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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

"Insect populations are declining dramatically in many parts of the world, recent studies show. Researchers say various factors, from monoculture farming to habitat loss, are to blame for the plight of insects, which are essential to agriculture and ecosystems."

In a position paper released on 1 July, the European commission said that rather than an all-encompassing ban it would be better to encourage countries with growing elephant numbers to "sustainably manage" their populations. "European commissions' opposition to a proposed global ban will spell the beginning of a mass extinction of African elephants, warn officials from 29 African states". "Wildlife officials in nearly 30 African states say they are appalled by an EU decision to oppose a comprehensive global ban on the ivory trade.

"The Bornean orangutan (*Pongo pygmaeus*) is now critically endangered according to the International Union for Conservation of Nature (IUCN). This change means that both species of orangutan now face an "extremely high risk of extinction in the wild."

Due to changing climate, Arctic regions of North America are getting greener, with almost a third of the land cover looking more like landscapes found in warmer ecosystems, according to a new NASA study.

Assam forest department announced to plant 1.25 crore saplings over forest areas across the state this year.

India's new Environment Minister Anil Madhav Dave is joining a government for the first time. He is opposed to big dams, advocates natural farming and is passionate about river conservation.

A threatened breed of sheep found only in coastal Jagatsinghpur and Kendrapara districts of Odisha has been conferred 'rare and singular species' tag by the central government. The National Bureau of Animal Genetic Resources (NBAGR) has accorded genetic recognition to the breed of sheep, locally called 'kuji mendha', officials said.

'Adopt a Green Highway' scheme on the lines of 'Adopt a Highway' in the United States and another called "Kisan Harit Rajmarg Yojna". Under the 'Adopt a Green Highway' initiative, corporates, PSUs and NGOs can take up NH stretches for plantation and their maintenance for five years as in the US where similar entities maintain highway stretches. The plantation is estimated to sequester approximately 12 lakh tonnes carbon annually.

Scientists have turned carbon dioxide into stone in a matter of months by pumping it deep underground, offering a revolutionary new way of storing the greenhouse gas to tackle climate change. The pioneering experiment in Iceland mixed CO emissions with water and pumped it hundreds of metres underground into volcanic basalt rock — where it rapidly turned into a solid.

FROM THE CHAIRMAN'S DESK



Greetings !!!!

This independence day we can proudly say that we have independence from coal import. Record coal production by Coal India, helped India reduce its import bill of the dry fuel by more than Rs 28,000 crore in the last fiscal. This has been only possible through sheer hard work and determination.

Coal Production at BCCL is being strongly supported by environment protection and conservation measures. Honorable Minister of Coal on his visit to Dhanbad on 14.06.2016 promised 1 lakh territorial plantation in & around Dhanbad. BCCL has already started working in this direction and is committed to fulfilling this vision. We have been working dedicatedly in the arena of eco-restoration and every effort is being made to restore the degraded land. Greenery in coal mining area cannot be achieved overnight. It will take time to undo century old degradation. But I'm sure that through dedication, will and hard work one day we will have 'Green Jharia'.

I take this opportunity to wish you all a very HAPPY INDEPENDENCE DAY! May our work be always a source of pride for our Nation!

*N.KUMAR
CHAIRMAN-CUM MANAGING DIRECTOR
BHARAT COKING COAL LIMITED*

PASSING THE BATON

*“Management is doing things right
Leadership is doing the right things”*

The perfect combination of the above can be seen in our beloved Director (Technical)-Operations, Shri D.C.Jha, who joined BCCL as Director (T) Project & Planning on 27.10.2009 and later on took the charges of Director (T), operations on 07.05.2011.

He took the charges of a sinking ship, a company plagued by innumerable problems. Joining BCCL which was running at a loss of 1380 Crores a year was no less than a career suicide. Yet he took up this challenge and emerged victorious in changing the course of this sinking ship. With his insight and leadership he chartered the path of success of BCCL. Taking the company from “BIFR” status to “Mini Ratna” status stands witness to his hard work, dedication and virtuosity. He had a very proactive approach not only to mining but also to the environment. Environment has been very close to his heart. He brought ingenuity in environment clearance through the cluster concept and created a new history of getting EAC approval of 07 clusters of mines in a single day (17.07.2012). Under his able guidance, environment department of BCCL has achieved newer dimensions of success in form of ecological restoration of degraded mining land.

Shri D.C Jha will be completing more than 35 years of dedicated service on 31.08.2016. He will be passing the baton of a very successful race and there is no doubt that he will be remembered as a man who stood taller than the challenges and changed the very course of BCCL's story!

Here is an excerpt of a short interview of our beloved Director.

Q. What were the environmental difficulties you faced at the start of your journey as Director and how you overcame it?

Ans: When I took the charge as the Director Technical of BCCL, all the mines of BCCL required Environment Clearance as per the EIA notification, 2006. Apart from the financial losses, the absence of environment clearance had plagued the company and brought it to the doorsteps of closure by regulatory authorities. With each clearance taking more than a year, environment clearance of 103 mines was a gigantic task. Going by the normal route was not our option. Then we came up with the



cluster concept. By obtaining environment clearance through cluster concept, BCCL has not only solved its problem but also paved way for other industries to expedite the process of environment clearance. Today I can proudly say that all the coal mines of BCCL in Jharkhand have environment clearance.

Q. What environment work of BCCL is closest to your hear?

Ans: I take pride in all the work being done by the environment department of BCCL. I am very proud of my environment team. All my life I have been a mining engineer and I know how mining affects the land. Today when I see the green cover on mine degraded land as an effort of ecological restoration, a feeling of satisfaction descends in my heart!. I feel we are giving something back to the nature.

Q. What improvement you would like to see in the environmental work of BCCL?

Ans: We have started the journey of environmental protection and restoration. Still a lot has to be done. As I always say

**प्यार का पहला खत लिखने में वक्त तो लगता है,
नए परियोजनाओं को उठाने में वक्त तो लगता है,**

BCCL should carry on the good work and it will be a dream come true to see Jharia being known as “GREEN JHARIA”, an image totally opposite of what it has today. I believe BCCL has all the potential to achieve this.

