II and is already functional. The cooperation from BCCL should further continue and together we innovate and implement better mining practices, taking into account the environmental responsibilities.

Q: What were the challenges/major issues you faced in your journey with BCCL?

Ans: BCCL has inherited the century old legacy of unscientific mining. Smaller mines and the burning seams have made the situation worse. We didn't had any baseline to start with as there were no prior mining plan or project reports. The most challenging part was to align the legacy of unplanned and unscientific mining with the current legal frameworks. Every day we are taking a step forward to overcome these challenges.

Q: According to you, what are the future challenges for BCCL and how can BCCL gear up to overcome those challenges?

Ans: Shifting of Dhanbad-Chandrapura line, dismantling and reorganization of numerous railway sidings due to the underneath fire is one of the major challenges currently faced by BCCL. For Long

term financial plus environmental benefit of the company, it is pertinent for BCCL to operate larger mines by amalgamating the operating smaller mines. Also, some non-coal bearing areas should be acquired for the dumping of OB. This would cut down the re-handling of OB Dumps. Mining should be done as per the mining plan.

Q: What new initiatives can be adopted by BCCL in alternative energy sources in line with the government's ratification of COP 21?

Ans: India has to reduce its GHG emissions by 30 % till 2030 and we should work in line with the country's commitment towards environment. CMM (Coal Mine-Methane), a non-conventional energy associated with coal, is one of the potential areas for BCCL to diversify. BCCL has also got potentiality of shale gas production. Installation of washeries is also a step towards reduction of carbon footprint.

CMPDI has installed 30 KW solar panel on the roof of CMPDI RI-II office building. BCCL also can emulate this idea as it has lot of infrastructure such as service buildings, industrial buildings, residential buildings etc. Also, there is a direction of GOI, Ministry of Coal for making all the buildings 100% Net-Zero buildings in next six months. Wind energy generation can also be a possible opportunity in BCCL. Wind Mills can be installed at the top of old OB dumps. LED bulbs can also be used in order to save electricity. The more we conserve the less we need to produce. All opportunities should be explored in BCCL as renewable energy production is the need of the hour. As BCCL uses up a huge amount of paper on day to day basis, therefore, BCCL can go for paper recycling plant. It will have great impact on Environment and will create job opportunities too. Bamboo plantation should also be done by BCCL. Vetiver plantation can be done on the slopes as it has great effect on slope stability with roots penetrating the ground more than 3 meters. By implementing these innovations, BCCL will be known as the environment responsible company in the coming year.

Q: Your advice to the young environmental engineers in BCCL.

Ans: The coming generation should have a focused and productive approach. They should concentrate on finding solutions to the quandaries and align their efforts to the goals of the company and national interests.

At the same time, creating social awareness is also one of the duties of every Environment Engineer. They should make people aware about the mass plantation benefits. Publishing this environment newsletter is one of the appreciable approach towards the fulfillment of this responsibility. I wish all the very best to them for their future endeavors and hope they take the company to great heights.

-Shri Manvendra Kumar, Regional Director, RI-II, CMPDI, Dhanbad

सौ बात की एक बात

पेड़ लगे हैं जहां जहां
शुद्ध पर्यावरण वहां

कोल इंडिया का यही प्लान
प्रदूषण मुक्त हो खनिक-खदान

वृक्ष हमारे रक्षक हैं
प्रदूषण के भक्षक हैं

कोल खनिक ने दी आवाज
पेड़ हमारे हैं सरताज

स्वच्छ, सुरक्षित पर्यावरण
दीर्घायु का आवरण

प्रदूषण का जहर जहां
जीवन जाए ठहर

पेड़ एक
फायदे अनेक

कोलफील्ड में चली लहर
वृक्ष लगाने हैं घर-घर

आओ आज करे वायदा
वृक्ष लगाएं हम ज्यादा

धुआं, डीजल, धूल जहां
जीवन है निर्मूल वहां

जीवन से यदि करते प्यार
शुद्ध पर्यावरण रखो यार

पर्यावरण का यदि है ख्याल
वृक्षों का फैलाओ जाल

ग्लोबल वार्मिंग से गर बचना
पर्यावरण को स्वच्छ रखना



राजपाल यादव
महाप्रबंधक राजभाषा/(कार्मिक)
वीआईपी सेल और आंतरिक



झुणकुंदर - आग से पानी तक का सफर ...

कोयला खनन की शुरुआत रानीगंज कोलफील्ड में १८वीं सदी में हुयी थी। उन दिनों ऊर्जा का मुख्य स्रोत कोयला ही था और आज भी भारतवर्ष में ऊर्जा का ७०% स्रोत कोयला ही है। कोयला के खनन के लिए उन दिनों हस्तचालित या अर्द्धहस्तचालित तरीकों का

इस्तेमाल किया जाता था। इन तरीकों का इस्तेमाल अवैज्ञानिक ढंग से किये जाने के कारण भूमि, जंगलों और पर्यावरण का नुकसान बड़े पैमाने पे हुआ। रानीगंज कोलफील्ड्स के खदानों का विलय ईस्टर्न कोलफील्ड्स लिमिटेड और भारत कोकिंग कोल लिमिटेड में खदानों के राष्ट्रीयकरण होने के बाद हुआ इसीएल एवं बीसीसीएल में ज्यादातर खदानें राष्ट्रीयकरण के पहले की हैं।

बीसीसीएल के पुराने खदानों में से एक है झुणकुंदर खुली खुदाई वाला खदान। यह खदान बीसीसीएल के चांच-विक्टोरिया क्षेत्र के अंतरगर्त आता है। इस खदान को बीसीसीएल के सबसे पुराने खुली खुदाई वाला खदान के तौर पे माना जाता है। यह खदान १९८९ से बंद है। यह खदान चिरकुंडा, धनबाद में स्थित है। इसका अक्षांश २३°४३'२९" न० व दीर्घांश ८६°४६'०८" इ० है। खदान बंद होने के बाद, इसकी बाहरी क्षेत्रों को वृक्षारोपण करके भर दिया गया। खदान बंद होने के बाद ३.८ हैक्टेयर का एक जलाशय छोड़ दिया गया था। जिसकी गहराई ३०-५० मीटर तक है।

झुणकुंदर जलाशय एक कृतिम जल समूह है। यह जल कुंड आस-पास के लोगो की घरेलू काम काज में जरूरत आने वाले पानी की आपूर्ति करता है। यह जल कुंड एक दर्शनीय स्थल भी है।

बीसीसीएल प्रबंधन ने सन् २०१४-१५ मे इस जल कुंड और इसके आस पास के क्षेत्रों को दर्शनीय स्थल के रूप में विकसित करने का निर्णय लिया। इस निर्णय के तहत ३.८ हैक्टेयर जलाशय, १.१५ हैक्टेयर एकीकृत कृषि सारणी और ५.६ हैक्टेयर पारिस्थितिक पुनरुधार के रूप में विकसित किया जा रहा है।

"झुणकुंदर कुंड एक है, पानी भरे अनेक
बर्तन में ही भेद है, पानी सब में एक।"

झुणकुंदर पारिस्थिकीय पुनरुद्धार स्थल पे भिन्न-भिन्न प्रकार की पेड़ों की प्रजातियां हैं। जिनमें से मुख्य रूप से हैं - पलाश, शीशम, नीम, जामुन, सिरीश, बेल, बबूल इत्यादि। झुणकुंदर एकीकृत सारणी कृषि स्थल में मौसमी साग-सब्जियाँ उगाई जाती हैं। जिनमें मुख्यतः गोभी, बंद गोभी, भिंडी, बैंगन, मिर्च, पालक, आलू, प्याज इत्यादि। झुणकुंदर जलाशय से आस पास के लोग रोज़ाना तौर पे मछलियां पकड़ने आते हैं।



