27th Mines Environment & Mineral Conservation Week - 2021-22

Souvenir

संजय लोहिया, आईएएस
अपर सचिव एवं महानियंत्रक (प्रभारी)

SANJAY LOHIYA, IAS
Additional Secretary & Controller General (Incharge)

भारत सरकार
GOVERNMENT OF INDIA
खान मंत्रालय
MINISTRY OF MINES
भारतीय खान ब्यूरो
INDIAN BUREAU OF MINES

Dated 29th March, 2022

MESSAGE

The legal regime governing the mining sector in India has given due importance to scientific mining, conservation of mineral and protection of environment. Towards this end, the provisions of Mineral Conservation and Development Rules have been amended to include new features from time to time.

A system of Star Rating of mines was introduced in the year 2016 and recently a provision of taking images of mining leases and surrounding areas through drones has been included in the rules. Already some progressive mine owners have been using drones for monitoring of their mining activities.

The mining lease holders under the jurisdiction of various regional offices of Indian Bureau of Mines (IBM) have been observing Mines Environment and Mineral Conservation (MEMC) week for the last 31 years. The MEMC week gives an opportunity to miners to show their good work and exchange ideas with other miners. It also gives an opportunity for recognizing the good work done by the miners.

I am happy to note that MEMC week 2022 for areas in the jurisdiction of Hyderabad Regional office of IBM is being held from 06th December, 2021 to 12th December, 2021 and the final day function will be celebrated on 23rd April, 2022.

I congratulate all the miners and the organizing committee of the MEMC week specially the host, M/s. JSW Cements Limited, Kurnool for observing the week. I convey my best wishes for successful conduct of the final day function.

29/3/22

(Sanjay Lohiya)

खण्ड घ, द्वितीय तल, इन्दिरा भवन, सिविल लाईन्स, नागपुर 440 001
Block D, Second Floor, Indira Bhávan, Civil Lines, Nagpur 440 001
फोन/फैक्स Phone/ Fax No. 0712 2560041, 2565073 इ-मेल/E-mail: cg@ibm.gov.in

भारत सरकार
GOVERNMENT OF INDIA
खान मंत्रालय
MINISTRY OF MINES
भारतीय खान ब्यूरो
INDIAN BUREAU OF MINES
मुख्य खान नियंत्रक का कार्यालय
OFFICE OF THE CHIEF CONTROLLER OF MINES

पीयूष नारायण शर्मा
Peeyush Narayan Sharma

MESSAGE

I am immensely happy to note that the 27th Mines Environment and Mineral Conservation Week 2021-22 was observed from 06.12.2021 to 12.12.2021 under the patronage of Hyderabad Regional Office of Indian Bureau of Mines, covering participation of various mines of Andhra Pradesh and Telangana States. The concluding day function of the week is to be held on 23rd April 2022. I am also happy to note that, this year, M/s JSW Cements Limited is hosting the event and total 111 mines, spreading all over the districts of Andhra Pradesh and Telangana States, are participating in the event.

Such celebrations not only gives result for growing awareness amongst the mining fraternity towards conservation of minerals and protection of environment but also reflects sincerity in our approach towards sustainable development of the mineral sector.

Mining industry plays a vital role and responsibility for preservation of their surrounding environment and conservation of minerals, as a duty to the society. It is imperative that we leave a clean and green planet earth for the future generations, as intergenerational equity.

I am sure during the week long observance of MEMC Week, innovative concepts of Mineral Conservation & Protection of Environment would be deliberated and implemented for betterment of mankind. It also serves the purpose of reminding us of our commitment to nature and the society, by exchanging environmental values and sustainable growth of the Mining Industry.

I extend my congratulations and best wishes to the Indian Bureau of Mines, Regional Office, Hyderabad, this year's host M/s JSW cements Limited and all the participating mines on this occasion and am sure that the week will prove to be huge success.

(**Peeyush Narayan Sharma**)
Chief Controller of Mines I/C

द्वितीय तल, खंड-'क' इंदिरा भवन, सिविल लाइन्स, नागपुर-440001
दूरभाष संख्या - 0712-2560961
ई-मेल : ccom@ibm.gov.in

2nd Floor, 'A' Block, Indira Bhavan, Civil Lines, Nagpur-440001
Tel. : 0712-2560961
e-mail : ccom@ibm.gov.in

भारत सरकार
GOVERNMENT OF INDIA
खान मंत्रालय
MINISTRY OF MINES
भारतीय खान ब्यूरो
INDIAN BUREAU OF MINES

पंकज कुलश्रेष्ठ
मुख्य खान नियंत्रक (प्रभारी)

Dated 13th April, 2022

MESSAGE

It gives me immense pleasure to know that 27th Mines Environment and Mineral Conservation Week, 2021-22 was celebrated from 6th December 2021 to 12th December 2021 under the aegis of Hyderabad Regional office of Indian Bureau of Mines.

Regular Observance of Mines Environment & Mineral Conservation Week helps in creating a healthy mine environment not only for the participating mine owners but also for the community as a whole. As a result, this creates awareness among the miners for optimum usage of the mineral resources, duly protecting environment and rehabilitation of land resources. Environment protection and mineral conservation need to be an integral part of mine operation, mine planning and production techniques so as to achieve sustainable development.

I believe that the observance of Mines Environment & Mineral Conservation Weeks provides an opportunity to retrospect our efforts for the cause of mineral conservation & environment protection and share new ideas.

I convey my best wishes for the event and congratulate all the mine owners for participating in the event and host M/s JSW Cements Limited, Nandyal Unit and wish a grand success of the celebration.

(Pankaj Kulshrestha)

इन्दिरा भवन, सिविल लाईन्स, नागपुर 440 001 फोन/ फैक्स क. 0712 2561824 , 2565073 इ मेल ccom-mes@ibm.gov.in
Indira Bhavan, Civil Lines, Nagpur 440 001 Phone/ Fax No. 0712 2561824, 2565073 E mail: ccom-mes@ibm.gov.in

V.G. VENKATA REDDY
DIRECTOR

DEPARTMENT OF MINES & GEOLOGY
GOVERNMENT OF ANDHRA PRADESH

MESSAGE

I am happy to know that the Mine Environment & Mineral Conservation Council, Hyderabad Region is Celebrating 27th Mines Environment &Mineral Conservation Week 2021-22 under the aegis of Indian Bureau of Mines, Hyderabad being hosted by M/s. JSW Cement Limited, Gadivemula. I am glad to know that Mines spread across Andhra Pradesh & Telangana are participating to spread the message of Safe Environment, Which is the life line of our Civilization. I am sure during the celebration, the innovative concept of Mineral Conservation & protection of the environment would be deliberated and implemented. I wish to compliment all the members of the Mines Environment & Mineral Conservation Council and Indian Bureau of Mines for their Efforts.

DIRECTOR OF MINES & GEOLOGY

Sri Anjaneya Towers, B-Block, 5th & 6th Floor, Ibrahimpatnam, Vijayawada, Krishna District, A.P.-521456.
Ph: 0866-2882170, Email: dmgap@ap.gov.in

भारत सरकार / GOVERNMENT OF INDIA
खान मंत्रालय / MINISTRY OF MINES
भारतीय खान ब्यूरो / INDIAN BUREAU OF MINES
खान नियंत्रक (द.अ.) का कार्यालय
OFFICE OF THE CONTROLLER OF MINES (SZ)

Tel: (080) 29503287 / 29505365
E Mail: zo.bangalore@ibm.gov.in

29, Industrial Suburb,
II Stage,Yeshwantpur
Bangalore- 560 022

Message

It gives me pleasure to note that the Mines Environment and Mineral Conservation Week 2021-22, was celebrated from 06.12.2021 to 12.12.2021 under the patronage of the Indian Bureau of Mines, Hyderabad Region and about 111 mines of Andhra Pradesh and Telangana states were participated during the event.

Mining industry is playing a vital role in the growth and development of our National economy. It becomes our responsibility to ensure that mines working should not create any adverse effect on our Environment and ecology. Celebration of this event will helpful in creating awareness and consciousness amongst one and all towards the need for environment and mineral conservation. I am also sure celebration of said week will recognize the challenges posed to the mining industry especially in Andhra Pradesh and Telangana states.

I am confident that the Event will bring about innovation and creative ideas for application in conserving and protecting the environment which is the need of the Nation and implemented throughout the year.

I convey my best wishes for the event and congratulate all the mine owners for participating in the MEMC week & host M/s JSW Cements Limited, Nandyal Unit.

Date 05.04.2022
Bangalore

V. J. K. Babu
CONTROLLER OF MINES

JSW Cement Ltd

P.O. Vidyanagar, Tq : Sandur,
Dist. Bellari - 583275 Karnataka, India
Phone : 08395-241001
Fax : 08395-241003
Website : www.jsw.in

CIN - U26957MH2006PLC160839

MESSAGE

It gives me immense pleasure to note that Mines Environmental & Mineral Conservation council, Hyderabad Region is celebrating 27th Mines Environmental & Mineral Conservation week 2021 22 under the patronage of Indian Bureau of Mines Hyderabad Region. It is also a matter of great pride that M/s JSW Cement Limited, Nandyal Unit is the host of this event.

The Mining industry in India is one of the core industries of the economy. It provides basic raw materials to many important industries. With increasing globalization, the competitiveness in industry has evolved to a new dimension in various areas namely cost economics, environment monitoring, mineral conservation, safety, productivity, customer satisfaction, technological up-gradation and human resources development. This invites tremendous efforts from entrepreneurs, government agencies and citizens. Mines Environment and Mineral Conservation are part of such efforts for sustainable development basis. To meet the objectives, Indian Bureau of Mines started celebration of the ME & MC Week in mutually beneficial manner with the mining industry people in both states of Andhra Pradesh & Telangana.

I, on behalf of M/s JSW Cement Limited, congratulate the participants, organizing committee and wish a grand success for this programme

Best wishes,
Veerababu G.

JSW Cement Limited

Vill : Bilakagudur
Mdl : Gadivemula
Dist. : Kmool - 518 508, A.P.
Phone : 08514 - 202304
08514 - 202305
Website : www.jswcement.in

Message

I am very pleased to know that 27th Mines Environmental & Mineral Conservation week 2021-22 is being celebrated under the patronage of Indian Bureau of Mines. Hyderabad Region. It also gives me immense pride to note that this year M/s JSW Cement Limited, Nandyal Unit is the host of this event.

Though Mining Industry is one of the highest revenue generator in Indian Economy and we can't imagine a single day without utilizing a mining product, however conserving the environment and the Mineral is equally important and this is where ME&MC week plays a crucial role. The main objective of this event is to create environment awareness amongst the employees and the local population. To achieve objectives towards conserving mineral resources & protecting environment in around the mines & to promote awareness of these important aspects between one & all associated with mining. During Mine Environment and Mineral Conservation Week, the competing mines are inspected from greener and healthier environment angle by team members belonging to different mining fraternity & share their view to make the earth greener and a suitable place for our future generation. With the advancement of digitization in mining industry the effort for a greener earth & sustainable development will get further consolidated and the mining industry will continue to play a pivotal role in India's growth.

I wish the 27th Mines Environmental & Mineral Conservation week 2021-22 programme a splendid success.

Best wishes,

K.Vamsidhar Reddy
Dy CMO
JSW Cement Limited.

CIN-U26957MH2006PLC160839

Regd. Office :
JSW Centre, Opp. MMRDA Ground
Bandra Kurla Complex, Bandra(East)
Mumbai - 400 051.
Ph (Direct): +91 - 22 - 4286 5047
Fax : +91 - 22 - 2650 2001
Website : www.jswcement.in

JSW Cement Limited

Vill : Bilakagudur
Mdl : Gadivemula
Dist. : Kmool - 518 508, A.P.
Phone : 08514 - 202304
08514 - 202305
Website : www.jswcement.in

MESSAGE

I am very much delighted to know that 27th Mines Environmental & Mineral Conservation week 2021-22 is being celebrated under the patronage of Indian Bureau of Mines. Hyderabad Region. I am also happy that M/s JSW Cement Limited, Nandyal Unit is hosting this event.