Q. Your message to the young executives joining the company?

Ans: The young executives are the future of the company. They are full of talent and vigor. In the coming years, they have to shoulder big responsibilities. Hard work and dedications should be their mantra. When guided by experience, they can take the company to newer heights. I am confident that they will do it and I wish them all the luck!

I wish all a very “HAPPY INDEPENDENCE DAY”

And at the end

**हमने ईलाज-ए-जरूमे दिल तो बूढ़ लिया लेकिन
गहरे जरूमों को भरने में वक्त तो लगता है।।**

A PEEK INSIDE

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Shri D.C. Jha
Director Technical(OP)

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EDITORIAL

Welcome to India's 70th Independence Day. Every year this day is celebrated in every corner of India with unmatched zeal and fervor. The Indian Tricolor is hoisted with pride, sweets are distributed, sacrifices of freedom fighters are referred to in various speeches and all possible patriotic songs can be heard from all directions. After the revelry and of course holiday of one day, the Independence Day is over. Celebration of this day is very important, no doubt but the celebrations seem more hollowed with each passing year. With freedom comes responsibility. We enjoy the freedom but shirk to take the responsibility. We need to introspect and ask ourselves whether we have evolved as responsible citizens in the past 70 years.

Each and every citizen has to fulfill his role and responsibility to make this country what it was dreamt to be by our freedom fighters. How many of us follow “Country before self”? How many of us voluntarily do the pollution check of our vehicles and do the needful to curb the smoke from old vehicles? How many of us think about the environment while utilizing the resources? How many of us have stopped public vehicle drivers from spitting on the road while driving? One man carrying forward the “Swatch Bharat Abhiyan” will not make the entire country clean. We have to take the responsibility of keeping the roads and all public places clean because it belongs to us, to all Indians, just like our houses belongs to us. We all have to take the responsibility of INDIA.

If we have to revere the sacrifices of the freedom fighters and celebrate this day in the truest manner then we have to unlearn a lot of things and stop accepting the “chalta hai” attitude. A lot has been done in the last 7 decades but much more needs to be done to achieve freedom in the truest sense. Still India has to struggle poverty, corruption and pollution

Let us all pledge that each one of us will honestly do our part in this struggle just like our freedom fighters did for almost a century to achieve freedom from the shackles of British Rule!

JAI HIND!!!

Editorial Team,
Paryavaran Darpan



THE EVOLUTION OF ENVIRONMENTAL LAWS FROM ANCIENT INDIA TO MODERN INDIA-part I

India is a unique sub-continent with vast variations in geographic area, topography and climate. It has a great diversity of ecosystems from the cold and high Himalayan ranges to the seacoasts, from the wet northeastern green rainforests to the dry northwestern arid deserts. Different types of forests, wetlands, islands, estuaries, oceans, and plains endow the country combined with a rich blend of diversified natural settings. Natural and biological resources in the country being abundant, the kind of exploitation they had to undergo through the ages has also been awful, leading to the large-scale degradation of the environment in multifarious ways. Since time immemorial, the efforts of the people to conserve and utilize the natural resources in a sustainable manner have been quite exemplary. Many customary and community norms were evolved by the society to protect the environment. With changing times and scenario, these undocumented traditional doctrines took a back seat, paving the way to codified laws in India.

Environmental Laws in Ancient India (1500 BC- 800AD)

In ancient India, protection and cleaning up of environment was the essence of Vedic (1500–500 BC) culture. The conservation of environment formed an ardent article of faith, reflected in the daily lives of the people and also enshrined in myth folklore, art, culture and religion. In Hindu theology forests, trees and wildlife protection held a place of special reverence. Cutting green trees was prohibited and punishment was prescribed for such acts. Under the Hindu culture moral injunctions acted as guidelines towards environmental preservation and conservation. For instance, to maintain the quality of water and to avoid the water pollution, *Manu* advised not to contaminate water by urine, stool or coughing, un-pious objects, blood and poison. Yagyavalkya Smriti (a Hindu text of tradition of 300 to 500 AD) and Charak Samhita (medical Science book of 900 BC - 600 BC) give many instructions for the use of water for maintaining its purity.

Under the Arthashastra (an ancient Indian treatise on statecraft, economic policy and military strategy by Kautilya), various punishments were prescribed for cutting trees, damaging forests, and for killing animals. The State assumed the functions of maintenance of forests, regulation of forest produce and protection of wildlife. Arthashastra also prescribed punishment for causing pollution and un-civic sanitation. The rivers also enjoyed a high stature in the society. The Ashoka Edicts, especially the 5th Pillar Edict, states how animals and birds were protected in those days. Thus, ancient India had a philosophy of environmental management principally enshrined in old injunctions as they were contained in many scriptures. The environmental ethics of nature conservation were not only applicable to common man but also the rulers and kings.

Laws in Medieval India (800 AD to 1800 AD)

In medieval period, there have been instances of establishment of nature parks, gardens, and fruit orchards by the Mughal rulers around their palaces and along banks of rivers. The notable feature of the Mughal regime was the growth of interest in natural history. Both Babar's account of Indian flora and fauna and Jahangir's investigations in natural history are well known while Salim Ali, the celebrated ornithologist, drew attention to their contributions as naturalists long ago. Adbul Qadir Badauni lists among sins and offences, the three sins, of cutting down a shady tree, making a profession of killing animals, and selling away human beings, as heinous. Akbar's efforts in promoting afforestation in common property resources, management of water bodies, and his disapproval of killing animals are legendary.