झुणकुंदर जलाशय की सुंदरता, मनोरम छटा, इतनी सुन्दर है की जब कोई इसे देखता है तो उसकी आँखें फटी की फटी रह जाती है। उन्हें विश्वास ही नहीं होता की यह पहले एक कोयले की खदान था। नवविवाहित या नवीन जोड़े का झुणकुंदर झील में आना एवं उनका प्रेम प्रवाह देखते ही बनता है। सिर्फ मनुष्य जाती के ही नहीं

बल्कि अन्य जाती के प्राणी भी यहाँ प्रेम-प्रसंग एवं प्रजनन हेतु आते हैं। पशु-पक्षियों से ये जगह हमेशा भरा रहता है।

झुंकुंदर जलाशय एवं इसके आस-पास के स्थलों को और बेहतर बनाने के लिए चांच-विक्टोरिया क्षेत्र हमेशा प्रयत्नशील है।

“ लक्ष्य कोई बड़ा नहीं, जीता वही जो डरा नहीं

हारा वही जो लड़ा नहीं, लक्ष्य कोई बड़ा नहीं। ”

“ कौन कहता है आसमान में सुराक नहीं होता,

एक पत्थर तो तबियत से उछालो यारो। ”



श्री राम बल्लभ कुमार

मुख्य प्रबंधक

चांच विक्टोरिया क्षेत्र

बी सी सी एल

An Interaction with Shri Amit Roy,

HOD, Environment Department,

RI-99, CMPDI



One of members of pioneer team of CMPDI & BCCL engaged in obtaining EC, Shri Amit Roy, General Manager (Mining), has played an important role in resolving BCCL's environmental issues and challenges. He graduated in Mining Engineering from IIT Kharagpur in 1984 and joined Coal India Limited in the same year. He was first posted to Parasia 6/7 UG Incline of Eastern Coalfields Limited. He had played multiple roles as shift in charge, ventilation officers, safety officer, colliery manager etc. and justified them truly. However, he always had an urge towards Research and Development projects which he perused from his young age. Roof Bolt Designing, Rock mass rating Design, Blasting design are some of the R&D projects in association with CIMFR, under his belt which were emulated in other mines of ECL also. To fulfil his quest in R&D, he joined RI-V, CMPDI, Bilaspur in 1999 where he was introduced to Environment lab. Since then he has been proactively involved in Environment Management of CIL. We had an opportunity to interact with him, excerpt of which is given below.

Q: CMPDI RI II has been closely associated to BCCL's Environmental issues and Management. Kindly share your experience in association with BCCL.

Ans: I got associated with the BCCL Environment Department in the year 2008, a time when obtaining Environment Clearance (EC) of 103 mines of BCCL was the monumental task in light of EIA Notification 2006. Obtaining the EC was of prime importance in order to facilitate the renewal of Mining Lease of BCCL expired in 2003. The gravity of situation can be understood that BCCL was running without EC and Mining lease. Hence, obtaining EC for 103 mines within such a short period was something beyond possibility. This called for an innovative strategy and solution. The idea of Cluster concept started taking shape and mines were divided on cluster basis. The journey of EC was not an easy one as the MoEF had rejected the first two draft of Cluster concept. Finally the cluster concept was accepted on Environment Rationale which was appreciated by EAC members.

Q: What were the challenges faced during obtaining of EC?

Ans: The EPM preparation for obtaining EC was an arduous task. It required burning the midnight oil for many days. BCCL had been very supportive during the entire process especially Shri D.C.Jha, the then Director Technical. Land acquisition issues & dovetailing of Master Plan with the EMP made it more difficult. 100s of presentation were made. Mrs. T. Chandini, Director MoEFCC &

Professor C.R. Babu, member EAC enormously helped us in getting the EC. Because of the pragmatic & dynamic support, we could get EC of all the mines in Jharkhand by 2013- in a time period of 3 years.

Q: What are the major Environmental challenges for BCCL and its possible recourse according to you?

Ans: Mining taking in account all the environment compliance is very difficult due to the multi-layered seams. Road transport of coal is a major contributor to pollution. Belt conveyor system is a necessity in the entire JCF today in order to curb this pollution. Fire is another major contributor to air pollution which can only be curbed by digging out the fiery coal. Restoration of fire areas physically, ecologically & socially is going to another big challenge for BCCL. The ecological restoration carried out by BCCL is very appreciable and this will certainly help in protecting, conserving the environment. Through ecological restoration we have been able to return a better environment to Dhanbad than what existed.

Q: What new initiatives can be adopted by BCCL in alternative energy sources?

Ans: The gassiness of deep mines can be exploited for providing alternative energy source. BCCL can harness CBM/CMM form of energy from MOONIDIH & KAPURIA Mining blocks. Pilot wells for extraction of coal bed methane has already been established at Moonidih which has been economically viable & successful. This can be successfully expanded in BCCL and help in diversification. Harnessed methane can be used for generating electricity or can be bottled for use in many industries like fertilizer etc.

Q: What improvement can BCCL bring in environment management? Your advice to the young environmental engineers in BCCL.

Ans: BCCL should incorporate environment cost like restoration & backfilling cost in the Mine Project Planning and then come forth with the most economic viable mining. Also BCCL is doing commendable work in Mine water management which can be further enhanced by effective distribution. All efforts should be made to restore the land use after mining & sustainable development of mining areas.

BCCL has a team of Young & Dedicated environment engineers. They should work in close co-ordination with the P&P department so as to contribute more to the Environment Management at Basic planning level. Due care should be taken by the young officers in implementation of Environment management so planned. Paryavaran Darpan is a laudable initiative by the environment department of BCCL. It has provided us the platform to promulgate the good work done by BCCL and spread awareness. Young officers should come up with such good initiatives. I wish them all a very good luck for their Bright future.

-Shri Amit Roy, HOD (Environment), CMPDI.

WHAT WILL HAPPEN?

What will happen Mr. Cash?

*Everything when burnt to ash
Those big homes on the ground
Are the only thing you found?*

What will happen Mr. Money?

*The day which will only be sunny
You will not find any good air
But an air that can burn your skin layer.*

What will happen Mr. Wealth?

*When all you have is bad health
There is water in which you can sink
But unfortunately, you can't drink*

What will happen Mr. Richie?

*When the whole earth gets itchy
All this will happen one day sure
Your money can't buy its cure.*



Krati Agarwal
Student- ISM Dhanbad

SUSTAINABLE DEVELOPMENT- NEED OF THE HOUR



History seems to repeat itself unfalteringly and yet we don't bother to learn our lessons. What's happening in places like Marathwada now happened to our ancestors thousands of years ago. The Harappan or the Indus Valley Civilization too experienced climate change, but they responded better to it than we are doing today, says a new study by Indian Institute of Technology (IIT) Kharagpur, published in Nature.

Researchers believe that better farm production would have led to the growth of the civilization through well-planned urban settlements like Bhirrana, Harappa and Mohenjodaro (in Pakistan)

and Lothal (in Gujarat). Farming as well as trade with other civilizations, including Mesopotamia, were the main occupation of its people. The cities also had large, centralized grain storage systems to meet the high demand as well as shortages.

However, monsoon started declining again around 7,000 years ago and a harsh drought 4,000 years ago left even large rivers dry. Similar aridification occurred around the world at the same time which, perhaps, led to the collapse of the old kingdom in Egypt, the early Bronze Age civilizations of Greece and Crete and the Akkadian empire in Mesopotamia. Tibet, Mongolia and China also saw extended droughts.