India is rich in natural resources and mining industry is one of the major contributor for the growth of Indian Economy. Minerals constitute the back-bone of economic growth of any nation and India has been eminently endowed with this gift of nature. The tradition of mining in the region is ancient and underwent modernization alongside the rest of the world as India has gained independence in 1947. The economic reforms of 1991 and the 1993 National Mining Policy further helped the growth of the mining sector. Now with increase of mining sector sustainable & environmental friendly mining concept come into effect. The key metrics for environmental sustainability in mining relate to efficiencies in resource consumption, minimizing land disturbance, pollution reduction, as well as closure and reclamation of exhausted mine lands. In regards to this and meets the objective of Sustainable mining, Indian Bureau of Mines started celebration of the ME & MC Week started with the mining fraternity to promote awareness & importance of sustainable mining among stack holder.

I, on behalf of M/s JSW Cement Limited, Nandyal Unit congratulate the organizer & participants and also wish the celebration a grand success.

Best wishes,

Hukam Chand Gupta
Unit Head
JSW Cement Limited.

CIN-U26957MH2006PLC160839

Regd. Office :
JSW Centre, Opp. MMRDA Ground
Bandra Kurla Complex, Bandra(East)
Mumbai - 400 051.
Ph (Direct): +91 - 22 - 4286 5047
Fax : +91 - 22 - 2650 2001
Website : www.jswcement.in

Part of O. P. Jindal Group

JSW Cement Limited

Vill : Bilakagudur
Mdl : Gadivemula
Dist. : Kmool - 518 508, A.P.
Phone : 08514 - 202304
08514 - 202305
Website : www.jswcement.in

Message

It's a great pleasure to note that the Mines Environment & Mineral Conservation Council, Hyderabad Region is celebrating 27th Mines Environment & Mineral Conservation Week 2021-22 under the patronage of Indian Bureau of Mines, Hyderabad Region. It is a proud movement for all of us at M/s. JSW Cement Ltd. Nandyal as a host for this year celebrations.

Minerals are valuable natural assets and vital for economic development of the Country. Therefore, it is essential to utilize minerals in a judicious manner. At the same time exploitation of precious mineral wealth may cause environmental degradation, if proper abatement measures are not taken. Hence, it is necessary to plan and execute mining operations right from exploration stage to mine closure in scientific manner to conserve the non-renewable natural resources with protection of environment. Nowadays the technological excellence & industrial growth has led to increase the mineral consumption and production. Increase of mineral production is associated with its impact on the environment and ecology and it is the responsibility of the mining community to mitigate the impact on the same.

Under the guidance of Indian Bureau of Mines, mining fraternity is in continuous link with the real time situation in all these years and are well equipped to address the current issues with the sustainability. I believe that regular celebration of Mines Environment & Mineral Conservation Weeks would provide vital inputs for the cause of mineral conservation and eco-friendly mining

I congratulate all the participants and organizing committee on this occasion and wish the program a grand success.

Best Wishes,

Anil Kumar K Ganapurapuwar
Dy. GM & Head Mines
JSW Cement Limited

Patron's Desk

Minerals are exhaustible and non-renewable resources, and hence their exploitation has to be done keeping in view both the present as well as long term future needs.

Mining activity often leads to environment problems like land degradation in open cast mining, land subsidence in underground mining, de-forestation, pollution of water bodies, disposal of solid waste etc., thereby affecting the ecological balance of the area. Therefore, prevention and mitigation of adverse environment effects due to mining and processing of minerals should form an integral part of mine development strategy. Due care should be taken so as to ensure that the environmental management plan which is a part of mining plan, should adequately provide for controlling the environmental damage. Augmentation of mineral resources base through improved methods of mining, beneficiation and utilisation of low-grade minerals and ores, recovery of associated minerals, etc. should form the solid platform to achieve the all-important goal of mineral conservation.

In order to imbibe in the minds of mining fraternity, the importance of Mineral Conservation and Protection of Environment, Mines Environment and Mineral Conservation Weeks are being organized under the patronage of Indian Bureau of Mines, Hyderabad Regional Office since 1993-94.

This year Mines Environment and Mineral Conservation week has been celebrated in both the States of Andhra Pradesh and Telangana from 06.12.2021 to 12.12.2021. During this year's celebrations 61 Large Mechanized mines, 24 Medium Large Mechanised Mines and 26 Manual mines have participated.

I am happy to note that Mining Industry of Andhra Pradesh and Telangana is dedicated towards achieving the objective of sustainable socio-economic development through scientific and eco-friendly mining.

I convey my best wishes and congratulate the entire Mining Fraternity of Andhra Pradesh & Telangana States and especially this year's host, M/s JSW Cements (Nandyal Unit) for its untiring efforts to make this endeavor a grand success.

(Shailendra Kumar)

CONSTITUTION OF
ORGANIZING COMMITTEE FOR THE YEAR 2021-22

Patron:	**ShriShailendra Kumar,** Regional Controller of Mines, Indian Bureau of Mines, Hyderabad.
Chairman:	**Shri. Hukam Chand Gupta** Unit Head, M/s. JSW Cements Ltd. Nandyal.
Vice-Chairman:	**Shri K. Shrikanth** Head HR NCL Industries Limited
Convener:	**Shri. Anil Kumar K.G** Dy. GM &HOD (Mines), M/s. JSW Cements Ltd. Nandyal.
Secretary & Coordinator:	**Shri. Ritesh Chattaraj** SeniorManager (Geology), M/s. JSW Cements Ltd. Nandyal.
Treasurer:	**Shri. Yugandhar Reddy** Manager (Mines) M/s. JSW Cements Ltd. Nandyal.

Executive Committee for 2021-2022 MEMC Council:

- Shri. G. Venkatram Reddy, Mine Owner, Bethamcherla
- Shri. Ashok Konda, CEO, M/s. Sarawagi& Co
- Shri. B.S.P. Raju, VP (Mines), M/s. Sagar Cements Ltd.
- Shri R. BangaruBabu, VP Mines Balaji Cement work.
  M/s UltraTech Cement Ltd
- Shri KNS Reddy, AVP Mines M/s UltraTech Cement Ltd. Tadipatri
- Shri. M. Rajasekhar Reddy, GM (Mines), M/s. TSMDC
- Shri. V. VenkatRamana, GM (Mines), M/s. KCP Ltd.
- Shri. K.V. Suresh Reddy, GM (Mines), M/s. Dalmia Cement (Bharat) Limited
- Shri. Shubhashish Bose, GM (Mines), M/s. Kesoram Cements Ltd.
- Shri. A. Vishwanath, GM (Mines), M/s R.B.SSD & F.N. Das, Vizianagaram
- Shri. AnantTripathi, GM (Mines), M/s Aditya Minerals
- Shri. P. Jani Reddy, Sr. DGM (Mines), M/s Ramco Cements Ltd.
- Shri Jaya Bharat Reddy, Sr. DGM (Mines), M/s. India Cement Ltd.
- Shri. K. Shrinivas Rao, Sr. DGM M/s My Home Cement Ltd.
- Shri. E. Vasudevan, Sr. DGM (Mines), M/s. SreeJayajothi Cements Pvt. Ltd
- Shri. R. Ram Reddy, DGM (Mines), M/s. Hemadri Cements Ltd.
- Shri. K Sudhakar Raju, DGM (Mines), M/s. Bharathi Cement Corp. Ltd.
- Shri. N. Hari Prasad, DGM (Mines), M/s. Zuari Cements Ltd.
- Shri. M Shrinivasa Reddy, DGM (Mines), M/s. Rain Cements Ltd.
- Shri. P Ramakrishna, DGM (Geology), M/s. RINL, Visakhapatnam
- Shri. J. Ramakrishna, DGM (Mines), M/s. Bhavya Cement Ltd.
- Shri. K Ramakrishna Reddy, DGM (Mines), M/s. Penna Cements Ltd, Tadapatri

- Shri. V. Ramachandram, DGM (Mines), M/s. Anjani Cements Ltd.
- Shri. G. Chandra Sekhar, DGM (Mines), M/s. Parasakti Cement Ltd.
- Shri. G.S. Subba Rao, DGM (Mines), M/s. NCL Industries Ltd.
- Shri. D.K. Chakravarthy, AGM (Mines), M/s. Deccan Cement Ltd.
- Shri. Gurusekhar Reddy, AGM (Mines), M/s. Shri Chakra Cements
- Shri. Brahmaiah S, AGM (Mines) M/s M/s *Chettinad*Cement Ltd
- Shri A. Janaki Rami Reddy, HOD Mines, M/s. ICL, Vishnupuram.
- Shri. Narsimhalu, Sr. Manager (Mines), M/s. Andhra Cements Ltd.
- Shri. B. Boreddy, Mines Manager, M/s Palukur Limestone Mine
- Shri. DhrubjyotiSamadder Mines Manager, M/s CCI, Tandur.
- Shri. Shrawan Kumar Shukla, Sr. Manger Mines, M/s. JSW Cements Ltd.
- Shri. P. Bhaskar Reddy, Mines Manager, M/s Sri Kalahasti Pipes Ltd.
- Shri. B. Chandra Shekhar Gupta, Mines Manager, M/s. Kakatiya Cements
- Shri. Jwannes Reddy, Mines Manager, M/s. Suvarna Cements Ltd.
- Shri. K.U. Jenekar, Asst.Manager, New JamdapurMn. Mine, Adilabad dist.
- Shri. Shakti Velu, M/s. Duggar Minerals Ltd
- Village Sarpanch,

A) **Sub Committees:**

a) Souvenir Sub-Committee

- Shri. Ibrahim Sharief, DCoM, IBM, Hyderabad.
- Shri K. N. Sidda Reddy, AVP (Mines), M/s Ultratech Cements Ltd
- Shri K.V.S. Sharma, Sr. General Manager (Mines), M/s Zuari Cement Ltd., Kadapa
- Shri. Ritesh Chattaraj, Senior Manager (Geology), M/s JSW Cement Limited

b) Publicity and Propaganda Sub-Committee

- Shri. ShaivalKartikeya, SMG, IBM, Hyderabad.
- Shri. K.V. Suresh Reddy, GM (Mines), M/s. Dalmia Cement (Bharat) Ltd.
- Shri. MadhusudanPaturi, Asst. Manager (Mines), M/s JSW Cement Limited
- Shri. G. S. Subba Rao, DGM (Mines), M/s NCL Industries

c) Trophies & Mementos Sub Committee

- Shri. MadhuSudhan Yadav, ACoM, IBM, Hyderabad.
- Shri. Anil Kumar, Sr. DGM (Mines), M/s. The KCP Ltd., Muktayala.
- Shri. K.V. Suresh Reddy, GM (Mines), M/s. Dalmia Cement (Bharat) Ltd.
- Shri. BVLR Babu, M/s JSW Cement Limited
- Shri G. Kishan, Asst. Manager NCL Industries

d) Concluding Day function Sub-Committee

- Shri. K V Shiva Kumar, M/s.Dalmia Cements Ltd.
- Shri. K Gopi, M/s. UltraTech Cements Ltd.
- Shri A. Mahipal Reddy, M/s NCL Industries
- Shri. Y. Jugalkishore, M/s. Ultratech Cements Ltd.