The forests were managed with the help of a complex range of rules and regulations woven around the socio-cultural features as well as the economic activities of local communities. During medieval era, another set of legal principles were inducted, governed by the Holy Qur'an. The Holy Qur'an has a number of specific references to ecology and also contains some important principles for environmental conservation. The first principle which guides Islamic teaching on environmental sustainability is the concept of trusteeship. Being a khalifa (or guardian), a man should take all necessary steps to ensure that the entrusted property is passed on to the next generation in as pure a form as possible. According to Islam each man is the custodian of nature, and must live in harmony with other creatures. It is the duty of all Muslims to respect, nurture and care for the environment.

Corruption of all kinds, including environmental corruption, which includes industrial pollution, environmental damage, and reckless exploitation and mismanagement of natural resources are disliked by Allah. According to the Holy Qur'an, environmental conservation is a religious duty as well as social obligation, and not an optional matter. The exploitation of a particular natural resource is directly related to accountability and maintenance of the resource.



Compiled by
Mrs. Mariya Ahsan
Asst. Manager (Environment)

To be continued in the next edition.....

Inception of logical Restoration in BCCL

Part- 2

In the previous edition of Paryavaran Darpan:- Overview of BCCL, consequences of Mining activities to Environment, single tier/monoculture planation methodology adopted by BCCL and Divisional Forest Office, MoU for Ecological Restoration Road Map

Further....

Methodology adopted to restore the degraded mine spoils:

The mined out area including OB dumps which was taken up for development of model restoration was about 14 years old, and was fully invaded by the exotic weeds particularly by *Lantana camara*, *Eupatorium odoratum*, *Heptis suaveolens*. As no interventions were made earlier in these OB dumps, the removal or eradication of weeds particularly *Lantana camara* from the site was much needed prior to start of restoration activities to achieve the objectives of the restoration programme. Therefore, the restoration programme in Tetulmari area started with the following action plan:

- Eradication of weeds
- Soil moisture conservation
- Selection of species
- Earth work
- Selection of suitable method of propagation / multiplication of selected species for planting



OB Dump before Ecological Restoration

Eradication of weeds:

Three common weeds namely *Lantana camara*, *Eupatorium odortatum* and *Heptis suaveolens* had fully invaded the 14 years old OB dump. Before starting restoration activities these weeds were removed in phase wise manner. BCCL personnel who obtained training in FRI on Restoration of mined lands helped in uprooting of weeds in addition to the engagement of labours. Parts of uprooted weed material were also used as mulching on exposed OB dump areas.



Removal of *Lantana camara* from the project site

The weeds like *Lantana camara*, *Eupatorium adorum* and *Heptis suaveolens* had again infested the entire project area. Weeds have been a major problem in the project site. The reoccurrence of weeds has direct impacts on the other plants by direct competition for sunlight, nutrients, and water and/or by allelopathy. So in the second year, again efforts were made to eradicate the weeds to allow the space for already planted species as well as for new propagation of planting material. The eradication of the weeds from the site has been done manually i.e. uprooting on regular basis throughout the year.

Soil moisture conservation by means of mulching

To conserve the soil moisture in a place, the weeds removed from the mined out area along with the grass collected from other areas were spread over the OB dump as a mulch material. In due course of time besides conserving the substratum moisture these mulch materials added nutrients to the exposed OB dump through the process of decomposition.



Mulching on the exposed OB dumps

Selection of Species

Based on existing climatic conditions, substratum quality and considering socio-economic aspect, a number of plant species have been identified and used in the restoration process.

Earth work

At a number of places on the site, which were suitable for direct seedling planting, pits of 2'x2'x2' size were dug out. Approximately 11,000 pits were dug out all over the area. These pits were again filled by the same dug out material after planting of seedlings. However, top soil brought from nearby mining area and cow dung manure were used for better result.



Pit digging on OB dumps

Selection of suitable methods of planting

Depending upon seed source, seed size and regeneration capacity of the species, the selective plant species were propagated by adopting the following methods:

1. Direct seed sowing

The species whose seeds were bigger in size and have the ability to regenerate on exposed barren areas were propagated through direct seed broadcasting. Eg. *Acacia nilotica*, *Aegle marmelos*, *Albizia lebeck*, *Albizia procera*, *Bauhinia purpurea*, *Bombax ceiba*, *Cassia fistula*, *Dalbergia sissoo*, *Melia azeadarach*, *Moringa oleifera*, *Oithecelobium dulce*, *Pongamia pinnata*, *Crotalaria juncea*, *Dodonaea viscose*, *Indigofera trita*, *Mimosa pudica*, *Mucuna pruriens*



2. Seed mixed soil ball

The species whose seeds were very small in size and difficult to regenerate by direct seed broadcast, their seeds were first mixed in soil with water and soil balls were prepared. These seed mixed soil balls were then spread over the area. Eg *Bamboosa bamboos*, *Cenchrus ciliaris*, *Cenchrus setigerus*, *Cynodon dactylon*, *Panicum nitidum*, *Saccharum benghalense*, *Stylosanthes hamata*, *Trifolium repens*



Mixing of seeds in soil



Preparation of seed mixed soil balls

3. Planting of Seedlings

In addition to seed broadcasting either by direct seed sowing or seed mixed soil balls a number of plant species mainly tree species were propagated through seedling planting.

4. Stem cutting

Certain plant species like *Vitex negundo* were propagated in the area through stem cuttings. About 1000 stem cuttings were planted particularly along the boundary of the area.

5. Culm/slip

Grass species like *Arundo donax*, *Cymbopogon nardus*, *Saccharum benghalense*, *Pennisetum purpureum*, *Panicum maximum* were propagated through culm/slip planting.



Seedlings Plantations

Tetulmari (Left) & Damuda (Right) OB Dumps After Ecological Restoration



And..... the end result is:



Chronology of Ecological Restoration at Tetulmari OB Dump



Chronology of Ecological Restoration at Damuda OB Dump.