What a declining monsoon might have done to the urbanized settlements can be imagined. The river flow declined and Ghaggar-Hakra could have become seasonal or gone completely dry. Still, people tried to adapt. They did the next best thing to deal with less rain: crop diversification. There was a shift from water extensive crops like rice to less water requiring one like millet. Our ancestors dealt with these drastic changes through migration to the rural areas, while many cities continued with reduced population. Smaller, rural settlements increased, especially in the Himalayan foothills, along the Yamuna and between the courses of Yamuna and Ganga.

These findings remind us of the current climate change scenario, which is estimated to impact the global economy to the tune of \$60 trillion, most of which will be

borne by developing countries with extreme weather, poorer health and lower agriculture production plaguing them. The best thing about this ancient civilization is their resilient and participatory society. “They persisted for thousands of years without technology which could have only been possible through brainstorming and joining the forces.

A time has come to learn from this old civilization. The society as a whole has to move to sustainable practices. Development should be mix of technology & sustainability. As a generation endowed with advanced technology, achieving sustainability should be easier than our forefathers. It is our duty to protect and conserve the resources. Sustainability is the key to leaving behind a safer future.

It has been rightly said, “We Do Not Inherit the Earth from Our Ancestors; We Borrow It from Our Children”. The United Nations have come up with



SUSTAINABLE DEVELOPMENT GOALS. The 17 Sustainable Development Goals (SDGs), otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations.

“A society is defined not only by what it creates, but by what it refuses to destroy.”

They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They tackle the root causes of poverty and unite us together to make a positive change for both people and planet.

There are 169 proposed targets for these goals and 304 proposed indicators to show compliance. Each country

whether rich or poor, developed or underdeveloped has to take proactive steps to ensure the achievement of these 17 goals. If these 17 goals are achieved, then we will not only safeguard the environment but also the entire human race.



Mrs. MARIYA AHSAN

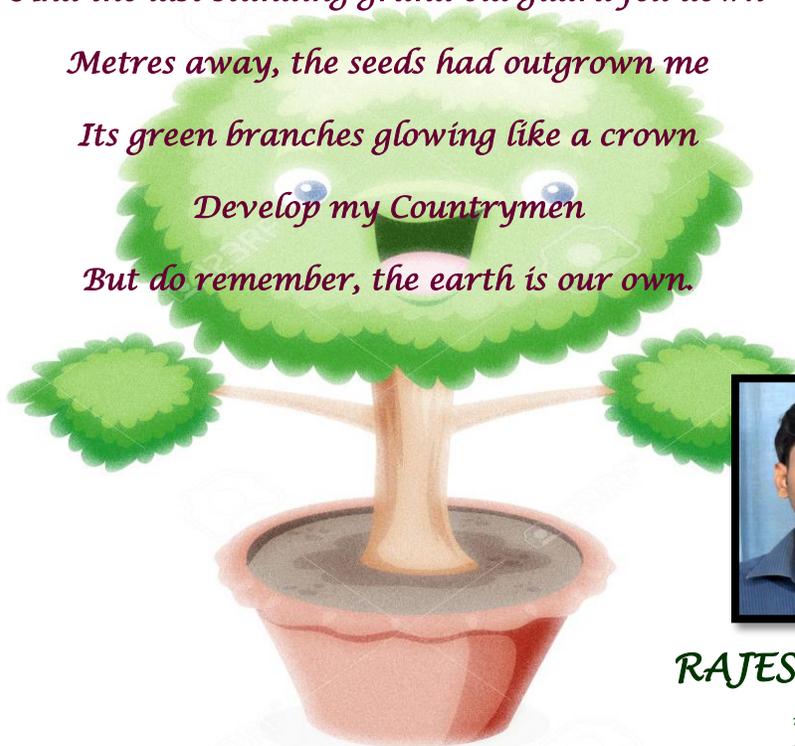
ASSISTANT MANAGER
Environment Department, HQ, BCCL

A TREE FOR A TREE



*Coal lied underneath
The trees over it had to be cut down.
But even before the earth could be broke open
Metres away, seeds were sown
Nobody could hear the departing saviors
As with each hit of the axe, the greenery was slowly gone
Metres away, the seed had become sapling
As the rain came down and the Sun shone
The last stroke of the axe*

*And the last standing grand old guard fell down
Metres away, the seeds had outgrown me
Its green branches glowing like a crown
Develop my Countrymen
But do remember, the earth is our own.*



RAJESH RANJAN

A.M. (ENVT.)
SIJUA AREA

पर्यावरण एवं कोयला

जी हाँ, इस लेख का शीर्षक है " पर्यावरण एवं कोयला" | आश्चर्यचकित न हों, यह लेख हमारी कंपनी के साथ ही साथ बाकी दूसरे कोयला उत्खनन कंपनियों के लिए भी उतनी ही सार्थक है | लेकिन हम अपनी चर्चा अपनी अन्नदाता कोल - इंडिया लिमिटेड तक ही सीमित रखने का प्रयास करेंगे, क्योंकि वो कहावत है न, बदलाव की शुरुआत स्वयं से होती है |



आज 21वीं सदी के इस युग में विज्ञान ने कई ऊचाइयों को प्राप्त किया है | हमारा जीवन आसान होने के साथ ही साथ ऊर्जा पर कई गुना तक आश्रित हो गया है | एक छोटे बिजली के बल्ब से लेकर बड़े-बड़े वैज्ञानिक मशीनों के लिए ऊर्जा ही प्राण-स्तोत्र है | वैसे काफी हर्ष की बात है कि आज ऊर्जा के कई नए विकल्प, सौर एवं अन्य अक्षय ऊर्जा (renewable

energy sources), उभर कर आये है , परन्तु आज भी "कोयला " ऊर्जा उत्पादन का प्रमुख किरदार है | विश्व में अभी भी कुल ऊर्जा का 40 प्रतिशत कोयला से उत्पादित होता है |

यह तो हुई विश्व की बात | आज 2017 में भारत की जनसंख्या लगभग **1.25 अरब** है | भारत सरकार निरंतर प्रयास में है की समस्त देश को ऊर्जा से लैस बनाये | प्रत्येक घर, स्कूलों में रौशनी पहुंचे | लक्ष्य बड़ा जरूर है , परन्तु असंभव नहीं | अगर आंकड़ों की बात करे तो देश में लगभग **60 प्रतिशत** ऊर्जा का उत्पादन "कोयला" से होना है | इस परस्थितियों में "कोयला उत्पादन" देश की प्रगति एवं समृद्धि में एक प्रमुख भागीदार है |

"कोल इंडिया लिमिटेड" (CIL), भारत ही नहीं पूरे विश्व की सबसे बड़ी कोयला उत्पादन कंपनी है | हमे इस विशाल संगठन का एक अंग होने पर गौरवान्वित होना चाहिए | जैसा की हमने चर्चा की, देश की तरक्की एवं समृद्धि का एक मार्ग कोल इंडिया से होते हुए गुजरता है तथा इस कार्य को कंपनी पिछले **5 दशकों** से बखूबी ही संभाला है | वित्तीय वर्ष **2016-17** में **554.13 टन** कोयला उत्पादन किया गया कोल इंडिया द्वारा | लेकिन यह कार्य उतना सरल भी नहीं है |

कोयला निकालना एक बहुत ही कठिन, जिम्मेदारी से परिपूर्ण एवं त्याग का कार्य है | पर्यावरण क्षति भी एक गंभीर समस्या है | कोयला उत्पादन कंपनियों पर शुरू से यह सवाल लगता आ रहा है की हम कोयला निकाल कर देश को प्रगतिशील तो कर ही रहे हैं , परन्तु अपने पीछे प्रकृति का विनाश किये जा रहे है |