- Shri. Neeli Kumar M/s. JSW Cements Limited.
- Shri G Tejeswar, M/s. JSW Cements Limited.

e) Inspection Team Committee:

- Smt. Sh. Suseela, JMG, IBM, Hyderabad
- Shri. A.V. Ramesh Kumar, AMG, IBM, Hyderabad
- Shri. Raghunath Reddy, M/s Dalmia Cement (Bharat) Ltd.
- Shri. A. Sreedhar M/s. JSW Cements Limited.

f) Committee for Technical support of Small mines:

- Shri. V. Subramanyam, Sr. General Manager(Mines), Sagar Cements Limited
- Shri. Amarnath Reddy, Ultratech Cement Ltd. Tadipatri
- Shri. K. Rami Reddy, India Cement Ltd
- Shri. Shrawan Kumar Shukla, M/s. JSW Cements Limited.
- Shri. C. Sreenivasa Reddy, Rain Cement Limited

MINES ENVIRONMENT AND MINERAL CONSERVATION WEEK (2019-20)
LIST OF PRIZE WINNER- MANUAL MINES

SL. NO.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
1	AFFORESTATION	I II	KOLIMIGUNDLA LIME STONE MINE OF M/ S.SHREE SAINATH MINERALS PIMPERKUNTAGUDA MANGANESE MINE OF M/S.ADITYA MINERALS (PVT) LTD.
2	WASTE DUMP MANAGEMENT	I II	PIMPERKUNTA MINE OF BALAJI ELECTROSMELTERS PIMPERKUNTAGUDA MANGANESE MINE OF M/S.ADITYA MINERALS (PVT) LTD.
3	SYSTEMATIC ANDSCIENTIFIC DEVELOPMENT	I II	PALKIJR LIMESTONE MINE OF B.RAJENDRANATH KOLIMIGUNDLA LIME STONE MINE OF M/S. SHREE SAINATH MINERALS
4	MINERAL CONSERVATION	I II	KOLIMIGUNDLA LIME STONE MINE OF M/ S.SHREE SAINATH MINERALS PIMPERKUNTAGUDA MANGANESE MINE OF M/S. ADITYA MINERALS (PVT)LTD.
5	RECLAMATION & REHABILITATION	I II	PIMPERKUNTAGUDA MANGANESE MINE OF M/S. ADITYA MINERALS (PVT) LTD. BHORAJ MANGANESE MINE OF M/S. BALAJI ELECTROSMELTERS
6	MINERALBENEFICLATION	I II	RAMAPURAM LIMESTONE MINE OF SHRI N.SHIVA RAM1 REDDY LTD. PALKUR LIMESTONE MINE OF B.RAJENDRANATH

SL. NO.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
7	ENVIRONMENTAL MONITORING	**I** **II**	PALKUR LIMESTONE MINE OF B.RAJENDRANATH (SV.NO.54) KOLIMIGUNDLA LIME STONE MINE OF M/ S.SHREE SAINATH MINERALS
8	SUSTAINABLEDEVELOPMENT	**I** **II**	PALKUR LIMESTONE MINE OF B.RAJENDRANATH KOLIMIGUNDLA LIME STONE MINE OF M/ S.SHREE SAINATH MINERALS
9	PUBLICITY ANDPROPOGANDA	**I**	KOLIMIGUNDLA LIME STONE MINE OF M/ S.SHREE SAINATH MINERALS
		II	PALKUR LIMESTONE MINE OF B.RAJENDRANATH

OVERALL

I KOLIMIGUNDLA LIME STONE MINE OF M/S. SHREE SAINATH MINERALS

II PALKUR LIMESTONE MINE OF B.RAJENDRANATH

MINES ENVIRONMENT AND MINERAL CONSERVATION WEEK (2019-20)
LIST OF PRIZE WINNERS – MEDIUM LARGE MECHANISED MINES

SL.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
1	AFFORESTATION	I II	SADANANDAPURAM MANGANESE MINE OF SRI RBSSD & FN DAS SRI KRISHNAMANGANESE MINE OF ASV PRASAD
2	WASTE DUMP MANAGEMENT	I II	SRI RAJA RAJESWARI MANGANESE MINE OF M/S.BARBIL MINING CO. DEVADA MANGANESE MINE OF SRI RBSSD & FN DAS
3	SYSTEMATIC ANDSCIENTIFIC DEVELOPMENT	I II	ROBO MANGANESE MINE OF M/S.BLUE OCEANS MINERALS SIVASANKARA MANGANESE MINE OF BAJRANG POWER
4	MINERAL CONSERVATION	I II	BRAHMESWARA STEATITE AND IRON ORE MINE OF SRI G.VENKATARAMI REDDY PUTIKAVALASA MINE OF S.V.NARAYANA REDDY
5	RECLAMATION & REHABILITATION	I II	CHABALI IRON ORE MINE OF M/S BENITA INDUSTRIES LTD. GARBHAM MANGANESE KINE OF M/S RINL
6	MINERAL BENEFICLATION	I II	CHABALI IRON ORE MINE OF M/S.BENITA INDUSTRIES LTD. BRAHMESWARA STEATITE AND IRON ORE MINE OF SRI G.VENKATA RAMIREDDY

SL. NO.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
7	ENVIRONMENTAL MONITORING	I	THIPPALUR LIMESTONE MINE OF M/S SRIKALAHASTHI PIPES
		II	SADANANDAPURAM MANGANESE MINE OF SRI RBSSD & FN DAS
8	SUSTAINABLEDEVELOPMENT	I	SADANAHDAPURAM MANGANESE MINE OF SRI RBSSD & FN DAS
		II	PUTIKAVALASA MINE OF S.V.NARAYANA REDDY
9	PUBLICITY ANDPROPOGANDA	I	ROBO MANGANESE MINE OF M/S.BLUE OCEANS MINERALS
		II	MANGOTOPE MANGANESE MINE OF MAHALAXMI MINERALS

OVERALL

I SADANANDAPURAM MANGANESE MINE OF SRI RBSSD & FN DAS

II CHABALI IRON ORE MINE OF M/S BENITA INDUSTRIES LTD.

MINES ENVIRONMENT AND MINERAL CONSERVATION WEEK (2019-20)
LIST OF PRIZE WINNER- BHIMA GROUPS OF MINES

SL. NO.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
1	AFFORESTATION	I II III	SAGAR LIMESTONE MINE OF M/S SAGAR CEMENTS LTD. YEPALAMADHARAM LIMESTONE MINE OF M/S MY HOME INDUSTRIES LTD. SITAPURAM LIMESTONE MINE OF M/S ZUARI CEMENTS
2	WASTE DUMP MANAGEMENT	I II III	SAGAR LIMESTONE MINE OF M/S SAGAR CEMENTS LTD. BASANTNAGAR LIMESTONE MINE OF M/S KESORAM CEMENTS LTD. TAKKALAPALLI LIMESTONE MINE OF M/S KESORAM CEMENTS LTD.
3	SYSTEMATIC ANDSCIENTIFIC DEVELOPMENT	I II III	CHOUTPALLI LIMESTONE MINE OF M/S MY HOME INDUSTRIES LTD. BHAVANIPURAM LIMESTONE MINE OF M/S DECCAN CEMENTS SANGAMKALAN MINE OF M/S INDIA CEMENT LTD.
4	MINERAL CONSERVATION	I II III	BASANTNAGAR LIMESTONE MINE OF M/S KESORAM CEMENTS LTD. DEVAPUR LIMESTONE MINE OF M/S TSMDC CHOUTPALLI LIMESTONE MINE OF M/S MY HOME INDUSTRIES LTD.
5	RECLAMATION &REHABILITATION	I II III	DEVAPUR LIMESTONE MINE OF M/S TSMDC BASANTNAGAR LIMESTONE MINE OF M/S KESORAM CEMENTS LTD. RAIN LIMESTONE MINE OF M/S RAIN CEMENTS LTD.

SL. NO.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
6	MINERALBENEFICLATION	I II III	BASANTNAGAR LIMESTONE MINE OF M/S KESORAM CEMENTS LTD. DEVAPUR LIMESTONE MINE OF M/S TSMDC TAKKALAPALLI LIMESTONE MINE OF M/S KESORAM CEMENTS LTD.
7	ENVIRONMENTAL MONITORING	I II III	CHANAKYA LIMESTONE MINE OF M/S PENNA CEMENT INDUSTRIES SULTANPURA TANDA LIMESTONE LINE OF M/S NCL INDUSTRIES GREYGOLD LIMESTONE MINE OF M/S GREYGOLD CEMENTS
8	SUSTAINABLEDEVELOPMENT	I II II	YEPALAMADHARAM LIMESTONE MINE OF M/S MY HOME INDUSTRIES LTD. DEVAPUR LIMESTONE MINE OF M/S TSMDC OGIPUR LIMESTONE MINE OF M/S PENNA CEMENT INDUSTRIES
9	PUBLICITY ANDPROPOGANDA	I II III	MELLACHERUVU LIMESTONE MINE OF M/S MY HOME INDUSTRIES LTD. SANGAMKALAN MINE OF M/S INDIA CEMENT LTD. KARANKOTE LIMESTONE MINE OF M/S CCI

MINES ENVIRONMENT AND MINERAL CONSERVATION WEEK (2019-20)
LIST OF PRIZE WINNER- PALNADU GROUPS OF MINES

SL. NO.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
1	AFFORESTATION	I II III	BUDAVADA LIMESTONE MINE OF M/S ULTRATECH CEMENTS LTD JAYANTHIPURAM LIME STONE MINE (NORTH BAND) OF M/S RAMCO CEMENTS LTD, PARASAKTI LIME STONE MINE OF M/S PARASAKTI CEMENT INDUSTRIES LTD.
2	WASTE DUMP MANAGEMENT	I II III	LAXMIPURAM LIMESTONE MINE OF M/S INDIA CEMENT LTD. HEMADRI LIMESTONE MINE OF M/S HEMADRI CEMENTS LTD. KAKATIYA LIMESTONE MINE OF M/S. KAKATIYA CEMENTS SUGAR AND IND. LTD.
3	SYSTEMATIC ANDSCIENTIFIC DEVELOPMENT	I II III	MUKTHYALA LIMESTONE MINE OF M/S KCP CEMENTS TANGEDA LIMESTONE MINE OF M/S BHAVYA CEMENTS LTD. KCP LIMESTONE MINE-2 OF M/S KCP CEMENTS
4	MINERAL CONSERVATION	I II III	BUDAVADA LIMESTONE MINE OF M/S ULTRATECH CEMENTS LTD. MUKTHYALA LIMESTONE MINE OF M/S KCP CEMENTS JAYANTHIPURAM LIME STONE MINE (NORTH BAND) OF M/S RAMCO CEMENTS LTD

SL. NO.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
5	RECLAMATION & REHABILITATION	I II III	JAYANTHIPURAM LIME STONE MINE (NORTH BAND) OF M/S RAMCO CEMENTS LTD, LAXMIPURAM LIME STONE MINE OF M/S.INDIA CEMENT LTD. VISHNUPURAM LIME STONE MINE OF M/S.INDIA CEMENT LTD.
6	MINERAL BENEFICLATION	I II III	JAYANTHIPURAM LIME STONE MINE (NORTH BAND) OF M/S RAMCO CEMENTS LTD, JAYYAPETA LIMESTONE MINE OF M/S RINL HEMADRI LIMESTONE MINE OF M/S HEMADRI CEMENTS LTD.
7	ENVIRONMENTAL MONITORING	I II III	KRISHNAPURAM LIMESTONE MINE OF M/S INDIA CEMENT LTD. PETASANNIGANDLA LIMESTONE MINE OF M/S SRI CHAKRA CEMENTS DCW LIME STONE MINE OF M/S ANDHRA CEMENTS
8	SUSTAINABLE DEVELOPMENT	I II II	BUDAVADA LIMESTONE MINE OF M/S ULTRATECH CEMENTS LTD. RAVIRALA LIMESTONE MINE OF M/S RAMCO CEMENTS PARASAKTI LIMESTONE MINE OF M/S.PARASAKTI CEMENT INDUSTRIES LTD.
9	PUBLICITY AND PROPOGANDA	I II III	BUDAVADA LIMESTONE MINE OF M/S ULTRATECH CEMENTS LTD. ANJANI PORTLAND LIMESTONE PIT-I MINE OF M/S ANJANI PORTLAND CEMENTS LTD. LAXMIPURAM LIMESTONE MINE OF M/S INDIA CEMENT LTD.

MINES ENVIRONMENT AND MINERAL CONSERVATION WEEK (2019-20)
LIST OF PRIZE WINNER- CUDDAPHA GROUPS OF MINES

SL. NO.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
1	AFFORESTATION	I II III	THUMMALAPENTA LIMESTONE MINE OF M/S ULTRATECH CEMENT LTD COROMANDAL LIMESTONE MINE OF M/S INDIA CEMENT LTD . ZUARI LIMESTONE MINE OF M/S ZUARI CEMENTS LTD .
2	WASTE DUMP MANAGEMENT	I II III	RACHERLA LIMESTONE MINE OF M/S RAIN CEMENTS LTD, NAWABPETA TALAMANCHIPATNAM LIMESTONE MINE OF M/S DALMIA CEMENTS BHARATHI CEMENTS LIMESTONE MINE OF M/S BHARATHI CEMENTS CORP.LTD ,
3	SYSTEMATIC AND SCIENTIFIC DEVELOPMENT	I II III	ZUARI LIMESTONE MINE OF M/S ZUARI CEMENTS LTD . THUMMALAPENTA LIMESTONE MINE OF M/S ULTRATECH CEMENT LTD NIDUZUVVI LIMESTONE MINE OF M/S INDIA CEMENT LTD
4	MINERAL CONSERVATION	I II III	GUDIPADU LIMESTONE MINE OF M/S PENNA CEMENT IND LTD. GUDIPADU LIMESTONE MINE OF DR S ANAND REDDY BMM CEMENTS LTD. RACHERLA LIMESTONE MINE-I OF M/S RAIN CEMENTS LTD.