"keep looking this section for further information on ecological restoration"

To be continued in the next edition



MEMORABILIA

Glimpse of various events in BCCL

June

Sunday 05.06.2016: World Environment Day was celebrated with full enthusiasm in Koyla Bhawan, Dhanbad. The celebration started with the pledge to conserve precious environment resources followed by a tree plantation drive. Saplings were planted by Directors (P), Director (F) company secretary, Dy. GM (Env), GMs and others of BCCL to mark the importance of day.



D(P) and D(F) of BCCL planting Sapling

Various events like Quiz, Essay Writing, slogan writing, and painting competitions were organised on 03.06.2016 at Community hall in Koyla Nagar. To add more colour to the day a new event 'Waste-o-mania- best out of waste' where participants had to use waste material to showcase their creativity activity was also added.





Ongoing activities at community hall in Koyla Nagar on 03.06.2016

The Directors and Dy. GM (Environment), BCCL motivated the Employees and all the public present at the celebration to plant more and more trees in order to make the surroundings green.



Prize distribution to the successful participants of various competitions

World Environment Day was also celebrated in 12 operations areas of BCCL. Pamphlets on how we can do our part to save the environment were distributed among localites. Pledge was taken in all the areas to protect and conserve the natural resource.



WED celebration at Katras Area



WED celebration at Kusunda Area



World Environment Day Celebration at WJ Area

Wednesday 08.06.2016: Dr. Rajiv Kumar Garg, Principal Advisor Coal India Limited, visited GKKC ecological restoration site of Kusunda Area on 08.06.2016. He acknowledged and appreciated the efforts of BCCL.



Dr Rajiv Kr. Garg at GKKC ecological restoration site

9-14 June 2016: The team of FRI, Dehradun visited the eco-restoration sites of BCCL from 09-14 June 2016 for the scientific assessment, identification of flora and fauna being established, soil assessment, growth assessment etc. of eco-restoration sites of BCCL and to provide scientific and technical guidance to BCCL for improvement of these sites.



FRI team at work, Colroful fauna observed at eco restoration site

Tuesday 14.06.2016: Shri Piyush Goyal, Minister of State with Independent Charge for Power, Coal, Mines and New & Renewable Energy visited BCCL and held meeting with BCCL officials to review the performance of the company



July

Wednesday, 06.07.2016: A team of professors from Central Mining Institute, Katowice, Poland with M K Singh, CIL visited the Rajapur OCP, Bastacolla Area for seeing the mine fire and reclamation and restoration of degraded mined out land. The Team appreciated the efforts of BCCL of converting the fire affected region into the lush green ecologically restored land.



The polish team at Rajapur eco restoration site

Name & Address	Comments & Suggestions
JAN BONDARUK Central Mining Institute (Poland) E-mail - 6-7/16 Rajapur site, Bastacolla area	Well done and planned project. We keep fingers for next phases. Good work !! Very valuable efforts for reclamation!
Kodostan Pomplata - AGH University (Poland) E-mail - Rajapur site, Bastacolla area	
March Cafe - AGH University (Poland) E-mail - Rajapur site, Bastacolla area	That's how it should look like in Europe! It seems we can also learn a lesson from India! Impressive Excellent
M. K. Singh - CIL E-mail - Rajapur site, Bastacolla area	

Comments by the Polish Team

Friday, 15.07.2016: Miss Shantilata Sahoo, Director (P), Northern Coalfields Limited visited the ecological restoration at GKKC, Kusunda Area. She praised the efforts of BCCL towards the development of environment and establishment of biodiversity at the degraded mined out land and suggested for replication of the same at other degraded mined out areas.



Shrimati Shantilata saho at GKKC Kusunda eco restoration site

Name & Address		Comments & Suggestions
Miss Shantilata Sahoo. Director (P), NCL.		Excellent work done by BCCL team, work to see it and extend to other areas, we not only exploit the environment, also bring up a better environment after mining. Wish all the best. <i>Shilpa</i>
E-mail - visit to GKKC ^{Tel.} , Kusunda ER site		
B'day - 15/7/16.		
E-mail -		
B'day -		
Tel. -		
Anniversary -		

Tuesday, 26.07.2016: In pursuant to the Indo-Japan working group meeting in Japan, a Japanese delegation visited Jharia coalfields in connection with the project for subsidence measurement based on microwave remote sensing satellite using Din SAR. The delegation visited Ghanoodih & Moonidih.



Japanese delegation at Ghanoodih



Japanese Delegation at Moonidih

पर्यावरण प्रदूषण एक ज्वलंत समस्या और समाधान

नवीन कुमार पाण्डेय

सहायक प्रबंधक (उत्खणन) कुसुण्डा क्षेत्र

पर्यावरण— पर्यावरण दो शब्दों परि और आवरण के मेल से बना है। 'परि' एक उपसर्ग है जिसका अर्थ है चारों ओर और आवरण का अर्थ है ढक्कन और या आच्छादन। इस प्रकार पर्यावरण का शाब्दिक अर्थ है हमारे चारों ओर का ढक्कन या आच्छादन। पर्यावरण का तात्पर्य हमारे चारों ओर का हवा, पानी, मिट्टी, पेड़-पौधे, जीव-जंतु प्राणी आदि से है, यही हमारे सजीवों के आधार तत्व हैं। पर्यावरण के इन तत्वों के बिना हम अपने जीवन की कल्पना भी नहीं कर सकते। कोई भी प्राणी मात्र सांस लिए बिना कुछ मिनट भी जिंदा नहीं रह सकता। 'जल ही जीवन है' यह सिर्फ नारा या कहावत नहीं अपितु कटु सत्य है, बिना जल के कोई भी प्राणी अपने जिंदा रहने के बारे में सोच भी नहीं सकता है। ठीक इसी तरह मिट्टी, पेड़-पौधे और जीव-जंतुओं के बिना भी सृष्टि की कल्पना बेमानी है। कुल मिलकर तात्पर्य यह है कि पर्यावरण के बिना हमारा कोई अस्तित्व ही नहीं है, पर्यावरण है तो हम है।