आगे चर्चा करने के पहले आइये हम एक सामान्य कोयला उत्पादन क्रम में प्रकृति को होने वाले क्षतियों पर एक नज़र डाल लें |

उत्पादन की विधि --->	खुली खदान	भूमिगत खनन
भूमि	उपरी सतह को खनन योग्य बनाने के कर्म में भूमि को अत्यंत क्षति पहुँचती है पेड़-पौधों की कटाई आस-पास के क्षेत्र में मौसम परिवर्तन एवं प्रदूषण को प्रभावित करती है उपरी मृदा जो जीवन का स्तोत्र है उसे हानि पहुँचती है	उपरी भूमि पर कोई खास प्रभाव नहीं रहता परन्तु अवैज्ञानिक तरीके से किये गये खनन के कारण भूमि धंसाव संभव है जिससे जान-माल की हानि हो सकती है
वायु	खुदाई, धुलाई एवं कोयले के परिचालन के दौरान धूल का उत्पादन जानलेवा बिमारियों का कारण है भूमिगत खदान में कोयले के कण CH ₄ गैस के साथ मिल कर विस्फोट का कारण बन सकते हैं	
जल	उपरी सतह पर उपस्थित जल संसाधनों का मार्ग परिवर्तन खनन क्षेत्र में भूमिगत जल स्तर कम होना	
ध्वनि	खुदाई एवं परिचालन के उत्पन्न शोर दुर्घटना एवं बीमारियों का कारण बन सकता है	

पर्यावरण के दो अंग होते है - प्राकृतिक एवं सामाजिक | इन दो चीजों का समन्वय ही एक बेहतर कल का आधार है | अगर हम सामाजिक स्तर की बात करें तो खनन प्रभावित परिवारों का कुशल विस्थापन एवं उनके मौलिक एवं मानवीय अधिकारों की रक्षा तथा आपसी सहयोगिता बनाये रखना एक भी एक प्रमुख दायित्व है |

आइये चर्चा को आगे बढ़ाते है | सीधी सी बात है कुछ पाने के कुछ खोना पड़ता है , परन्तु इसका यह अभिप्राय नहीं होना चाहिए की हम कोयला उत्पादन को प्राथमिकता देते हुए

पर्यावरण सम्बन्धी आवश्यक गतिविधियों को नज़र-अंदाज़ करें | इस विषय वस्तु पर कोल इंडिया शुरुआत से ही सजग है | बस जरूरत है इस संरक्षण दर को और गतिशील करने की |

अब समय बदल रहा है | मानिए की समय बदल ही गया है जनाब | आज देश ही नहीं पूरे विश्व में जो पर्यावरण को लेकर सोच आई है वह बेहद ही हर्ष -प्रद है | बस जरूरत है इस सोच पर अमल करने की | यह इसी सोच का परिणाम है कि आज कोल इंडिया में लगभग 200 से अधिक ऊर्जावान पर्यावरण आधिकारी कोयला उत्पादन के दौरान प्रकृति संरक्षण में अपना योगदान दे रहे हैं | नई तकनीकों का इस्तेमाल अब होने लगा है हमारे खदानों में जिससे वायु एवं जल प्रदूषण पर काफी हद तक रोक लगी है | देर है, पर अंधेर नहीं | बड़े पैमाने पर पौधारोपण किया जा रहा है, खनन उपरान्त खदानों को भर कर उसे खेती योग्य बनाने की कोशिश जा रही है | लोगों में पर्यावरण सम्बन्धी जागरूकता लाने के लिए विभिन्न अनुषंगी कंपनियों द्वारा अपने स्तर से समय समय पर कई योजनायें एवं कार्यक्रम किये जाते हैं |

अब बात आती है की जब इतना कुछ हो रहा तब भी हमारी छवि इतनी धूमिल क्यों ? हम पर्यावरण के लिए जो कर रहे हैं क्या वो उपयुक्त है ? क्या पर्यावरण संरक्षण बस कागजी प्रतिवेदनो को पूरा करने तक ही है ? क्या हम अपने कोल इंडिया के संकल्पना [mission] में वर्णित पर्यावरण के प्रति प्रतिबद्धता पर अपना शत प्रतिशत दे रहे हैं ? क्या हम एक संवेदनशील समाज के निर्माण में सहयोग दे पा रहे हैं ? इसका उत्तर देना उतना कठिन तो नहीं है परन्तु बेहतर होगा की हम लोग, जो यह लेख पढ़ रहे हैं, इस मुद्दे पर गहराई से चिंतन करे और अपने अपने विचारों को दिशा प्रदान करते हुए प्रणाली में एक ऐसा बदलाव लाये जो अन्य के लिए प्रेरणा स्तोत्र हो | स्वामी विवेकानंद ने कहा है - "दुनिया बदलने वाली शक्ति तुम्हारे भीतर ही हैं , तुम कुछ भी कर सकते हो | विश्वास रखो |"



आदित्य श्रेष्ठकर,
मैनेजमेंट ट्रेनी (पर्यावरण),
राजमहल क्षेत्र, ईसीएल।

Daughters and Trees

- An inspirational true story



In a country that still favors the birth of a son, Piplantri village located in Rajsmanand district in Rajasthan, not only embraces daughters but has created a unique tradition. This endearing village makes a conscious effort to save girl children and the green cover at the same time, by planting 111 trees every time a girl is

born. The village gathers as a community and plants 111 fruit trees in honor of every newborn female child.

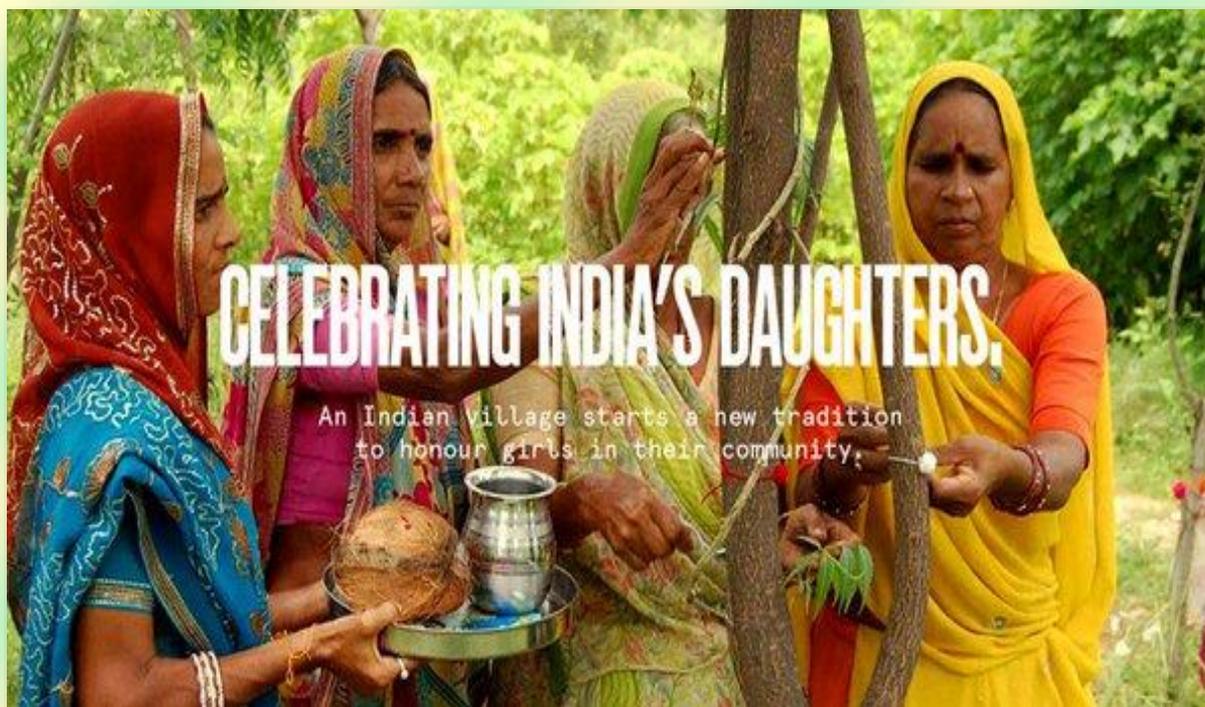
Village residents collect Rs. 21,000 between themselves and Rs. 10,000 from the girl's parents. This sum of Rs. 31,000 is made into a 20-year fixed deposit for the girl. Parents are legally bound by a signed affidavit stating that their daughter will receive proper education. The affidavit also mandates that the girl should be married only after she reaches legal age and the trees planted after her birth have been correctly looked after.