SL. NO.	ITEMS OF COMPETITION	PRIZE	MINE/ORGANISATION
5	RECLAMATION & REHABILITATION	I II III	BHARATHI CEMENTS LIMESTONE MINE OF M/S BHARATHI CEMENTS CORP.LTD , COROMANDAL LIMESTONE MINE OF M/S INDIA CEMENT LTD .
6	MINERAL BENEFICLATION	I II III	YANAKANDLA LIMESTONE MINE OF M/S SREE JAYAJYOTHI CEMEIITS LTD. BILAKAGUDURU LIMESTONE MINE OF M/S JSW CEMENTS LTD . MY HOME PALKUR MINE OF M/S SHREE JAYAJYOTHI CEMENTS LTD.
7	ENVIRONMENTAL MONITORING	I II III	URICHINTALA MINE OF M/S PENNA CEMENT INDUSTRIES THUMMALAPENTA LIMESTONE MINE OF M/S ULTRATECH CEMENT LTD BILAKAGUDURU LIMESTONE MINE OF M/S JSW CEMENTS LTD .
8	SUSTAINABLE DEVELOPMENT	I II III	THUMMALAPENTA LIMESTONE MINE OF M/S ULTRATECH CEMENT LTD BHARATHI CEMENTS LIMESTONE MINE OF M/S BHARATHI CEMENTS CORP.LTD ZUARI LIMESTONE MINE OF M/S ZUARI CEMENTS LTD .
9	PUBLICITY AND PROPOGANDA	I II III	BHARATHI CEMENTS LIMESTONE MINE OF M/S BHARATHI CEMENTS CORP.LTD NAWABPETA TALAMANCHIPATNAM LIMESTONE MINE OF M/S DALMIA CEMENTS KORUMANIPALLI LIMESTONE MINE OF M/S PENNA CEMENT INDUSTRIES

LIST OF PERTICIPATING MINES ME&MC WEEK 2021-22
MEDIUM LARGE MECHANISED MINES

SL. NO.	LIST OF MINE MEMBERS	NAME OF THE LESSEE	DISTRICT	CATE-GORY
1	DCW LIMESTONE MINE	ANDHRA CEMENTS LIMITED	GUNTUR	MLM
2	GUTUPALLI IRON ORE MINE	DHIGVIJAY MINERALS	KURNOOL	MLM
3	MOTHUGUPODA	DECCAN LST MINING CO.PVT.LTD	KURNOOL	MLM
4	RAMAPURAM	SIVA RAMIREDDY NANDYALA	KURNOOL	MLM
5	KOLIMIGUNDLA (195/4A ETC.)	M/s SRI SAINATH MINERALS (P.BAYAPU REDDY)	KURNOOL	MLM
6	RACHERLA MINE - II	M/s RAIN CEMENTS LIMITED	KURNOOL	MLM
7	SADANANDAPURAM	M/s R.B.S.S.D & F.N.DAS	VIZIANAGARAM	MLM
8	SAI BABA-I	S.K.SARAWAGI & CO. PVT.LTD	VIZIANAGARAM	MLM
9	MAHESHWARI	S.K.SARAWAGI & CO. PVT.LTD	VIZIANAGARAM	MLM
10	PARAMESHWARI	S.K.SARAWAGI & CO. PVT.LTD	VIZIANAGARAM	MLM
11	GARBHAM CENTRAL	M/s RASHTRIYA ISPAT NIGAM LIMITED, VIZAG STEEL PLANT	VIZIANAGARAM	MLM
12	SRI SIVA SANKARA	SHRI BAJARANG POWER & ISPAT LIMITED	VIZIANAGARAM	MLM
13	SHRI RAJA RAJESWARI MINE	BARBIL MINING CO.LTD. (SRI R.G.P. KRISHNA RANGA RAO)	VIZIANAGARAM	MLM
14	GARBHAM	SRI VENKATESWARA MINERALS	VIZIANAGARAM	MLM
15	SREE LAKSHMI IRON ORE	KANDULA RAJAMOHAN REDDY	YSR KADAPA	MLM
16	CHABALI IRON ORE MINE	M/s BENITA INDUSTRIS LIMITED (FORMERLY SRI RAJA RAJESWARI DOLOMITES)	YSR KADAPA	MLM
17	KCP LIMESTONE DEPOSIT-I MINE	M/s THE KCP LIMITED	GUNTUR	MLM
18	KCP LIMESTONE DEPOSIT II MINE	M/s THE KCP LIMITED	GUNTUR	MLM
19	JONNAGIRI GOLD MINE	GEOMYSORE SERVICES (INDIA) PRIVATE LIMITED	KURNOOL	MLM
20	PUTIKAVALASA MINE	S.V.NARAYANA REDDY	VIZIANAGARAM	MLM
21	INDIAN BARYTES & CHEMICALS Ltd.	I.B.C. LIMITED (INDIAN BARYTES & CHEMICALS LTD.)	YSR KADAPA	MLM
22	GREY GOLD LIMESTONE MINE	GREYGOLD CEMENTS LIMITED	SURYAPET	MLM
23	SAGAR CEMENTS LIMESTONE MINE-2	SAGAR CEMENTS LIMITED	SURYAPET	MLM
24	ROBO MANGANESE MINE	M/s BLUE OCEAN MINERALS PVT. LTD.	VIZIANAGARAM	MLM

LIST OF PERTICIPATING MINES ME&MC WEEK 2021-22
MEDIUM LARGE MANUAL MINES

SL. NO.	LIST OF MINE MEMBERS	NAME OF THE LESSEE	DISTRICT	CATE-GORY
1	NAGARUR SY.NO.11B	P.SRINIVASULU	ANANTAPUR	M
2	PIMPERAKUNTA GUDA MINE	ADITYA MINERALS PRIVATE LIMITED	ADILABAD	M
3	JAMDAPUR MINE	S.Y.MINERALS PRIVATE LIMITED	ADILABAD	M
4	NAGARUR LIMESTONE MINE	ANDHRA MINERAL INDUSTRIES	ANANTAPUR	M
5	NAGARUR LIMESTONE MINE (LD GR)	AMPAGOWNI SURESH	ANANTAPUR	M
6	NAGARUR LIMESTONE MINE	AMPAGOWNI SURESH	ANANTAPUR	M
7	SEETHARAMAPURAM	BUGGANA SANJEEVA REDDY	KURNOOL	M
8	PALKUR (S.No.54)	B.RAJENDRANATH	KURNOOL	M
9	PALKUR MINE(57/1C,57/2)	B.RAJENDRANATH	KURNOOL	M
10	MALKAPURAM	INDLA SREE RAMULU	KURNOOL	M
11	NANDAWARAM	S.VENKATARAMI REDDY	KURNOOL	M
12	VENKATAPURAM	KRANTI INDUSTRIES (TRANSFERRED FROM B.SANJEEVA REDDY)	KURNOOL	M
13	PALKUR LIMESTONE MINE	B.RAJENDRANATH	KURNOOL	M
14	CHERUVUPALLI(3.255 HA)	B.RAJENDRANATH	KURNOOL	M
15	PALKUR LIMESTONE MINE(29 & 30/1)	B.RAJENDRANATH	KURNOOL	M
16	KOCHERUVU	L.SREENIVASULU	KURNOOL	M
17	NANDAVARAM (511) & VENKATAPURAM (1)	T.SREERAMULU	KURNOOL	M
18	KOCHERUVU MINE (572/F2/1)	FAHAD ALI KHAN L	KURNOOL	M
19	M/s.LAKSHMI TIRUMALA MINERALS	N.L.MADHUSUDANA MOORTHY	KURNOOL	M
20	CHANDA MANAGANESE MINE	SURESH AGARWAL	ADILABAD	M
21	BHORAJ MANGANESE ORE MINE	BALAJI ELECTRO SMELTERS LIMITED	ADILABAD	M
22	PIMPERKUNTA MINE	BALAJI ELECTRO SMELTERS LIMITED	ADILABAD	M
23	VENKATAPURAM LIMESTONE MINE	SMT.S.KALAVATHAMMA	KURNOOL	M
24	V.PEDDA KONDA REDDY LIMESTONE MINE	VELUVAPALLE PEDDA KONDA REDDY	KURNOOL	M
25	NANDAVARAM LIMESTONE MINE	S.VENKATARAMI REDDY	KURNOOL	M
26	VENKATAPURAM	S.DINESH REDDY LIMESTONE MINE	KURNOOL	M

LIST OF PERTICIPATING MINES ME&MC WEEK 2021-22
MEDIUM LARGE MECHANISED MINES CUDDAPAH GROUP

SL. NO.	LIST OF MINE MEMBERS	NAME OF THE LESSEE	DISTRICT	CATE-GORY
1	URICHINTALA LIMESTONE MINE	PENNA LIMESTONE QUARRIES LIMITED	ANANTAPUR	LMM
2	AMALGAMATED GUDIPADU LIMESTONE MINE	M/s PENNA CEMENT INDUSTRIES LIMITED	ANANTAPUR	LMM
3	GUDIPADU	BMM CEMENTS LIMITED	ANANTAPUR	LMM
4	THUMMALAPENTA LIMESTONE MINE	M/s ULTRATECH CEMENT LIMITED	KURNOOL	LMM
5	GURUVANIPALLI LIMESTONE MINE	M/s ULTRATECH CEMENT LIMITED	KURNOOL	LMM
6	RACHERLA MINE - I	M/s RAIN CEMENTS LIMITED	KURNOOL	LMM
7	BILAKALAGUDURU	J.S.W. CEMENTS LIMITED	KURNOOL	LMM
8	YANAKANDLA LIMESTONE MINE	M/s SREE JAYAJOTHI CEMENTS PRIVATE LIMITED	KURNOOL	LMM
9	COROMANDAL	THE INDIA CEMENTS LIMITED	YSR KADAPA	LMM
10	NIDUZUVVI LIMESTONE MINE	THE INDIA CEMENTS LIMITED	YSR KADAPA	LMM
11	ZUARI CEMENT LTD.	ZUARI CEMENT LIMITED	YSR KADAPA	LMM
12	BHARATHI CEMENT LIMESTONE MINE	BHARATHI CEMENT CORPORATION PVT. LTD.	YSR KADAPA	LMM
13	NAWABPETA-TALAMANCHIPATNAM	DALMIA CEMENT (BHARAT) LIMITED [formerly ESWAR CEMENTS (P) LTD]	YSR KADAPA	LMM
14	MY HOME PALKUR LIMESTONE MINE	M/s SREE JAYAJOTHI CEMENTS PRIVATE LIMITED	KURNOOL	LMM
15	PETNIKOTA LIMESTONE MINES-2	M/s ULTRATECH CEMENT LIMITED	KURNOOL	LMM
16	TUMMALAPENTA LIMESTONE MINES-3	M/s ULTRATECH CEMENT LIMITED	KURNOOL	LMM
17	TUMMALAPENTA LIMESTONE MINES-2	M/s ULTRATECH CEMENT LIMITED	KURNOOL	LMM
18	NANDAVARAM VENKATAPURAM LIMESTONE MINE	M/s SREE JAYAJOTHI CEMENTS PRIVATE LIMITED	KURNOOL	LMM