प्रदूषण— जब पर्यावरण के आधार तत्व मिट्टी, जल और वायु हमारे लिए हितकर के बदले अहितकर हो जायें तो इसे पर्यावरण प्रदूषण कहा जाता है। प्रदूषण का अर्थ है वातावरण या वायुमंडल का अस्वस्थ होना। प्रदूषित वातावरण के कारण अनेक प्रकार के प्राकृतिक आपदाओं और कई प्रकार के ज्ञात और अज्ञात रोग उत्पन्न हो रहे हैं। जो मानव जाति के साथ-साथ सभी जीवधारियों की सांसों में बिष घोलकर उन्हें तेजी से मृत्यु की ओर ले जा रहे हैं। बढ़ती जनसंख्या की आवश्यकता को पूरा करने के लिए तेजी से बढ़ रहे मशीनीकरण, औद्योगिककरण, शहरीकरण प्रकृति के साथ छेड़-छाड़ एवं वृक्षों की अंधाधुन कटाई ही पर्यावरण प्रदूषण का मुख्य कारण है। प्रदूषण मुख्यतः निम्नलिखित चार प्रकार के होते हैं।

1. भूमि प्रदूषण— बढ़ती जनसंख्या की आवश्यकताओं को पूरा करने के लिए खेतों में उत्पादन बढ़ाने और कीड़ों को मारने के लिए

रसायनिक दवाइयों के अत्यधिक छिड़काव से मिट्टी की स्वभाविक उर्वरा शक्ति क्षीण होती जा रही है, इसी को भूमि प्रदूषण कहते हैं।

भूमि प्रदूषण से बचाव के लिए प्राकृतिक एवं रासायनिक खादों के प्रयोग में संतुलन स्थापित करना होगा। औद्योगिक कचरे को भूमि में मिलने से बचना होगा, जन जागरण से भूमि प्रदूषण के हानि के बारे में जन जागृति लाना होगा। यहां यह कहना कितना अधिक उपयुक्त होगा कि "अगर करते हो खुदा से प्यार, तो भूमि प्रदूषण से बचो यार"।

2— जल प्रदूषण — शहरों के नालों का पानी कल-कारखानों से निकले कचरे और विषैले रासायनिक द्रवों को सीधे नदियों एवं झीलों में प्रवाहित कर देने से इनका जल प्रदूषित हो गया है, इसे ही जल प्रदूषण कहते हैं। प्रदूषित जल के सेवन से जल जलित रोग जैसे पीलिया, मलेरिया, टायफाइड, हैजा आदि फैलते हैं जलचर जीव भी तड़प-तड़पकर मरने लगते हैं।

गंगा और यमुना जैसी पवित्र नदियों भी आज इस प्रदूषण से बच नहीं पाई है। समस्या का समाधान यह है कि कल-कारखानों को नगरों बस्तियों से दूर खुले वातावरण में लगाना चाहिए। इसके गंदे पानी व कचरे को नदी-नालों में मिलने से पहले सीवरेज ट्रीटमेंट प्लांट से आवश्यक रूप से फिल्टर किया जाना चाहिए। इस घरती पर कुल 30% भूमि और उपलब्ध जल की मात्रा 70% है, जिसमें से सिर्फ 1% पानी ही पीने योग्य है। इससे जल की महत्ता को समझा जा सकता है और इसके बिना जीवन की कल्पना भी असम्भव है। इसीलिए यह कहा गया है कि जल ही जीवन है। मुझे तो यह कहने में भी अतिशयोक्ति नहीं लगता कि जल का हर बूंद अमृत समान है, जल है तो कल है अन्यथा सारा मेहनत और विकास विफल है।

3. वायु प्रदूषण कारखानों की बड़ी-बड़ी चिमनियों, मोटर गाड़ियों, वायुयानों एवं रेल के इंजनों से निःसृत, धूल-धुआ की वजह से वायु प्रदूषित हो गया है, इसे ही वायु प्रदूषण कहते हैं। इसलिए कहा गया है कि " आग धुआं और धूल। ये तीनों पर्यावरण के हैं शूल।

प्रदूषित वायु में सांस लेने के कारण दमा, फेफड़ा, सांस एवं गले से संबंधित कई प्रकार के रोग उत्पन्न होते हैं। वायु प्रदूषण के कारण त्वचा रोग में भी तेजी से इजाफा हो रहा है। इस समस्या का मूल समाधान यह है कि नगरों के आसपास वन-उपवन लगाये जायें। वृक्षारोपण एवं वृक्ष संरक्षण को सच्चे अर्थों में दिल से अपनाया जाये। धूल और धुआं को ठिकाने लगाने के लिए सुरक्षित उपाय अपनाया जाये। वायु के बिना एक क्षण भी जीवित रहना किसी भी प्राणि के लिए संभव नहीं है तो फिर उसके शुद्धता के लिए प्रत्येक मानव जाति को तन, मन और धन से प्रसास करना चाहिए।

4. ध्वनि प्रदूषण — उद्योगों के तेज आवाज, गाड़ियों की कर्कष ध्वनियां, मोटरों के हार्न, हवाई जहाजों के शोर, रेडियो, टेलीविजन, लाउडस्पीकर के तेज आवाज, पटाखों की कान फोड़ ध्वनि, खदानों में विस्फोट आदि के कारण ध्वनि प्रदूषित हो गया है, इसे ही ध्वजनि प्रदूषण कहते हैं।

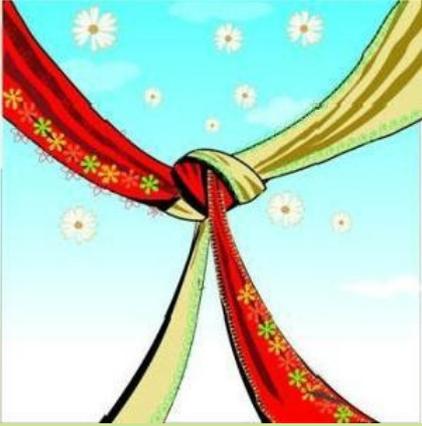
ध्वनि प्रदूषण की वजह से पागलपन, बधिरता, चिड़चिड़ापन, कान के बिमारियों आदि रोग उत्पन्न हो रहे हैं। इस समस्या का निदान यह है कि इनका कम से कम उपयोग करें और शासन द्वारा निर्धारित सीमा और कानून का पालन करें। कितना अच्छा होगा कि हम सब मिलकर करें—