The community ensures that the trees survive, attaining fruition as the girl grows up. The villagers don't just plant trees, they look after them as well. To protect the trees from termites, the residents plant Aloe Vera plants around them. These trees, and especially the Aloe Vera plants, are now a source of livelihood for several residents.

This unique tradition was first suggested by the village's former leader, Shyam Sundar Paliwal, in honor of his daughter who passed away at a young age. In the last 6 years, over a quarter of a million trees have been planted.

Because of this incredible movement by a single man and enduring efforts of the villagers, this village is now able to combat the major issues like saving the girl child, their education, child marriage, livelihood quandaries of villagers and increasing the green cover as well.

Paryavaran Darpan salutes the spirit of villagers and congratulate them for inspiring many others.



“Daughters are wonderful and graceful. They have compassion and concern for fellow beings just like trees. Both are care takers of surrounding. Future is impossible without both Daughters and Trees”.

Environmental awareness in vedas



Environment plays a very significant role in human civilization.

Today environmental problems have been the object of

discussion everywhere from village to

parliament. Pollution is by far the most

rapidly growing problem of the modern

technological society. The condition in

India is pretty serious. It is no longer,

feasible to ignore the alarming nature of India's environmental conditions. The sanskriti

(culture) of every country depends on its environment, climatic conditions and human

behavior. Literatures reflect in their own culture, geographical conditions, climatic influences

and environmental aspects. Therefore, from this point of view the vedic literature is of great

utility to us and to the world society at large. Accordingly if we study the environmental

conditions of our society and the world, we shall be greatly benefitted in our living and

healthy life.

The Indians Saints prescribed acts for avoiding environmental pollution. But we neglected

the instructions of the scriptures, sometimes out of total ignorance of the contents of these

works and at other times out of incapability to follow the real intention of the authors of

these scriptures.

The Vedas are treated to be the oldest literature of the world. When the people of the other

continents were in darkness (under developed) our vedic seers contributed to science,

Technology, Mathematics, Astrology, and high philosophical order at all. They built the

treasure house of India full of human wisdom, social welfare, unity, peace and prosperity,

instead of personal gain or internal prosperity at large.

All four Vedas 'the Rig, Sama, Yajur and Atharva' recognize the importance of maintenance

of the seasons' cycles that are likely to get altered due to the climate change owing to

inappropriate human actions. It is remarkable that the people in vedic times regarded nature

and the environment in a holistic manner and revered each of its constituents and entities by

carefully preserving them.

To protect environment the Rig veda says-----

“madhu vātāḥ ṛitāyate madhu kṣaranti sindhavaḥ

mādvih naḥ santuṣadhi.

madhu naktamutusāsu madhumatpārthiva rajah

madhu kṣorastu suryah

mādhirgābo bhavantu naḥ”

- (Rigveda,I/90/6,7,8)

“Environment provides bliss to people leading their life perfectly. Rivers bliss us with sacred water and provide us health, night, morning, vegetation. Sun bliss us with peaceful life. Our cows provide us milk”.

In the Maitrāyani Samhitā, the earth has been described as “devajayani”, adorable by deities and Aushadhinam Mulam, the source of all kinds of medicinal plants. So the Indian sages, like Manu suggested punishment for him who cuts down such valuable trees. The vedic sages also know that mountains cause rains and fresh air and also provide medicines----“Parvateṣu Bhesajam” (Rig-veda-8/20/25).

Therefore they gave importance to save mountain and said that it is better to live in the forests or mountains than the villages—

***“iman jibebhyah paridhin dadhāmi meshaṅ nu gādaparu arthametat.
satan jibantu saradaḥ puruchirantamṛstun dadhatan parvatena”***

***“tuje nastane parvataḥ santu svaitavo na virah. panita aptyoada no vardhannah sansan
naryo ahistou”***

(Rig-veda,5/81/9)

The fire and Sun play the most significant role in the purification of environment. Animals and birds are part of nature and environment. The vedic seers have mentioned about their characteristics and activities and have desired their welfare. Rig-vedic seers classifies them in three groups sky animals like birds, forest animals and animals in human habitation—

***“tasmat yajnat sarvahutah samvrtan pṛsadajyan
pasuntansakre vayabyanaranyan grāmyasca ye.”***

(Rigveda,10/90/8)

It is clear that the vedic vision to live in harmony with environment was not merely physical but was far wider and much comprehensive. The Vedic sages realized that the pure water, air etc. are the roots of good health and happiness and hence they considered all these as gods. Now a days various types of environmental laws like Forest act 1972, Wildlife protection Act 1970, Water protection and pollution act 1980, Environmental protection Act, 1986 have been enacted for the protection and preservation of environment. But about 3000 years ago, the sages recited the following verse--

***“dyauḥ śāntirantarīkṣan śanti pṛithivī
śāntirāpaḥ śāntiroṣadhayaḥ
vanaspatayaḥ śāntiviswadevah śāntibrahma
śāntiḥ sarva śāntiḥ śāntireva śāntiḥ sā mā śntiredhi”***

(Sukla yajurveda 36-17)

“Let there be balance in the space! Let there be balance in the sky! Let there be peace on the earth! Let there be calmness Let there be! Let there be growth in the plants! Let there be growth in the tree! Let there be grace in the Gods! Let there be bliss in the Brahman! Let there be balance in everything! Let there be peace and peace! Let such peace be with every one of us! ”

The knowledge of vedic sciences is meant to save the human beings from failing into an utter darkness of ignorance. The unity in diversity is the message of vedic physical and metaphysical sciences essence of the environmental studies in the Vedas can be put here by quoting a partial mantra of the Ishavasyopanishad ‘One should enjoy with renouncing or giving up others part’ –

***“īshāvāṣhyamidan sarvan yatkinchan jagatyan jagat
tena tyaktena bhūnjithā mā ḡridhaḡ kashyacid dhanam”***

(Ishopanisad-I)

From this vedic message it is clear that environment belongs to all living beings, so it needs protection by all, for the welfare of all. Therefore, the Vedic literature is of great utility to us and to the world society at large. Accordingly if we study the environmental conditions of our society and the world, we shall be greatly benefitted in our living and healthy life. We are crying for a better environment now and the Vedas teach us to take steps for the protection of our environment.



ABHISHEK SINGH,
MT (E & M),
ADI Colliery, VOCP,
Kusunda area, BCCL

Glimpses of activities....

May



1st May 2017: On the occasion of International Labor Day (1st May), BCCL CMD and FDs, Safety and Welfare Board members, GMs and HoDs felicitated the outstanding work of different workers at community hall Koyla Nagar, Dhanbad.