LIST OF PERTICIPATING MINES ME&MC WEEK 2021-22
MEDIUM LARGE MECHANISED MINES PALNAD GROUP

SL. NO.	LIST OF MINE MEMBERS	NAME OF THE LESSEE	DISTRICT	CATE-GORY
1	PETASANIGANDLA	SRI CHAKRA CEMENTS LIMITED	GUNTUR	LMM
2	PARASAKTHI	PARASAKTI CEMENT INDUSTRIES LIMITED	GUNTUR	LMM
3	MANDADI LIMESTONE MINE	M/s THE KCP LIMITED	GUNTUR	LMM
4	TERALA LIMESTONE MINE	M/s THE KCP LIMITED	GUNTUR	LMM
5	TANGEDA	M/s BHAVYA CEMENTS LIMITED	GUNTUR	LMM
6	KRISHNA LIMESTONE MINE	M/s BHAVYA CEMENTS LIMITED	GUNTUR	LMM
7	KRISHNAPURAM	THE INDIA CEMENTS LIMITED	GUNTUR	LMM
8	HEMADRI LIMESTONE MINE	HEMADRI CEMENTS LIMITED	KRISHNA	LMM
9	KAKATIYA	KAKATIYA CEMENT SUGAR AND INDUSTRIES LIMITED (P.Veeraiah)	KRISHNA	LMM
10	JAGGAYYAPETA	M/s RASHTRIYA ISPAT NIGAM LIMITED, VIZAG STEEL PLANT	KRISHNA	LMM
11	JAYANTHIPURAM (SOUTH BAND)	THE RAMCO CEMENTS LIMITED (formerly MADRAS CEMENTS LTD.)	KRISHNA	LMM
12	JAYANTHIPURAM (NORTH BAND)	THE RAMCO CEMENTS LIMITED (formerly MADRAS CEMENTS LTD.)	KRISHNA	LMM
13	RAVIRALA LIMESTONE MINE	THE RAMCO CEMENTS LIMITED (formerly MADRAS CEMENTS LTD.)	KRISHNA	LMM
14	MUKTHYALA LIMESTONE MINE	M/s THE KCP LIMITED	KRISHNA	LMM
15	SRI VENKATESWARA LIMESTONE MINE	HEMADRI CEMENTS LIMITED	KRISHNA	LMM
16	BUDAWADA LIMESTONE MINES (Transferred from M/s.JAYPEE BALAJI CEMENT PLANT)	M/s ULTRATECH CEMENT LIMITED	KRISHNA	LMM
17	VISHNUPURAM LIMESTONE MINE	THE INDIA CEMENTS LIMITED	NALGONDA	LMM
18	LAXMIPURAM (LEASE 1&3, GO.NO 306)	THE INDIA CEMENTS LIMITED	NALGONDA	LMM
19	CHAANAKYA LIMESTONE MINE	M/s PENNA CEMENT INDUSTRIES LIMITED	NALGONDA	LMM
20	PEDAGARLAPADU LIMESTONE MINE	M/s CHETTINAD CEMENT CORPORATION LIMITED	GUNTUR	LMM

LIST OF PERTICIPATING MINES ME&MC WEEK 2021-22
MEDIUM LARGE MECHANISED MINES BHIMA GROUP

SL. NO.	LIST OF MINE MEMBERS	NAME OF THE LESSEE	DISTRICT	CATE-GORY
1	DEVAPUR	TELANGANA STATE MINERAL DEVELOPMENT CORPORATION LIMITED	MANCHERIAL	LMM
2	BASANTNAGAR	KESORAM INDUSTRIES LIMITED	PEDDAPALLI	LMM
3	TAKKALLAPALLI LIMESTONE	KESORAM INDUSTRIES LIMITED	PEDDAPALLI	LMM
4	SAGAR CEMENTS LIMESTONE MINE-1	SAGAR CEMENTS LIMITED	SURYAPET	LMM
5	SEETHAPURAM (LEASE 1)	ZUARI CEMENT LIMITED	SURYAPET	LMM
6	SRI SANKARA	M/s KEERTHI INDUSTRIES LIMITED	SURYAPET	LMM
7	RAIN INDUSTRIES LIMESTONE	M/s RAIN CEMENTS LIMITED	SURYAPET	LMM
8	GUNDLAPALLI	NCL INDUSTRIES LIMITED	SURYAPET	LMM
9	SEETHAPURAM MINE(LEASE II)	ZUARI CEMENT LIMITED	SURYAPET	LMM
10	MATTAPALLI	NCL INDUSTRIES LIMITED	SURYAPET	LMM
11	ANJANI LIMESTONE MINE (PIT 1)	ANJANI PORTLAND CEMENT LIMITED	SURYAPET	LMM
12	BHAVANIPURAM MINE - II	M/s DECCAN CEMENTS LIMITED	SURYAPET	LMM
13	SULTANPUR THANDA LIMESTONE MINE	NCL INDUSTRIES LIMITED	SURYAPET	LMM
14	YEPALAMADHVARAM	MY HOME INDUSTRIES PRIVATE LIMITED	SURYAPET	LMM
15	CHOUTAPALLI - I	MY HOME INDUSTRIES PRIVATE LIMITED	SURYAPET	LMM
16	MY HOME (MELLACHERUVU)	MY HOME INDUSTRIES PRIVATE LIMITED	SURYAPET	LMM
17	BHAVANIPURAM MINE-III	M/s DECCAN CEMENTS LIMITED	SURYAPET	LMM
18	KARANKOTE LIMESTONE MINE	M/s CEMENT CORPORATION OF INDIA LIMITED	VIKARABAD	LMM
19	SANGAMKALAN - I	THE INDIA CEMENTS LIMITED	VIKARABAD	LMM
20	SANGAMKALAN - II	THE INDIA CEMENTS LIMITED	VIKARABAD	LMM
21	OGIPUR LIMESTONE MINE	M/s PENNA CEMENT INDUSTRIES LIMITED	VIKARABAD	LMM
22	CHOUTAPALLI -II & MELLACHERUVU	MY HOME INDUSTRIES PRIVATE LIMITED	SURYAPET	LMM
23	ANJANI LIMESTONE MINE-4 (PIT 4)	ANJANI PORTLAND CEMENT LIMITED	SURYAPET	LMM

USAGE OF ALTERNATIVE FUELS IN THE CEMENT INDUSTRY

E.Vasudevan, Sr. DGM (Mines) & M.Narsi Reddy, *DGM (Process)*
M/s. Sree Jayajothi Cements Pvt. Ltd.
(100% subsidiary of M/s. My Home Industries Private Limited)

Cement kilns offer very favourable conditions for incinerating waste fuels. High temperatures, long residence times, an oxidizing atmosphere and alkaline environment, ash absorption by clinker, and high thermal inertia all favour the use of Alternative Fuels in a cement kiln. There are many benefits tied to the use of alternative fuels in cement kilns; nonetheless, the challenges connected with their application require careful evaluation.

What are Alternative Fuels?

Alternative fuels are non-traditional fuels that have calorific value and can be used as substitutes for conventional fuels such as coal, petroleum coke, oil and natural gas in clinker manufacturing. Typically, alternative fuels are waste or by-products from industrial, agricultural and other processes. Traditionally, they are managed through landfills, treatment or incineration and come in liquid or solid form. Liquid Alternative Fuels include solvents, mineral waste oil from used lubricants, vegetable oil and various organic liquids. Solid Waste Fuels come in different forms: used tires, pre-treated industrial and municipal waste, sewage sludge and domestic waste, Refuse Derived fuels (RDF) from pulp, paper and cardboard residues; non-recyclable plastics; Packaging and Textile industry, biomass such as animal feed, contaminated wood and wood chips, waste wood, rice husk, sawdust and sewage sludge, and used carpets.

Classification of alternative fuels

Cement kilns use different sources of energy to produce the high temperatures

necessary for the formation of clinker. The most common sources of fuel for the cement industry are: coal, fuel oil, petroleum coke, and natural gas.

Alternative fuels are another source of energy used by cement producers around the world. These fuels are usually derived from the mixtures of industrial, municipal and hazardous wastes. Alternative fuels used in cement industries can be solid or liquid. They are required to have an appropriate chemical content depending on the type of components and their organic contents. There are four groups of solid alternative fuels.

These fuels generally include:

- Agricultural biomass residues
- Non-agricultural biomass residues
- Petroleum based wastes
- Industrial / Miscellaneous wastes and
- Chemical and hazardous wastes

The main part of fuel consumption, and consequently CO2 generation, takes place in the calciner and clinker forming kiln. The utilization of low-carbon content fuel with high hydrogen-to-carbon (H/C) ratio instead of conventional fossil fuels can remarkably diminish the rate of CO2 emissions in the process. In addition to producing a smaller amount of CO2, the use of alternative fuels has been shown to improve refractory life and also reduce pressure drop in preheater tower.Various types of alternative fuels can be used in a cement plant, with the adequate equipment installed for the utilization. The use of alternative fuels in cement plants also reduces emissions from landfills. Therefore, it has been estimated that the utilization of this type of fuel will increase at the rate of 1% per year worldwide.

Table 1 Alternative fuels options for the cement industry

Liquid waste fuels	Solid waste fuels	Gaseous waste
petrochemical waste	battery cases	Landfill gas
asphalt slurry	plastic residues	pyrolysis gas
paint waste	wood waste	
Petroleum coke	rubber residues	
	Carbon black	

Table 2 Wastes used for alternative fuel sources and their energy content

Wastes	Energy (MJ/kg)
Tire chips	23.03
Husk	19.93
Industrial plastic	18.21
Waste oil	14.65
Scrap paper	14.23
Contaminated waste	14.23
RDF plastic	11.72
Sewage sludge	8.37

Advantages of using Alternative Fuels

The main advantages of using Alternative Fuels in the Cement Industry are economic and environmental. Cement producers strive to reduce their production costs. Fuel accounts for 20 to 25% of the production cost of cement and one viable option is the use of alternative fuels at a much lower cost than conventional fossil fuels. The use of waste fuels reduces the carbon footprint that results from using fossil fuels and therefore the overall environmental impact of cement manufacturing operations. It also extends the supply of fossil fuels and is a safe way of absorbing waste which otherwise would present a waste disposal problem. The favourable conditions in a cement kiln completely destroy the organic

constituents and the inorganic constituents combine with the raw materials in the kiln and exit the kiln as part of the cement clinker without generating solid residues. Free lime in cement clinker acts as a good absorbent of hazardous elements. The cement kiln therefore is a natural incinerator that has a safe thermal environment for the use of alternative fuels. Use of alternative fuels in the cement kilns hence helps resolve air pollution problems by eliminating additional emissions which would have resulted from the incinerators while destroying the wastes.

Challenges & Limitations

Consistency of the chemistry and continuous availability are two major considerations in the use of Alternative Fuels. All alternative and derived fuels are generated at sources outside the control of cement manufacturers. Therefore, there are always some limitations on the availability of consistent quality alternative fuels in adequate quantities. The suitability of Alternative Fuels for use in the cement manufacturing process, effects on plant operation, product and environment need to be studied and established before the alternative fuel is selected. The composition of the Alternative Fuel and its availability will determine the extent to which it can be used.

Invariably, all alternative fuels require pre-treatment prior to introducing them in the kiln or precalciner. Processing an Alternative Fuel may involve significant capital investment. Modifications to the existing plant equipment and the creation of new infrastructure for the intended use of the alternative fuel will be required. For instance, feeding whole tires requires a complex system and considerable space for implementation. In addition, converting from the use of conventional fuels to alternative fuels will call for adjustments to operating parameters, raw mix design, etc.

Safety

Safety aspects related to alternative fuels depend on the type of fuel. Safety related issues mainly include handling and storage of fuels that emanate odours

or are hazardous wastes. The selection of appropriate feeding points depending on the characteristics of the alternative fuel is also a safety consideration.

Emissions and Environmental considerations

The use of hazardous waste as an alternative fuel in cement kilns is regulated by local environmental regulations for the incineration of waste. Emissions of air polluting compounds need to be addressed while considering use of alternative fuels in the cement manufacturing process. Emissions of Carbon monoxide, Sulphur dioxide, Nitrogen oxides, Hydrogen chloride, heavy metals such as mercury, lead and cadmium, Dioxins and Furans are major concerns. They are to be controlled below prevailing emission norms irrespective of the fact that whether the manufacturing process uses traditional fuels or alternative fuels. However, this can be achieved with controlled inputs, optimized and stable operation and if required with the installation of a kiln gas by-pass system. Cement kilns fired with conventional fossil fuel or with alternative fuels of all types can meet stipulated emission limit.

Benefits of burning alternative fuels

Ecological benefits

Several years of experience with the use of waste as alternative fuels by the cement industry have shown that their application is justified both from an economic and an ecological point-of-view. Firstly, the reduction of the use of non-renewable fossil fuels such as coal as well as the environmental impacts associated with coal mining. Furthermore, the contribution towards a lowering of emissions such as greenhouse gases by replacing the use of fossil fuels with materials that would otherwise have to be incinerated with corresponding emissions and final residues. All the energy is used directly in the kiln for clinker production.

The use of alternative fuels in cement furnaces is also dictated by the broadly understood term environmental protection, as not only primary sources of energy

are spared, but also waste is used, which would otherwise have to be disposed of on waste disposal sites, or burnt in specially constructed incineration plants. Application of alternative fuels made from waste may allow one to reduce the amount of waste to be disposed of by up to 50%. Both incineration plants and waste disposal sites may have significant negative impacts on components of the environment. One must be aware that the acquisition of primary sources of energy also negatively influences the environment.