नंदन वदन अभिनंदन।

प्रदूषण का छेदन, भेदन, उन्मूलन।।

प्रदूषण के इस गंभीर समस्या की वजह से ही आज पूरा संसार ग्लोबल वार्मिंग, बाढ़ अकाल, सूखा, सुनामी (समुद्री जलजला) भूकम्प, ज्वालामुखी, वातावरण परिवर्तन जैसे अनेक प्राकृतिक आपदाओं एवं विभिन्न प्रकार के ज्ञात व अज्ञात महामारियों से जूझ रहा है। यदि समय रहते इस समस्या का निदान नहीं किया गया तो महाविनाश निश्चित है। पर्यावरण प्रदूषण पर काबू पाने के लिए विकसित एवं विकासशील राष्ट्रों को आणविक विस्फोटों एवं रासायनिक अस्त्रों के खतरनाक प्रयोगों पर प्रतिबंध लगाने होंगे। कल कारखानों एवं शहरों के गंदे जल को परिशोधनयंत्र से शुद्ध कर नदियों में मिलाना होगा। हरे वनों की कटाई पर अविलंब कानूनी रोक लगानी होगी एवं इसके परिपालन व सजा को कठोर बनाना होगा, क्योंकि पृथ्वी पर सिर्फ हरियाली बढ़ाकर दो तिहाई प्रदूषण पर काबू पाया जा सकता है। मार्कण्डेय पुराण में कहा गया है कि यावद भूमण्डलम् अन्ते, सशैलवन काननम् तावत तिष्ठति मोदिन्यां सन्ततिः पुत्र-पौत्रिकी"

अर्थात जब तक पृथ्वी हरे भरे वनों और पहाड़ों से युक्त रहेगी मानव संतान का पालन-पोषण होता रहेगा। कहने का तात्पर्य यह है कि प्रकृति की ओर मुड़कर और मनुष्यता की ओर बढ़कर ही वर्तमान प्रदूषण पर काबू पाया जा सकता है। आज समय की सबसे अहम आवश्यकता इस बात की है कि जन-जन को पर्यावरण प्रदूषण के कुप्रभाव से अवगत कराया जाये और इसके बचाव के उपाय भी बताये जायें।



पर्यावरण शादी

जैव विविधता संरक्षण हेतु शादी से पूर्व जैव विविधता संरक्षक / पर्यावरणविद के समक्ष वर एवं वधु द्वारा लिये/दिये जाने वाले सात वचनों का प्रारूप (जो हाथ से बने पुनः चक्रित कागज से बने शपथ पत्र एवं पाइप पेपर पर अंकित हो)

डॉ रमेश बाबू शर्मा एवं भारती शर्मा
केन्द्रीय भेड एवं ऊन अनुसंधान संस्थान
अविकानगर- 304501 (राजस्थान)

केन्द्रीय विश्वविद्यालय, बान्दर सिन्दरी - 305 817 (राजस्थान)

श्री गणेशाय नमः

हम भारतीय संविधान के अनुच्छेद 48 (ए) में दिये मूल अधिकार "राज्य देश के पर्यावरण संरक्षण, संवर्धन और वन तथा वन्य जीवों की रक्षा करने का प्रयास करेगा" तथा 51ए (जी) के अन्तर्गत दिये गये मूल कर्तव्यों में उल्लेखित प्रत्येक नागरिक का कर्तव्य "वह प्राकृतिक पर्यावरण की सुरक्षा एवं उसमें सुधार करेगा जिसमें जंगल झीले, नदियों एवं वन्य जीव आदि शामिल है एवं सभी जीवधारियों के प्रति दया, करुणा तथा सहानुभूतिपूर्वक आचरण करेगा। "जैव-विविधता एक्ट 2002 तथा तेलगाना जैव विविधता नियम की अनुपालना तथा इनमें समय समय पर होनेवाले संशोधन की पालना करते हुए आज दिनांक.....वार..... समय..... को परमात्मा को साक्षी मानते हुये हम वर एवं वधु अपने अपने माता-पिता, संरक्षक, कुटुम्ब, प्रजा एवं पूज्य गुरुजनों के समक्ष विवाहित जीवन शुरू करने से पूर्व बिना किसी दबाव, बिना किसी नशे पते के पूर्ण होश हवाश में शपथ लेते हैं कि-

1. राष्ट्रीय पुष्प-कमल, राज्य पुष्प झारखंड के निवासियों के लिए प्लास-(*Butea Monosperma*)
- (ब) राष्ट्रीय पक्षी-मोर, राज्य पक्षी झारखंड के निवासियों के लिए एसियन कोयल (*Eudynamis Scolopacea*)
- (स) राष्ट्रीय पशु-टाईगर, राज्या पशु झारखंड झारखंड के निवासियों के लिए हाथी- (*Elephas Maximus*)
- (द) राष्ट्रीय वृक्ष-वरगद, झारखंड के निवासियों के लिए राज्य वृक्ष साल- (*Shorea robusta*) के संरक्षण एवं संवर्धन में अपना तन, मन एवं घन समर्पित करेंगे।

2. किसी भी प्रकार के जंगली जानवरों, पक्षियों को मारकर नहीं खायेगें तथा उन्हें नुकसान नहीं पहुंचायेगें। जानवरों एवं पक्षियों के लिए खेती, परिन्दों में प्रतिदिन पानी भरेगें तथा पक्षियों को दाना/चुगगा डालेगें। लोहे कांच हानिकारक रसायनों पदार्थों से निर्मित मांझे का प्रयोग पतंग उड़ाने में नहीं करेगें तथा प्रातः 5 से 7 तथा सांय 6 से 8 बजे तक पतंग उड़ाना प्रतिबंधित रहेगा। "वसुधैव कुटुम्बकम्" तथा "जिओं और जीने दो" हमारे परिवार का मूल मंत्र होगा।