7th issue of Paryavaran Darpan was released by own beloved CMD on the occasion of International Labor Day.



13th May 2017: Meeting of all Environment Executives from every subsidiary of Coal India, HQ.



June



2nd and 3rd June: Successfully organized various competitions like Essay, Quiz, Drawing and Waste to Wealth for Students and employees, on the occasion of World Environment Day.

5th June: Celebration of World Environment Day at Koyla Nagar Nursery.



Our Functional Directors appreciating Koyla Nagar nursery.

Vriksharopan at the Nursery by our former Director (Personal), Shri B. K. Panda on the occasion of World Environment Day.





Sapath Grahan Samaroh and award distribution was held at 5th June, 2017 at Koyla Nagar Nursery.



7th June: Training for Trainers, A training organized at Kalyan Bhawan, HRD, BCCL for Executives by TERI University.



21st June: International Yoga Day

July

7th July: Coal Secretary and Chief Secretary visited Eco-restoration site of Lodna area and distributed saplings to school children on the occasion of Van Mahotsava.



Distribution of Sapling at different areas by Environment Department of BCCL on the occasion of Van Mahotsava.



21st July: Monthly Structured Meeting of Environment Department held at Vrindavan, Eco-Restoration site, EJ Area for the month July.



Nursery at Vrindavan eco-restoration site.



26th to 28th July: Livelihood training programme held at Muraidih V.T.C. by TERI University.



August



7th August :

Visit of the team of 8 students and 1 faculties from the University of South Florida, St. Petersburg, USA along with 2 Professors of IIT (ISM), Dhanbad at NTST project and Gokul Park, Eco-restoration site, Lodna Area with BCCL official on 7th August 2017. They had an extensive tour of the Mining method, firefighting and reclamation of mined out degraded land through Eco restoration.

They were simply amazed to see BCCL's firefighting method and the wonderful eco-restoration done. They were not believing that with in a period of 3-4 years such reclamation could be done. Professors of IIT-ISM Dr. AK Pal and Dr. B Pal have arranged the visit. Site visit was organized by Mr. Kalyanji, GM Lodna Area of BCCL.



9th August: Visit of Ms. Nidhi Gupta (second from left) and Ms, Sanskriti Jain (third from left), Assistant Secretaries of Ministry of Coal to ROCP Mine, Rajapur Eco-Restoration site, Bastacolla Area, BCCL and NTST Gokul Park, Ecological Restoration site, Lodna.



A tool for mineral prospecting- INDICATOR PLANTS

Plants in general can indicate a deficiency or an excess of water and often such accompanying factors as mineral, salt content etc. *Cacti: Agave, Yucca* and other xerophytes are associated with habitats of low water content. High temperatures and low humidity_ *Cattail (Typha)* water hyacinth (*Eichhornia*) and other hydrophytes that indicate an excessive water supply and poor aeration.

Avicennia, Rhizophora, Atriplex and other halophytes denote an excess of soil solutes and mineral salts. The fossils of these plants can undoubtedly indicate the environment in which they flourished in the past. Plants having distributions which correlate well with the content of some element in aquatic or terrestrial habitats are called indicator plants. They are used in monitoring water pollution and in the prospecting for are deposits.

Water pollution indicators

Algal blooms are indicators of certain mineral enrichment in an area. Several research works have established the feasibility of using benthic algae as qualitative or quantitative indicators for heavy metal pollution.



Fig. Ascophyllum sp.



Fig. Fucus vesiculosus

Brown algae have been frequently employed for coastal monitoring. They react physiologically and morphologically towards pollution due to heavy metals and herbicides which alter the photosynthetic efficiency and nutrient uptake levels. *Ascophyllum nodosum* and *Fucus vesiculosus* are the Important Indicators of zinc, cadmium and copper.

Mineral indicators

Botanical methods of prospecting for minerals include biogeochemistry (chemical analysis of vegetation and soil) and geobotany (geographical distribution of vegetation). The latter technique is very old and dates back to the 17th century; when it was known that there was a relationship between the nature of the substratum and the type and distribution of vegetation. Sand cultures and chemical analyses of some plants have shown that certain plant species accumulate specific type of minerals in large amounts and apparently require them for healthy growth. These indicator plants are thus important in locating and mapping the presence of such minerals.

The most interesting indicator plant for Aluminium is *Hydrangea Macrophylla* which produces blue flowers if Aluminium is available in the soil, but pink flowers in the absence of the element.



Fig. Hydrangea sp.



Fig. Poa annua



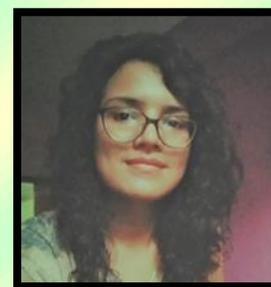
Fig. Chenopodium sp.

Chenopodium Murale and *Poa Annua* are the best indicator plants for fluorine in soil. These plants are useful to diagnose fluoride air pollution as they develop characteristic foliar symptoms of fluoride injury.

Table: indicator plants and their respective minerals.

MINERALS	INDICATOR PLANTS
Aluminium	<i>Hydrangea Macrophylla</i>
Barium	<i>Anthoxanthum odoratum</i>
Bromine	<i>Allium cepa</i>
Calcium	<i>Medicago sativa</i>
Chromium	<i>Nicotiana tabacum</i>
Cobalt	<i>Nyssa sylvatica</i> & <i>Andropogon virginicus</i>
Fluorine	<i>Chenopodium murale</i> & <i>Poa annua</i>
Iodine	<i>Lactuca sativus</i>
Lithium	Citrus & Poppy
Nitrogen	<i>Persea americana</i>
Selenium	<i>Astragalus atbulus</i> & <i>A. Argillosus</i>
Strontium	<i>Arabis stricta</i> & <i>Carex humilis</i>
Vanadium	<i>Amanita muscaria</i> a fungi
Zinc	<i>Ambrosia artemisiifolia</i>

Geobotanists rely strongly on the identification of plant species or plant communities specific to certain types of mineralization and their task becomes much easier if an indicator plant can be identified. Wide explorations are needed in the field of indicator plants to unearth hidden resources like minerals, fossil fuels etc. and also to forecast volcanoes and polluted areas.



ANAMIKA SINGH

M.Sc. (Agriculture)

Instit. Of Agricultural Sciences, BHU, Varanasi (UP)

ONE DROP!

*One drop.
Which brings a smile,
Makes our day,
Gives us smile.*

*One drop.
Which all ask for,
Which all strive for,
Which all live for.*

*One drop.
Which is just a drop,
But is the sole purpose,
To survive this game,
Which is life we know.*

*One drop.
Which is a saviour,
Even when there's no food.
Even when there's no hope to live.*

*One drop.
Which is life,
Which has a simple chemical formula,
And which is water we know.*



Samir Singh,
Student- NIT Suratkal

पर्यावरण संरक्षण (एक ईमानदार प्रयास)

प्रकृति में
सुचारु रूप से



संतुलित वातावरण

में एक या उससे अधिक

हो जाता है जिसके कारण

में रहने वाले जीवधारियों के लिए बहुत ही हानिकारक होता है यह हवा, पानी, मिट्टी सभी को प्रभावित करता है जिससे की मानव जीवन बीमारियों के कुचक्र में फंस जाता है ।