Technological benefits

Flame temperature at 2000⌋C and material temperature at around 1400⌋C which together with residence time of 4–5 seconds in an oxygen rich atmosphere ensures destruction of organic components in any residues. The neutralization of any acid gaseous formed during combustion by the alkaline nature of raw material and subsequent incorporation in the clinker. Interaction of flue gases and the raw material present in the kiln ensures that the non-combustible part, if any is reduced. On total life cycle concept, it is superior in comparison with the specialized incinerator or any other mode. There are many social benefits such as the implementation in rural area would contribute to overall development of the area and employment. In addition, generates additional revenue for economically backward and frequent drought affected farmers of the region and aids rural upliftment & ameliorating their economic status.

Economic benefits

The use of alternative fuels by the cement industry is related to the energy-consuming process of clinker production. On average, the energy required for the production of one tonne of cement amounts to some 3.3 GJ, which corresponds to about 120 kg of coal. The costs of energy consist about 30–40% of the total costs of cement production. Applications of alternative fuels will therefore allow one to reduce the production costs. The use of fuels made from waste in cement plants results not only in financial benefits for the industry, but also for society.

Owing to such waste management, smaller quantities of waste will be disposed of in, or directed to, incineration plants. This will lead to a reduced number of new disposal sites, a limitation of the expansion of existing sites and will avoid the necessity to build incineration plant.

Conclusions

Many years of experience have shown that the use of wastes as alternative fuels by cement plants is both ecologically and economically justified. The use of alternative fuels will help reduce the costs of cement production. The average energy demand for the production of 1 ton of cement is about 3.3. GJ, which corresponds to 120 kg of coal with a calorific value of 27.5 MJ per kg. Energy costs account for 30–40% of the total costs of cement production. The substitution of alternative fuels for fossil fuels will help reduce energy costs, providing a competitive edge for a cement plant using this source of energy.

Furthermore, less waste will have to be dumped or burnt, which will mean less dumping sites. Therefore, the use of waste-derived alternative fuels by cement plants will be also beneficial to the environment. The conditions in rotary kilns, such as high temperature, the high speed of the gas stream and the long particle-storage period, guarantee that the use of alternative fuels is ecologically safe.

Co-processing in the cement industry is the optimum way of recovering energy and material from waste. It offers a safe and sound solution for society, the environment and the cement industry, by substituting non-renewable resources with societal waste under strictly controlled conditions. The desired waste material, to be used as a fuel, is available within the state. The cost of waste being used as fuel does not exceed the cost of fossil fuels.

* SUSTAINABILITY AND THE MINERAL CYCLE*

K. Srinivasa Rao, Dy.Mgr (Geology)
Jaggayyapeta Limestone Mine, Rashtirya Ispat Nigam Limited
Visakhapatnam Steel Plant, Jaggayyapeta Mandal
Krishna District, Andhra Pradesh - 521175

Mining and agriculture have been the two basic activities of mankind that have advanced human civilization over the centuries. However, unlike agriculture which has some flexibility in the choice of location, mining can take place only where minerals are present and are economically viable to exploit. Mining involves exploration for and exploitation of mineral deposits by surface and underground methods, both involving change to environment and serious environmental and social consequences.

In considering the subject of the application of sustainable development principles to mining cycle operations, the discussion in this study is restricted to surface mining methods, mainly in respect of metalliferous ores. It is felt that such an approach will keep the study within manageable limits while at the same time providing a meaningful insight into the main issues involved.

A mining project normally has the following phases of mine life cycle:

- Exploration
- Mine planning
- Construction
- Mineral Extraction
- Mine closure
- Reclamation and Rehabilitation (post-closure scenario)

Interfacing with all these stages, in fact with the mining project in entirety, are the reactions and expectations of the local community of the area where the mining project is established or proposed to be established.

Thee are number of ways to save water.... And they all start with you.

Sustainability means, as the 1998 sustainable development policy of the Canadian gold mining company Placer Dome had stated, “the exploration, design, construction, operation and closure of mines in a manner that respects and responds to the social, environmental and economic needs of the present generation and anticipates those of future generations in the communities where we (mining companies) work” (Hilson and Murck, 2000).

The sustainability principles that have relevance for all the different stages of the mining cycle may be summarized as follows:

- Environmental management and mitigation of environmental impacts
- The Precautionary principle
- Economically viable mineral development within the carrying capacity of the environment
- Scientific mining with efficiency-increasing technologies, mining and management practices
- Continuous technological improvements in mining
- Management of socio-economic impacts and creation of substitute capital in the form of social and physical infrastructure
- Inter and intra-generational equity
- Stakeholder engagement and consultation with local communities
- Transparency and effective communication

These principles apply to different phases of the mining cycle simultaneously, not in a sequential manner. Through the interaction of these principles with the activities carried out in the different stages of the mining cycle, an appropriate framework for sustainable development is established.

For achieving sustainability, what is required is that a mining project should be economically viable, financially profitable and technically efficient. This will

enable the project to have the capability to maintain continuous environmental and socio-economic improvements, from mineral exploration, through operation, to closure. In operational terms, sustainable development in the mineral sector implies a mix of scientific mining, improved environmental management including pollution control and enhanced socio-economic development, especially for local communities in mining areas.

Scientific Mining

Scientific mining comprises mining methods and practices originating from a systematic approach to mine development and operation. It involves adoption and continuous development of technology reflected in the advances in equipment and management practices. Scientific mining ensures resource efficiency, both in the management and extraction of minerals. There are many examples of non-sustainable mining practices, a common one in many developing country mines being extracting only the highest-grade material in a deposit, ignoring the lower grades, for short-term gains. Scientific mining is essential for the conservation of a non-renewable resource and its optimum and efficient utilization and thus constitutes the first step for environmental sustainability in mining.

Minimizing Environmental Impacts

In order to contribute to sustainable development, a mine must minimize environmental impacts throughout the mining life cycle from exploration, through construction and extraction to closure and reclamation. This is achieved through the adoption of effective environmental management which includes the following elements:

- Environmental Impact Assessment (EIA) and preparation of Environment Management Plan (EMP) during mine planning(or pre-feasibility/feasibility stage);

- Biodiversity management including mitigating the effects on flora and fauna and preventing pollution of rivers, streams and creeks;
- Pollution control in respect of airborne contaminants, noise and vibration;
- Management of hazardous substances including process reagents, oil and fuel;
- Managing acid mine drainage;
- Tailings management including recycling and reuse;
- Management of water including that generated during mining operations, mineral handling and processes.

The details and relative emphasis placed on the individual elements differ from one stage of the mining cycle to other with major focus on actual mining operations. All the same, there is an increasing recognition that for mining to maintain its "social license to operate", mining enterprises must respond to expectations and pressures from society for adopting measures to conserve and suitably manage resources. A major concern has been that mineral extraction, processing, transportation and other associated activities must be carried on within the available carrying capacity of the physical and social environment including infrastructure facilities. Mining companies are also increasingly being called upon to avoid locating projects in ecologically sensitive and pristine areas (the so-called 'no-go' areas) and change the project development cycle in case there is insufficient baseline information or where scientific uncertainty mandates a precautionary approach concerning mitigation or avoidance of impacts on biodiversity.

In environmental management in mining, disposal of mine wastes (including overburden, waste rock and solid tailings) is a significant issue. According to Stewart and Petrie (2000), generation of waste, both its quality and quantity, is "a direct

function of technology choice" and "improvements in environmental performance are realized primarily by changes in technology ¯ not simply in hardware choice, but also operating and management practices." Proactive environmental management would require mines to adopt technologies and mining practices that can tackle, to the extent possible, environmental problems (including waste generation) at the source and to adopt a holistic approach that applies to the entire mine lifecycle, from exploration, through extraction to closure and rehabilitation. Some significant recent changes in technology have been spurred by public concerns over adverse environmental effects and strict environmental regulations (in many countries) for mitigation of these effects (Warhurst, 2000).

Technological Advancement

Most technological advances in recent years have taken place as a result of the application of information technologies (IT) and computers to mining methods at different stages of mining operations. In exploration, for example, a significant development has been the automated processing of a large volume of geo-statistics through the use of computers.

The interpretation of various types of data helps to prepare models of mineral occurrences and to orient drilling operations, thereby reducing environmental damage and reducing waste. Significant advances in geochemistry and geophysics (including airborne geophysical and geochemical analysis) have increased the accuracy and range of data for interpreting geophysical environment. Other innovations in mineral exploration include satellite, remote sensing technology, 3D modeling, the use of global positions system (GPS) and low-impact seismic methods that minimize environmental damage and increase productivity.

In extraction and processing, mechanization and advances in equipment capacities, automation and continuous movement machinery (such as conveyor

belt), improvements in (computer aided) mine design and management, automated handling systems and adoption of scheduled preventive maintenance of machinery as a standard operating practice have increased the efficiency of mining operations that have contributed to the reduction of environmental damage. Mechanization, increase in equipment capacities and automation of the extraction process have been the most significant advances in mining in recent years. Major developments have included increase in the capacity of haul trucks (200-240 tonnes), shovels (including electric mining shovels and draglines with significantly greater bucket capacity), hoisting machinery, front end loaders, generators, pumps and compressors. Very effective software programmes are being used with applications in areas such as blasting operations and grinding processes in mining. The quality of explosives have been improved considerably that allows 'cast' or 'throw' blasting where the waste material is thrown directly into storage areas allowing the machinery to extract less waste material (Andrews, 1992).

Significant technology advances have also taken place directly in the environmental protection area. For instance, technology has been developed which helps in achieving proper pH balance in waste material through addition of bacteria to retard and control the acid formation process. Sophisticated plants and equipment have been designed and set up for monitoring and disposal of hazardous wastes and pipelines, in use since the 1970's, have provided a safe and cost-effective method for transport of iron ore and copper concentrate in slurry forms from inland location to seaports (Andrews, 1992).

Mine Closure and Rehabilitation

The final stages of the mining cycle, namely mine closure and associated reclamation and rehabilitation of lands earlier utilized for mineral extraction have perhaps the most important significance for sustainable development in the mineral sector. For, properly executed in a holistic manner and with sound reclamation

practices, the processes in these stages have the potential to establish that mining and quarrying are only temporary uses of land. The principles of sustainability would require these lands to be returned for some other beneficial use once mining operations are finally over.

Mine closure refers to the final stages of mining activity, after production and processing have permanently ceased leading to decommissioning of site infrastructure, relinquishment of the rights to mineral concession and rehabilitation planning for the mine. Reclamation is the process of creating land-use — agricultural, industrial, commercial, and recreational and the like — on a site where mining operations have completely ceased. Rehabilitation has the same meaning as reclamation with an added rider that the after-uses are related to the use on the site prior to mining.

Historically, when an ore body was exhausted and production ceased permanently, mines were closed and abandoned. Today mine closure normally requires the reclamation and rehabilitation of the land in and around the mine concerned. Reclaimed mine sites may then be returned to their natural state thereby recreating habitat (such as forests).The design and phasing of the closure must identify and manage the factors that will make for the security and safety of the mine site. The aim of the closure process including reclamation/rehabilitation is to restore “the surrounding environment to a state, resembling as closely as possible that which existed prior to the commencement of mining, as measured by both chemical and biological parameters” and “to ensure that environmental restoration is adequate to allow the establishment of a diverse and functional ecosystem in the area” (Heikkinen et al., 2008).

The closure process, therefore, must take care that the environmental problems arising during mining operations and those likely to arise during the post-closure scenario are comprehensively addressed. Also the socio-economic

issues of mine closure and its impact on local communities, workers and their families and the local economy need to be assessed and managed.

Environmentally, a mine closure plan must ensure that:

- The mine infrastructure (roads, buildings, spoil heaps, tailings and waste rock areas etc.) is evaluated and those posing safety risks are removed from the site.
- Hazardous substances are identified and disposed off in a controlled manner according to hazardous waste management regulations.
- Post abandonment risks are minimized.
- A healthy environment is made available for the future.
- Adequate (surface and ground) water supplies, clean air and productive land are made available for future operations.
- Progressive rehabilitation and revegetation of land takes place along with appropriate landscaping for any future land use activities planned for the area.
- Opportunities for beneficial uses of land exist for future landowners and other users of land.

There are also serious socio-economic implications of mine closure, with respect to employment, income, services and well-being of the community in the mining area. The economic effects of mine closure on local business and service providers as well as landholders and other economic interests can often be serious. Therefore, the objective should be to minimize potential adverse impact on the local economy and provide for long-term needs of the surrounding communities.