3. शादी के मंडप तथा शादी के उपरान्त किसी भी प्रकार के उपयोग हेतु हरे पेड़-पौधों को नहीं काटेगें। उसका पालन पोषण करेंगें। परिवार के प्रत्ये सदस्य को विशेषकर बच्चों को सतत् विकास के साथ-साथ पर्यावरण संरक्षण की शिक्षा देगें।



4. शादी के अवसर पर तथा उपरान्त किसी भी उत्सव पर (राष्ट्रीय त्यौहारों के अलावा) लाउडस्पीकर डेक बाजा इत्यादि का उपयोग नहीं करेगें। घर, मंडप बगीचा इत्यादि की सजावट के लिए बिजली का दुरुपयोग नहीं करेगें। बेकार निरर्थक वस्तु को कम करना घटाना, पुनः निर्माण करने के सिद्धान्त का पालन करेंगें। घर, कार्यालय, कारखाने इत्यादि में तापीय प्रकाश (सोलर लाइट) की व्यवस्था करेंगें।

5. खाना खाने, पानी पीने तथा अन्य दैनिक कार्यों में प्लास्टिक की पत्तलों, दोनों, चम्मचों एवं थैलियों इत्यादि का उपयोग नहीं करेगें। सब्जियों, फल, सामान इत्यादि लाने, ले जाने के लिए जूट/कपड़े का थैला प्रयोग में लेंगें। खेती करने में उर्वरकों, कीटनाशकों इत्यादि का प्रयोग हेतु जरूरी होने पर ही संतुलित ढंग से करेंगें। हरी खाद, कम्पोस्ट, वर्मीकम्पोस्ट का प्रयोग कर जैविक खेती को बढ़ावा देगे। पशुओं से दूध निकालने के लिए आक्सीटोसिन इन्जेक्शन का प्रयोग नहीं करेगे तथा पशुओं में दर्द निवारक डाइक्लोफेनिक का प्रयोग नहीं करेगें।

6. डीजल- पेट्रोल वाहनों के स्थान पर सी.एन.जी. से चलने वाली युरो-3 (बहुत कम प्रदूषण फैलाने वाली) मानक वाहन का ही उपयोग करेंगें। बारातियों को लाने/ले जाने में तथा भविष्य में वाहन का प्रयोग समूह (पूल) में करे। जिन्दगी में किसी भी प्रकार का नशा-पता धूम्रपान नहीं करेंगें।

7. हम तथा हमारे परिवार के सदस्य 50 लीटर जल प्रतिदिन प्रति व्यक्ति से ज्यादा का उपयोग नहीं करेंगें। घर खेत, खलियान में वर्षा संरक्षण हेतु संरचना बनायेगें। नदी, नालों, तालाबों, पोखरो को किसी भी प्रकार से प्रदूषित न करेंगें ना ही होने देंगें। गर्म स्थानों पर अधिक पानी की मांग रखने वाली फसलों के स्थान पर कम पानी की मांग पर उत्पादन देने वाली फसलों का उत्पादन लेंगें। हमारे पूरे परिवार का जीवनयापन प्रकृति के सानिध में, प्रकृति अनुरूप होगा एवं भारतीय संस्कृति के अनुसार सभी के सह-अस्तित्व की भवनानुसार जियेंगें। विश्व पर्यावरण दिवस 2013 के अनुसार सोचिए, खाइए और बचाइये का पालन करेंगें।



पर्यावरण सुधारने में बीसीसीएल नर्सरी का योगदान

श्री र०न० झा
उप प्रबन्धक (खनन)

कोयला उद्योग में अग्रणी कोल इंडिया की कंपनी भारत कोकिंग कोल लिमिटेड अपने कोकिंग कोल के भंडारण हेतु अपना विशेष महत्व रखती है। ऐसे में विश्व पर्यावरण की बिगड़ती स्थिति को देखते हुए कोयला निकाले गये जगहों पर जहाँ पत्थरों का ढेत लगा है वहाँ के लिये कंपनी के उच्च पदस्थ अधिकारियों ने नारा दिया—

“ पत्थर की धरती करे पुकार, वृक्ष लगाकर करो ऋंगार ” ।



इस नारे के क्रियान्वयन का जिम्मा पर्यावरण संरक्षक पर्यावरण विभाग ने लिया और बेडोल पत्थरयुक्त जमीन पर हरित क्रान्ती लाने का संकल्प लिया। विभिन्न क्षेत्रों के ओ० बी० डंप को विन्हित कर उसमें विभिन्न तरीकों से जंगल निर्माण पर नये आयाम “इकोलॉजिकल रेस्टोरेशन” की शुरुआत करायी। परंतु उनके संतुष्टी के लिये कार्य को आगे बढ़ाना उन्होंने अपनी महती जिम्मेदारी समझी और इसी क्रम में एक नर्सरी का कोयला नगर में जीर्णोद्धार करायी जिसमें वर्ष 2016-17 के लिए एक लाख पौधा के उगाने का संकल्प लिया। नर्सरी को उच्च तकनीक हेतु संपोषित कर एक टीम का गठन किया जिसमें र०न० झा बतौर पदाधिकारी, एक उच्च सुपरवाइजर — श्री गुंजन पांडेय, एक उच्च कृषि वैज्ञानिक श्री ऐ० के० सिंह एवं चार नये कर्मियों को पदस्थापित किया तथा कंपनी को नर्सरी युक्त बनाया।