उपस्थित सभी जीव को अपनी विकास वृद्धि को चलाने के लिए एक संतुलित वातावरण की

आवश्यकता होती है । वातावरण

का एक निश्चित संघटन होता है

जिसमें सभी जैविक और घटक

निश्चित अनुपात में पाये जाते

हैं। ऐसे वातावरण को ही

कहते हैं । कभी कभी वातावरण

घटकों का प्रतिशत कम या अधिक

पर्यावरण प्रदूषण होता है । यह प्रदूषण पृथ्वी

प्रदूषण एक धीमा जहर है जो कि हवा, पानी और धूल के माध्यम से मनुष्य के शरीर में प्रवेश कर उसे बीमार या और अधिक बीमार कर देता है। आज इसी प्रदूषण के कारण पृथ्वी में रहने वाले कई जीवों का अस्तित्व या तो विलुप्त हो गया है या विलुप्त होने के कगार पर है ।

वैसे तो पर्यावरण प्रदूषण के लिए बहुत सारे कारक जिम्मेदार हैं, मगर उनमें से कोयले के जलने से निकला कार्बन मोनो ऑक्साइड हवा में पहुँचकर उसे दूषित करता है जिसके कारण हाइपोक्सीया (Hypoxia) नामक बीमारी होती है । साथ ही साथ सल्फर हाइऑक्साइड गैस भी निकलता है जिसका प्रभाव आँख एवं श्वसन तंत्र पर पड़ता है और इससे हमारे पुरातात्विक महत्व के अवशेषों को भी बहुत नुकसान पहुँचता है ।

अब सवाल यह उठता है कि हम अपने देश भारत में कोयले से होनेवाले प्रदूषण को कैसे रोक सकते हैं । भारत के आर्थिक विकास में कोयले का बहुत ही महत्वपूर्ण योगदान है । विश्व का 29% की तुलना में भारत में प्राथमिक वाणिज्यिक ऊर्जा का 55% कोले से पूरा होता है। भारत में 70% बिजली का उत्पादन कोले से ही किया जाता है इसिलिय कोला हमारी जरूरत बन गयी है।

हमारी भूल यह है कि हमने प्रकृति से कोयले का दोहन तो किया मगर उस दोहन से होनेवाली पर्यावरणीय नुकसान को कभी भी समुचित ढंग से दूर करने का प्रयास नहीं किया। हमें कोयले से होनेवाले नुकसान



करना

बंद हो गया है उससे भी अवैध रूप से कोयला निकाला जा रहा है जिससे पर्यावरण को नुकसान तो पड़ता ही है साथ ही साथ मानव जीवन पर भी खतरा मंडराता रहता है।

से बचने के लिए कुछ कठोर कदम उठाने की आवश्यकता है। कोयला उत्खनन से निकलने वाले जहरीली गैसों के प्रभाव को कम करने के लिए अधिक से अधिक वृक्ष रोपने की आवश्यकता है। साथ ही साथ लोगों को पर्यावरण प्रदूषण के प्रति जागरूक चाहिए। साथ ही साथ जो कोयला खदान

मगर यह अफसोस के साथ कहना पड़ रहा है कि यहाँ तब तक कोई उपाय नहीं किया जाता है जब तक उसके कारण हमें भारी नुकसान नहीं हो जाता है। हम भारतीयों की यह मानसिकता रही है कि हमलोग सब कुछ गवाने के बाद होश में आते हैं। पर्यावरण दिवस पर बड़े-बड़े भाषण देते हैं, उसे बचाने के लिए लेख भी प्रकाशित करते हैं, मगर कभी भी वास्तविकता की धरातल पर उतारने की कोशिश नहीं करते हैं। आज जरूरत इस बात की है कि हम प्रदूषण की समस्या को गंभीरता से लें तभी हम अपने आनेवाले पीढ़ियों को एक स्वच्छ, सुंदर और प्रदूषण-रहित वातावरण देने में सक्षम होंगे।



ज्योति कुमारी

सहायक प्रबंधक (का)

प0 झक्षेत्र 0, मुनीडीह

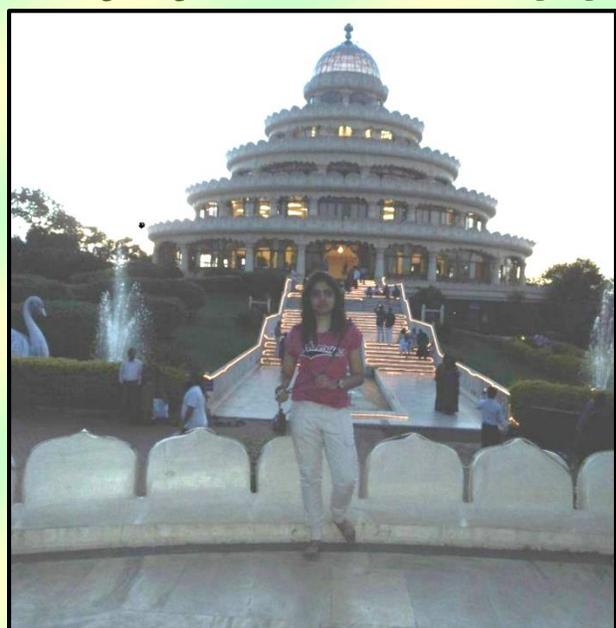
A Visit to One of the Cleanest Campus in the Country



For city folks like us, who have almost got accustomed to the pollution and dust we face on a daily basis, it came as a pleasant surprise when I visited the Art of Living International Centre at Bengaluru. As soon as I entered the gates, I was greeted by lush green landscapes, clear blue skies and a crisp, pollution free atmosphere. I was shocked at the stark difference between the campus and the city outside of it. There is so much to learn from this organization, which is entirely volunteer based; yet so much love, commitment and service emanates from its members.

The campus has innumerable trees, ponds, lakes; all of these in pure and pristine conditions. Almost always, there are huge numbers of devotees staying at the campus; doing courses, providing service, undergoing Ayurveda treatments or simply enjoying the Ashram Life. However, in spite of the huge crowds, there is no litter or garbage strewn anywhere. There are many canteens and cafeterias serving food and beverages but in and around them, I saw no traces of discarded leftovers or any kind of dirt or garbage. It was wonderful to see people conduct themselves with so much discipline and that too without the need to be told or monitored.

I then realized that the practice of Yoga and Meditation automatically bestows this sense of self discipline to an individual. They then develop this sense of belongingness with the Environment to the extent that they not only take care to keep their minds free of clutter but also their surroundings clean and tidy. It becomes a natural habit to treat the Environment as one would treat his/her most loved ones.



Perhaps this is what is missing largely in the world today: a sense of belongingness and love towards the environment. In the rush of our daily lives, perhaps we have forgotten to stop and think that what we are giving in return to the very Environment from where we are getting the most vital ingredient essential for our lives; Oxygen.

I believe we should all take some time and do something good for our Environment. The Art of Living Foundation stands as an example for all of us to learn the art of caring for our Environment as well as ourselves. It is time we take responsibility and nurture our Environment and protect it because the truth is that our very survival depends on this.



Nilanjana Chakraborty
Asst. Manager (PRO),
Koyla Bhawan,
Head Quarter

A RHETORICAL QUESTION

Our textbooks say “Keep your environment clean”. Well, looks pretty good on a paper of a book but does it really come out of it? What I mean by this is, does it really happen? That’s a question that requires an answer. Or rather nowadays, it has become a rhetorical question. I see garbage being dumped in open places, people littering around. Let the point be kept straight, doesn’t this have any severe repercussions? It does. It gives rise to a number of diseases due to which people lining up at the hospitals are on the rise. Also it affects the aesthetic beauty of our surroundings. To turn it around financially, it also reduces the Income from tourism coming in. Reason? None of us would like to see dirt around right? But people don’t understand it. Or maybe they don’t want to. I’d say there are a lot of reasons. What I’ve observed is spitting paan on the streets, littering around even when garbage bins are around. From one side efforts do come in but sadly it doesn’t go hand in hand. The solutions to it are pretty simple to be told out. But too difficult to execute. That’s only because every person has a different mind-set. All of us are too busy with our lives that we never bother about getting our surroundings clean. The government can bring in laws and the punishments can be severe. Also we can create awareness about how this unwanted dirt affects us indirectly and directly. We can start our own bit by disposing the waste in the dustbins. It’s when one of us start, that the others follow. We can even recycle some of the waste and effectively dispose the rest. All this can be done and a lot more but when? How? The day we go hand in hand, India will only be better. The day it gets clean, it gets green. The day we start cleaning it bit by bit it will be better for all of us.