Local communities in mining areas often become dependent on mining companies directly providing or subsidizing facilities and services such as schools,

hospitals, community centres, sports facilities, roads, self-help activities etc. These services face the possibility of disappearance on mine closure and consequent withdrawal of the mining company from the area. To provide sustainability, these benefits must continue after closure. A more sustainable strategy will be for both the industry and community to co-operate, ideally from the beginning of the mining operation, to develop the local capacity to provide social services and to ensure easy transition when mine closure occurs. Also, they should build non-mining activities and other productive assets that will last beyond the life of the mine and guarantee income for the future generations. If mine closure planning is linked with local development plans the resultant integrated development plans "can ensure that post- mining land uses are compatible with surrounding development initiatives" and "investments of the mine in human capital and infrastructure can meet local/regional development needs and create a mechanism of economic growth post closure" (Limpitlaw, 2004). Thus, when mine closure is done properly and effectively it can be a mechanism for transferring capital extracted from mining to future generations (Sheldon et al., 2002).

There are two other aspects of mine closure which need to be mentioned in the context of sustainable development. First, it is quite evident that for the process of mine closure to occur in an orderly, cost-effective and timely manner, it should be initiated as early as possible during the mine life cycle, preferably during the course of pre- feasibility/feasibility studies and mine planning. This will enable the mine to plan for and adopt environmental protection and pollution prevention measures during mining operations, keeping the ultimate mine closure in perspective, leading to cost-effective strategies for operationalizing sustainable mineral development. Also, since the 'polluter pays' principle obliges the mining company to meet the costs of rehabilitation and mine closure, it will be able to adjust the ways in which it conducts its activities to maximize profits with all costs internalized. Integrating environmental management by planning for closure from

the beginning will enable the mining enterprise to spread the costs throughout the project life, thereby reducing the cost burden at the time of closure (Warhurst and Noronha, 2000).

The second important issue is that local communities and all other stakeholders must be proactively involved in the closure process so that their views and interests are reflected in the closure plan and benefits of mining are sustainable for future generations. There is also “evidence to suggest that there are benefits to all if the local community is involved with the rehabilitation planning and process from the start” (Warhurst and Noronha, 2000).

Stakeholder Engagement

In fact, stakeholder engagement that includes effective consultation with local communities is an inclusive process which encompasses all interested parties and should occur throughout all the phases of the mine life cycle: exploration, evaluation, construction, operation and post-operation. The substantive issues of consultation will of course differ from one stage to the other depending on the nature of the mining activity in a particular phase and its potential impact on the community. Community relations and consultations should, however, be a continuous process as it enables a mine to obtain its “social license to operate” and avoid community opposition and confrontation that can disrupt mining operations in any phase.

The purpose of these consultations is to inform the community about all aspects of a mining project (in its different phases) and address their concerns, needs and their suggestions. The approach has to be community-centered and not project-centered. That is, the attempt should not be to sell the project by public relations techniques (as was the case earlier): instead the focus needs to be on community interests - showing how the project will contribute to ecologically sustainable development by its contribution to the social and economic life of the community, demonstrating benefits to the people and explaining the mining

enterprise's (mitigation) plans to meet the community concerns relating to environmental pollution, land degradation and other negative consequences of mining. Enlightened mining companies use structured mechanisms and procedures including dedicated community liaison teams to maintain regular and open dialogue with stakeholders, particularly local communities and undertake various community-related initiatives including preferential employment of local people, training and skill-development in local enterprises, promoting and assisting local small businesses and self-help activities. This enables them to maintain their 'social license' to do business in mining. In a way, they are responding to an emerging trend of increasing assertiveness on the part of local communities, spurred by improved information and communication, emergence of grassroots movements and an urge to manage social change among their people. Rio Tinto's Chief economist, David Humphrey summed up the position neatly when in 1996 he noted, "The bigger challenge is not a technical one. Rather it lies in the development of interactive and lasting relationships with the communities, regions and countries in which the (mining) industry operates" (Epps and Brett, 2000).

Local Community Development

Community engagement is closely linked to community development which, besides interactions with the community, implies "the process of increasing the strength and effectiveness of communities, improving people's quality of life, and enabling people to achieve greater long-term control over their lives" (World Bank, ICMM & ESMAP, 2005). In operational terms community development involves designing and implementing local area development plans, programmes, and projects, often in co-ordination with government and non-government agencies operating in a mining project area. For, it is only through investments for the development of physical and social infrastructure and human resources development in its (project) area that a mine will be able to create substitute capital in order to compensate for the loss of natural resources (capital) as a result of its mining operations.

There are opportunities for socio-economic investments in different stages of a mining project's life cycle, as illustrated in the table below:

Table 3.1: Opportunities for Local Area Development

Project Stage	Opportunities
Exploration and Mine Planning	- Identification of local stakeholders, their empowerment through engagement and participation in Planning. - Initiating partnerships with stakeholders. - Support for local infrastructure such as site clearance, roads and water supply (bore holes) - Human resources development
Construction	- Land clearance and development, building access roads and utilities - Displacement and relocation of communities and building infrastructure for them. - Short-term job opportunities - Training and skills development
Extraction and operation	- Mining operation serving as catalyst for local economic development - Development of local enterprises for providing goods and services to the mine including maintenance services - Human resources development and education programmes in the project areas - Social infrastructure such as schools (including technical institutes), hospitals and health facilities, sports facilities etc. - Promotion of economic opportunities in agriculture, soil conservation, minor irrigation, small enterprises development, local handicrafts and other various self-help activities.
Mine closure and rehabilitation	- Assistance in diversification of the local economy. - Development of strong asset and infrastructural base for post - closure economic activities.

Source: Adapted from Sam Choshi, “Mining and Society-Local Development”, African Institute of Corporate Citizenship, July 2001

However, in the ultimate analysis, the most beneficial and sustainable legacy of a mining operation could be to leave behind in a community skills and capacities that education and training programmes provide to the local people in a mining area. This will ensure sustainability in as much as one local asset (non renewable natural resource capital) will be replaced by another asset, namely local human and social capital.

A mining company thus, can be a catalyst for the development in its area of operation, as also for building up other non-mining sustainable income sources in the area so that communities can develop independent of the mine and can survive after mine closure. In order to make effective use of its investments, it has to coordinate with other local development programmes run by government and non-government agencies operating in its mining area. And if communities benefit greatly from a mining operation, then they will develop significant stake in the operation, thereby enabling the mining company to obtain its “social license” to operate, enhance its reputation and overcome various hurdles that could adversely affect its business. “In other words, community development is a reciprocal process. By helping communities to develop themselves in a sustainable manner, a mining company is simultaneously helping its own business succeed. If we can all move beyond the donor/recipient model of community relations and view mining operations and their community development programmes as a mutually beneficial partnership process, the goal of sustainability will become more achievable” (World Bank, ICMM & ESMAP, 2005).

From the analysis, it is clear that the process of planning for community development (including identification of relevant stakeholders) must begin from the exploration and mine planning stage. In fact, the first task should be for a mining company to prepare a Socio- Economic Impact Assessment (SEIA) for the

local area surrounding its mine (to be defined). This should be followed by a long-term (strategic) Integrated Development Plan (IDP) providing for local economic and human resources development over the mining-lease period and committing financial resources for implementing the plan. The long-term plan could later be broken into short-term (one/five years) operational plans/programmes aligned with the local government development plans for implementation. Ideally, preparation of SEIA and IDP could be made a part of the permitting process for the grant of mineral concessions to a mining company.

The Socio-Economic Impact Assessment (SEIA) examines how a proposed (mineral) development will affect the social, cultural and economic life of the surrounding community. This should include identification of different categories of stakeholders with varying levels of interest in the project, drawing-up of a socio-economic and cultural profile of the community through a baseline study and at the same time, identifying their competencies and existing institutional framework in the area and evaluating both positive and negative (socio- economic) impacts of the mining project.

Having identified possible impacts, it should then propose how to minimize risk and identify the best methods to mitigate negative impacts and maximize socio-economic opportunities. Following the socio-economic assessment, a mining company can prepare a strategic vision, a long-term plan and later operational plans/programmes/projects and also a framework for implementation.

Very often, socio-economic impact assessment is undertaken as an adjunct to EIA that pushes the socio-economic study to the backseat and reduces its importance. It is advisable to separate the two processes and make socio-economic assessment, an integral part of the process for granting mineral concession, to be administered and monitored by the government agency dealing with mining leases and monitoring its administration. It can then ensure that the mining company concerned implements the approved local area development plans in its project area.

Another issue that is of significance is the formation of partnerships for resolution of “community or collective dilemmas by minimizing free riding, facilitating consensus building, and helping to increase social capital, in the forms of knowledge, policy (i.e. rules of the game), global consensus and social infrastructure” (Epps and Brett, 2000). In a way partnerships are very essential for sustainable development, involving communities, governments and non-government organizations and mining companies and operating in a structured fashion. The advantages of building these partnerships include providing of resources, transfer of knowledge, community mobilization, securing public and political mandate and building understanding between potentially adversarial groups. Therefore, some of the larger multinational mining companies enter into direct partnerships with communities with a view to securing community endorsement to function.

Also, benefit-sharing of mineral resources revenue with key stakeholders in an equitable and transparent manner must be seen as an instrument for attaining sustainable local area development. For example, a proportion of government revenues from mining royalty or taxes are, in many countries, diverted for use in the local development activities. Some multinational mining companies use the legal mechanisms of “trust” and “foundation” to provide funds for the development of community infrastructure and local businesses and for providing education and health facilities. These, in a way, are forms of forging partnerships for catalyzing local development in a mining project area.

Effective communication with all the stakeholders and transparency must remain a lynch-pin of sustainable development. Sustainable development is a concern for all, most importantly for the people directly affected by a mining project. Therefore, local communities (who are direct stakeholders) must receive regular and transparent information about issues and conditions that affect their lives. They should be given opportunities through formal institutional arrangements to

express their concerns which should be treated with respect and acted upon. Also, they must participate in decision-making on issues affecting their life and livelihood and stakeholder representatives should be invited to serve on planning and other relevant bodies and committees concerned with the development of the mineral project, more specifically in areas such as local area development, resettlement and rehabilitation, mine closure and reclamation of mined out land for use in the future.

Finally, an integrated system of sustainable development indicators could be a useful tool for both the stakeholders (including government agencies) and mining companies in measuring environmental and socio-economic dimensions of sustainable development, most importantly the effectiveness and efficiency of performance and the qualitative and quantitative dimensions of change in the community's quality of life, environment, health and economic well-being.

Regulation and Self-regulation for Sustainable Development

From the nature of the sustainability measures identified for the mineral sector, it is quite obvious that their successful implementation is dependent on both regulation (by governments) and self-regulation (by mining company and industry).

Since in most nations, minerals belong to the state or the community, it is but natural for mineral exploitation and usage to be regulated by public legislation and administered by designated government agencies. In some countries national mineral policies provide a summary of government position on various aspects of mineral sector development including policies relating to sustainable development. However, policies have no meaning unless these are given concrete legal shape through statutes (laws) and associated regulations, rules orders etc. which have legal validity and these are enforced through effective administrative action by relevant government or public agencies. It is rare for any country to have a specific law dealing exclusively with sustainable development in all its aspects (in respect of the mineral sector). Normally, these are incorporated in mining laws, environmental laws (including air and water laws) and land laws.

In many countries, mining statutes, in addition to providing for exploration and mine operation activities and mines leases contain provisions relating to sustainable development, especially for safeguarding the mine environment and minimizing environmental degradation due to mining. Most countries have put in place policies and legislation for comprehensive mine closure, in many cases making its compliance a pre-condition for acquiring mining licenses. But, “only a very few countries and/or their individual provinces/states, have enacted and implemented actual mine closure laws e.g. the United Kingdom, the Province of Ontario (Canada) and the state of Nevada (USA). In most countries, mine closure requirements occur either within the mining law, and/or its associated Implementing Rules and Regulations (IRRs) for the mining laws or within specific environmental legislation that is applicable to the mining sector” (Clark and Clark, 2005).

In the past the mining industry frequently showed a lack of concern for the environment. In recent time, however, the greater awareness of the importance of environment has led to tighter environmental legislation and increased stringency in standard for environmental protection in and around mines, with a view to lessening mining’s negative impacts. For example, all mining lease-holders may be required to submit environmental impact assessments before commencing mining and to submit a bond to cover eventual reclamation cost. However, not many countries have mandatory legislative provisions for mining companies to undertake socio-economic development measures in their respective mining areas as part of sustainable development activities. In fact, there is no country that has an adequate legal regime for dealing with socio-cultural issues as they relate to mineral resource development projects (Otto, 2000).