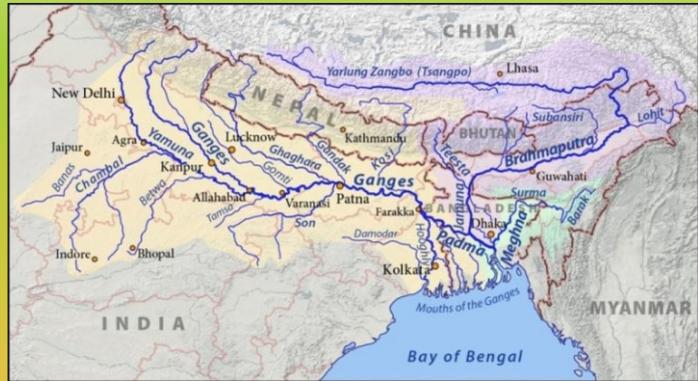
डी०एफ०ओ धनबाद बीसीसीएल के नर्सरी में



बड़े ही यत्न से सभी पदस्थापित कर्मियों ने अपना पूरा योगदान कर नर्सरी को सँवारा सजाया। जुलाई माह तक करीब 90000 पौधा तैयार कर विभिन्न क्षेत्रों, प्राइवेट व्यक्तियों एवं डी.जी.एम.एस. को छोटे पौधे देकर पर्यावरण सुधार की दिशा में कदम बढ़ाया। ये पौधा लगाकर बड़े होकर जब पूर्ण पौधा बनेंगे निश्चय ही एक मिसाल बनेंगी और विश्व पर्यावरण के लिए मील का पत्थर साबित होगी। नर्सरी धीरे-धीरे आधुनिकरण की ओर अग्रसर है और भविष्य की पर्यावरणीय सुधार कि एक कार्यशाला बनती जा रही है।



A two-and-a-half-year partnership between India's Ministry of Water Resources, River Development and Ganga Rejuvenation, and UNDP aims to improve the quality of water and rejuvenate the Ganga, one of India's most important rivers as it flows through the state of Jharkhand. Implemented in 78 villages located along the river, in areas where over 90 percent of the population defecates in the open, the project aims to reduce contamination of the river and improve the wellbeing of communities living in villages. At the end of the partnership, it is expected that 45,000 households will benefit from improved health and quality of life through improved sanitation practices and quality of waste water, and storm runoff flowing from these villages in the river.



The partnership focuses on three types of interventions, those which:

- 1) Improve sanitation practices through expanding access to and use of sanitation facilities, thereby completely ending open defecation in 78 villages.
- 2) Strengthen sanitation-livelihood links through promoting cost-effective, appropriate, solid and liquid waste management strategies that can both improve livelihoods and ensure sustained use of sanitation infrastructure. This includes water harvesting ponds, biogas units, smokeless cook stoves, medicinal plant harvesting and improved livestock and animal husbandry activities.
- 3) Empower local governance institutions through capacity building of communities and local institutions including panchayats, village water and sanitation committees and women's self-help groups. The aim is to enable these groups to effectively manage, enhance and maintain facilities established for improved sanitation in the villages.

Looking to the Future : There will be improvement of the health and quality of life in rural areas through improved sanitation practices, improved management of sanitation facilities through greater awareness among rural communities and other stakeholders on sanitation, end of open defecation by ensuring access and use of sanitation facilities in households and public places including special facilities for differently-abled individuals and reduction of solid and liquid waste disposal into the river Ganga including human fecal waste.

AWARD

BCCL received Environment Gold award from Fame (Foundation for accelerated mass empowerment) at New Delhi on 24th July 2016. This award was given to BCCL for its outstanding and unique ecological restoration work on its mined out degraded lands and for Mine water utilization to surrounding villagers and other environment protection works like reduction in coal mine fire area, conversion of mine water to RO water etc. The award trophy and certificate were received by Dr. EVR Raju, Dy. GM/HOD (Environment) on behalf of BCCL.



UPDATES

Shri. Deval Gangopadhyay has taken over as Director (Technical) Project & Planning on 26.07.2016. He had graduated in mining from ISM Dhanbad in the year 1980 and joined ECL as Graduate Engineer Trainee.



Dugda NLW 2.5 MTPA washery and Bhojudih NLW 2 MTPA washery was recommended by Expert Appraisal Committee for Environment Clearance. After MoEFCC grants EC to the two washeries, all the new 6 washeries of BCCL will have EC. This will greatly improve the environment and coal quality.

AN IDEA CAN CHANGE YOUR ENVIRONMENT

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

Nearly 93% of the paper we use is derived from trees. To produce one kilogram of paper, 324 liters of water is used, while one sheet of A4 paper takes up 10 liters of water. To meet the amplifying demand for paper, trees are being cut rapidly and we are faced with serious repercussions of deforestation. While it was estimated that the ongoing electronic revolution will reduce the demand for paper, the lack of equal distribution and opportunity to access electronic benefits has meant that the demand for paper continues to rise in developing countries and it is predicted to double by 2030. Here are some simple yet wonderful ideas to reuse waste paper lying at home:



To make a paper mache bowl, use a plain bowl (glass or steel) and stick bits of paper all around it until you get the desired thickness is achieved. Let it dry for at least 10 hours.



Photo frames can be created by lumping together sheets of paper into the sides of frame. You can also add in ornamental items made from paper onto the frames made up of used cardboard



Baskets can be weaved using strips of newspaper moulded in varying patterns, but this needs skills of basket weaving!



Use two sheets of newspaper folded horizontally and stapled at the loose ends to create one paper bag. Pitch in old cloth strings or jute threads for the support or handle.



Collect and shape strips of newspaper into sticks. You can also use colorful paper tapes to keep them from disassembling. Use a cardboard piece as the bottom. Place the sticks together using glue or stitch them together using cotton threads



Cut variously colored newspapers into circular shaped pieces. Use a rubber or plastic ball as the base. Apply glue or double side tap over the circumference of the ball and stick the pieces onto them.

MAIL YOUR SUGGESTIONS, ARTICLES, POEMS & FEEDBACK TO
“darpanparyavaran@gmail.com”.

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