“The greatest threat to our planet is the belief that someone else will save it.”



Samir Singh,
Student- NIT Suratkal

ENVIRONMENTAL AWARENESS CAN PLAY AN IMPORTANT ROLE

Environmental awareness is an important part of the success. By telling our friends and family that the environment is vital and indispensable, we can start that threaten it. It is very discouraging when we the environment's declining health, but what for a healthy world is the future of our children. have to face the consequences for our problems and in order to keep their future spreading awareness is necessary. A good ensures your continued participation as a global to choose an environmental issue that strikes you as most. There are many environmental issues and as they are all important it is best to initially focus on one cause. You will soon see that all environmental issues are twisted together and will find your niche of interest. Once you have chosen your cause and figured out some germane activities, share it with the people. Involve your community, friends, and family. Use your political voice in your local city and propose environmentally sustainable and advantageous projects. Start with the community garden, buy it from local stores and farmers markets, make your transportation more efficient and/or start implementing clean energy strategies in your community centers.



5 easy ways to raise environmental awareness-

I. MAKE A GREEN BLOG

You can make a green blog on any blogging platform to convey to the community what they need to do for the maintenance of cleanliness in their area. You can make a list of environmental issues of your area to inform everybody about the problems. In this way, you can easily look after your surrounding environment in a collective manner.

2. SOCIAL MEDIA ENGAGEMENT

The second option is easier than green blogging. You need to create a page or group on any social media account with a name from which you just have to ask all your neighbors and other people living in your area to be part of that group. From the group, you can share your

environmental concerns with them and can motivate them for efforts for the advancement of your local environment.

3. CREATE GREEN CLUB

If you have extra time you can create a Green Club to interact in free time to discuss the issues of your area. You just need to write the names and objectives of your club to distribute it among community members equally. You should also mention the schedule of meetings to get together and discuss and solve the environmental issues of your area.

4. LADIES FORUM

In societies mainly where earning a livelihood of the family is the job of men and their women live in homes as housewife have the option of Ladies Forum which can bring effective results to raise environmental awareness in your community. Housewives also manage proper cleanliness in homely stuff, so they have a good vision through which she can also contribute in the cleanliness of society.

5. THE RELIGIOUS PODIUM

In societies where religion dominates, the religious podium of either Church or Temple can also be a good platform to discuss with them the issues of surrounding environment. Here religious leader of the community can also play a role to take all people together for the enhancement of environmental awareness and solution of green issues.

Thus, these five steps can play a vital role in spreading environmental awareness and will help everyone in meet their responsibility towards environment.



Krati Agarwal
Student- ISM Dhanbad

BCCL on Social Media.....





BCCL Environment

22 June · 🌐

अन्तर्राष्ट्रीय योग दिवस के अवसर पर आज बीसीसीएल कोयला नगर स्थित सामुदायिक केन्द्र में बने अन्नपूर्णा भवन में योग कार्यक्रम का आयोजन किया गया। योग प्रशिक्षक की उपस्थिति में योग में भाग ले रहे अधिकारियों एवं कर्मचारियों को योग कराया गया।

इस अवसर पर बीसीसीएल के प्रभारी अध्यक्ष-सह-प्रबन्ध निदेशक श्री गोपाल सिंह ने योग कार्यक्रम में उपस्थित अधिकारियों एवं कर्मचारियों को योग के संबंध में जानकारी दी। उन्होंने कहा कि योग एक ऐसी सुलभ एवं प्राकृतिक पद्धति है जिससे स्वस्थ मन एवं शरीर...
See more



Coal India Limited @CoalIndiaHQ · Jul 8

CIL organizes "Vanmahotsav" at eco-restoration site, Lodna, BCCL. Shri Susheel Kumar, Secretary Coal distributes saplings to School Children



Piyush Goyal, MoEF&CC, UN Environment and UN Climate Action



4



22



**CAN YOU
HEAR ME???**



I do inhale approx. 21.8 Kg of CO₂ in a year and exhale enough oxygen for a family of 4 people for a year.

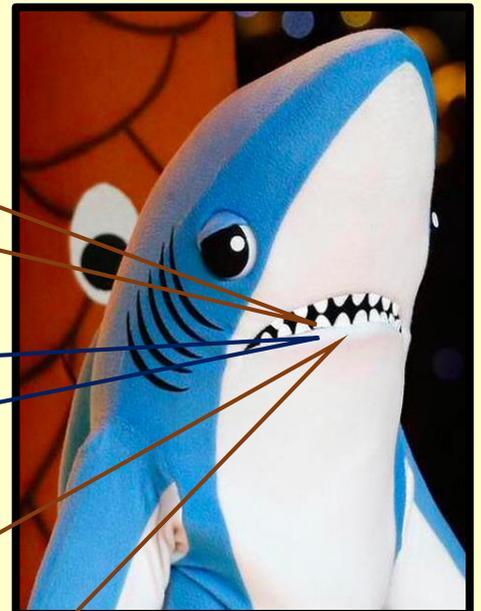


A tree as large as me can transpire as much as 378.5 litres (100 gallons) of water into the air per day. This has a cooling effect roughly equivalent to 10 single room-sized air conditioning units operating 20 hrs. a day.

An acre of trees like me can absorb enough CO₂ over one year to equal the amount produced by driving a car 20,000 miles.

Carbon is a critical element in the cycle of life and a contributor to climate change. We sharks help keep the carbon cycle in motion.

We sharks are at the top of the intricate food webs and are "keystone" species in the ocean ecosystem. We keep the food web in balance and thus prevent the whole structure from collapsing.



We kill fewer than 10 humans per year and humans kill 100 million of us per year.

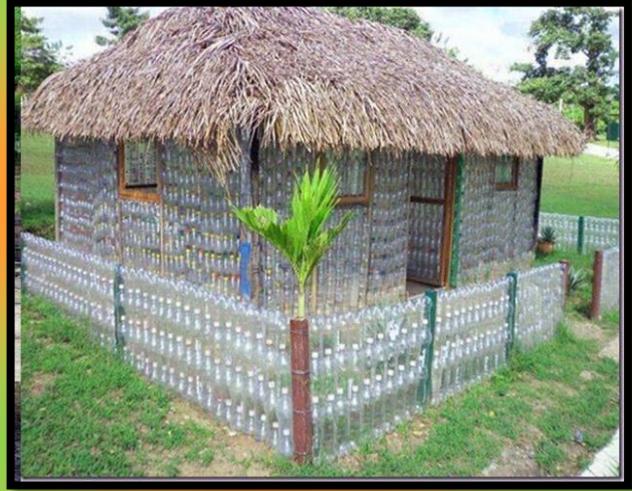
RECYCLE AND REUSE



CHAIR MADE OF PLASTIC BOTTLES



OLD SHOES USED AS POT FOR SMALL PLANTS



USE OF PLASTIC BOTTLES IN DIFFERENT GARDEN DECORATION IDEAS

Mail your suggestions, articles, poems and feedbacks to

["darpanparyavaran@gmail.com"](mailto:darpanparyavaran@gmail.com)

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