Framing laws, incorporating all possible “best practices” and putting them on the statute book, though necessary, are not enough to ensure sustainability in mining operation, unless these laws and associated rules and regulations are implemented efficiently and effectively. For this to happen, there must be adequate government capacity and willingness to enforce these laws in respect of specific

mining projects faithfully and monitor their implementation effectively. This is the area where there is a difference between developed and developing countries where government failure appears to be a recurring pattern. This has led Ostensson (2000) to remark that "developing country governments are likely to see environmental protection and other elements of sustainable development as important objectives and accord them a higher priority. They face great difficulties, however, in realizing these objectives. The enforcement of regulations concerning existing operations in developing countries faces considerable problems and may be less effective than in the developed ones." Since good governance is a *sine qua non* for attaining sustainability, persistence government failure on this front may create serious hurdles in achieving mineral sector sustainable development (in many developing countries).

Regulation (by government) alone, however, will not succeed in ensuring sustainable development in the mineral sector. For credible results, there has to be a genuine commitment to the principles of sustainability on the part of mining enterprises – large, medium and small – and also a realization on their part that sustainable development also makes for good business as it results in minimizing social risks and its potential to adversely affect mining investments. This means that government regulation should be supplemented by self- regulation by the mining industry and mining enterprises and their environmental behavior should go beyond mere compliance to the provisions of law.

There is some evidence to suggest that while profitability concerns are most dominant in mining investments, sustainability issues are also beginning to influence decision-making processes in mining operations. There is of course considerable differences in the behavior of different categories of mining enterprises on this score. The differences arise from the inter- connected factors of technological and production efficiency, size, management culture and locations of mining enterprises.

Access to technology and technical know-how, capacity to innovate in technical and management practices and production efficiency are powerful determinants of good environmental behavior of mining enterprises. These attributes and technological competence are more likely to the found among large mining enterprises. Therefore, large mining companies, especially multinational companies have an advantage over smaller enterprises in their ability to organize resources and harness technological and management practices to reduce production and environmental costs. In the case of smaller enterprises, all available resources are tied up in carrying out routine operations, thus leaving them with hardly any surplus resources for monitoring and managing environmental impacts including rehabilitation of mined out areas or undertaking local area development in the areas of their operation. Also, environmental degradation tends to be greatest in low productivity operations with obsolete technology, limited capital, inefficient energy use and poor human resource management (Warhurst and Noronha, 2000).

Some of these problems are endemic among mining enterprises of many developing countries which also present additional problems due to lack of political will among government leaders to implement laws embodying sustainable development principles and prevalence of corruption in extractive industries .

Also, large national and multinational mining companies tend to incorporate sustainability objectives into their corporate culture, thinking and behaviour and sensitize their senior managers and mines executives with sustainable concepts. Websites of many of these companies and their annual reports reaffirm their commitment to sustainable development. Some of them publish annual sustainability reports and detailed action plans for promoting sustainable development in company operation. In comparison, smaller mining enterprises tend to place less emphasis in the formal adoption of sustainability concepts and objectives. Their managers and executives also exhibit less sensibility to these issues, with their major focus being on extracting minerals (from their mines) to the maximum extent in order to maximize profits.

It is an illusion that the solution to pollution is dilution.

Conclusion

Sustainability principles have application for all stages of mine life cycle – exploration, mine planning, construction, mineral extraction, mine closure and post-closure reclamation and rehabilitation. These principles include elements such as intra and inter- generational equity, the precautionary principle, scientific mining, management of socio- economic impacts and creation of substitute capital in the form of social and physical infrastructure and stakeholder engagement. It is through the interaction of their principles with the activities carried out in the different stages of the mining cycle that an appropriate framework for sustainable development (in mining) is established. In operational terms, the sustainable development in the mining sector implies a mix of scientific mining and technological improvements, improved environmental management including pollution control, enhanced socio-economic development of local areas and communities, stakeholder engagement and transparency in communication. Effective regulation (by government) and good governance as well as self-regulation and ethical conduct on the part of mining enterprises play a crucial role in the achievement of sustainable mineral development.

Thus, to sum up our discussions of sustainability in this, it may be stated that although "sustainable development" is a broad and somewhat ambiguous concept, it can be translated into a few operational principles for the purpose of achieving its objectives in mineral development. Sustainability in mining operations can be conceived in terms of a framework comprising the following elements:

(i) scientific mining,

(ii) environmental protection, especially minimizing the impacts of mining practices on biodiversity,

(iii) local stakeholder engagement, (iv) enabling local socio-economic development (in the areas of mining operations) and (v) accountability and transparency.

However, two main pre-conditions for achieving sustainability through these mechanisms are the existence of good governance and self-regulating mining enterprises which are economically viable, financially profitable and technically efficient.

Source:

Section – I of SUSTAINABLE DEVELOPMENT AND MINERAL PRODUCTION,

Chapter – 3 of **SUSTAINABLE DEVELOPMENT, Emerging Issues in India's**

Mineral Sector

Sponsored by

Planning Commission, Government of India

Institute for Studies in Industrial Development
4, Institutional Area, Vasant Kunj, New Delhi - 110 070
Phone: +91 11 2676 4600 / 2689 1111; Fax: +91 11 2612 2448
E-mail: <info@isid.org.in> Website: <http://isid.org.in>

CORPORATE SOCIAL RESPONSIBILITY (CSR)

E. Vasudevan,
Senior Dy. General Manager(Mines),
M/s. Sree Jayajothi Cements Pvt. Ltd
(100% subsidiary of M/s. My Home Industries Private Limited)

Introduction

Corporate Responsibility (CR) is an issue that, in recent years, has moved further up the agenda in terms of importance for organizations. Nearly all leading corporates in India are involved in corporate social responsibility (CSR) programmes in areas like education, health, livelihood creation, skill development, and empowerment of weaker sections of the society. Although corporate India is involved in CSR activities, the central government is working on a framework for quantifying the CSR initiatives of companies to promote them further. According to Ministry of Corporate Affairs, one of the ways to attract companies towards CSR work is to develop a system of CSR credits, similar to the system of carbon credits which are given to companies for green initiatives.

Besides the private sector, the government is also ensuring that the public sector companies participate actively in CSR initiatives. The Department of Public Enterprises (DPE) has prepared guidelines for all public sector enterprises to take up important corporate social responsibility projects to be funded by 2% per cent of the company's net profits.

What is corporate social responsibility?

Corporate social responsibility is a form of corporate self-regulation integrated into a business model. CSR policy functions as a built-in, self-regulating mechanism whereby business monitors and ensures its active compliance with the spirit of the law, ethical standards, and international norms.

The term is often used interchangeably for other terms such as Corporate Citizenship and isalso linked to the concept of Triple Bottom Line Reporting (TBL),

which is used as aframework for measuring an organization's performance against economic, social andenvironmental parameters.

The **key drivers** for CSR are:

- ⇨ **Enlightened self-interest**- creating a synergy of ethics, a cohesive society and asustainable global economy where markets, labour and communities are able tofunction well together.
- ⇨ **Social investment**- contributing to physical infrastructure and social capital isincreasingly seen as a necessary part of doing business.
- ⇨ **Transparency and trust**- business has low ratings of trust in public perception.There is increasing expectation that companies will be more open, more accountableand be prepared to report publicly on their performance in social and environmentalareas.
- ⇨ **Increased public expectations of business**- globally companies are expected todo more than merely provide jobs and contribute to the economy through taxes andemployment."

Why has it come to prominence?

CR has become increasingly more than a side issue, owing to recent episodes of business mismanagement. With globalization, the power and impact of trans-national organizations have increased, as have the demands for space and resources, both of which show trends towards becoming scarcer. This has led to the need and desire for greater responsibility and safeguards. Current media focus can be seen to be concentrated upon environmental issues.

The Business Case

There is a clear business case for CR. Stakeholders and customers are increasingly concerned about the environmental and social impacts of the products and services they buy. There are numerous recognized benefits from an effective business-led approach to CR:

- **ReputationManagement**

  In addition to factors such as quality of product and financial performance, CR is a somewhat intangible asset that has the potential to enhance the brand. Reputation for integrity and respect can build customer loyalty based on distinct values differentiating the brand from the competition.

- **Risk Management**

  CR provides a means by which companies better understand and manage risk. Establishing a comprehensive CR policy and strategy can offset these risks, spanning legal, financial, environmental, and societal risks.

- **Recruitment and Retention**

  Increasingly CR is a key factor in attracting and retaining a talented and diverse workforce. Graduates look for CR records when considering who to work for. CR can also help to improve the perception of an organization amongst its employees.

- **Innovation and Learning**

  Environmental and social constraints restrict how an organization can make a profit, or bring about continuous improvement. Effective CR can create innovative ways to become profitable, or raise sufficient funds, within those constraints.

- **Access to Capital**

  Potential investors in organizations are increasingly using CR performance as an indicator for the quality of management and approach to risk management in a company, when taking decisions on investment of capital into a business.

- **License to Operate**

  Taking substantive voluntary steps can result in aspects of light-touch

regulation being applied where discretion from the regulator is available.

⇨ **Financial Performance**

Effective CR policies should also improve market positioning and profitability. For example much energy saving measures as well as being environmentally friendly also save money.

Good Practice Principles for Corporate Responsibility Reporting

There is a growing public demand for information about the impacts a company has on the society in which it operates. Thus, reporting on responsible business performance to stakeholders (whether a legislative requirement or not) creates a shared understanding of responsible business and helps to integrate such practices into the 'fabric' of an organization.

By sharing relevant information about the risks and opportunities it faces, as well as its social, environmental and economic performance, a company can enhance its reputation and build confidence among investors, analysts, employees and customers. CR reports can be published in print or online, with summary or overview documents for certain stakeholder audiences, such as employees.

Alternatively, an organization might have a CR section on its corporate website, or include responsible business in its annual report and accounts.

A CR report should be a consolidated view of management and performance on responsible business issues. It should also define the reporting period, contain policy statements, objectives and targets, and review performance to enable a year-on-year comparison.

Put into Context

⇨ Putting the company and its responsible business performance into context includes providing an overview of its structure and operations, major products or services, geographical locations etc.

Identify Key Risks and Opportunities

⇨ These include how the company has identified the social and environmental issues that are most material to its business, and how the company is managing those issues.

Engage Stakeholders

Engaging with stakeholders is an essential part of responsible business. When considering and dealing with the concerns of stakeholders, remember:

⇨ Publishing a report is not a substitute for stakeholder engagement.

⇨ The report provides a means to demonstrate that the company has taken account of stakeholders' views.

⇨ Reporting should summarize the stakeholder engagement process and how stakeholders shape the organization's priorities in given areas.

⇨ The corporate responsibility practitioner's role is to seek stakeholders' views to inform or influence the business.

Identify Performance

⇨ Performance, including both achievement and underachievement, is demonstrated by key performance indicators (KPIs).

⇨ KPIs should cover both process (management KPIs) and impact.

⇨ KPIs should be linked to business goals and objectives.

⇨ Performance against targets provides a basis for reviewing overall performance.

Provide Assurance

This involves providing an account of how the company assures quality.

⇨ The value comes not just from having an audit statement in the report but also from the involvement of an independent person in the process.

- ⇨ Assurance adds credibility to the company's reporting disclosures.
- ⇨ External standards and reporting guidelines such as the Global Reporting Index, ISO9001 and ISO14001 provide a framework to test for completeness and materiality.

Other Issues to Consider

- ⇨ Year-on-year comparability – but without preventing new issues and performance information being added.
- ⇨ Scope and comprehensiveness – be clear about the scope of the report and aim to cover the key issues in sufficient depth.
- ⇨ Forward looking – the report should contain commitments for the year ahead.

The reporting of CR creates a shared understanding of responsible business; a non-financial report, it can also identify future risks and opportunities, thereby making it a potentially powerful management tool.

Summary

CR can bring numerous benefits to an organization such as a distinct position in the marketplace, and protection of the employer brand. The process of assessing and identifying an organization's values and responsibilities can in itself engage stakeholders and create a more developed identity for an organization.

It can help significantly with recruitment, engagement and retention of employees, along with the building of credibility with current and potential customers and employees.

However it is critical for the CR process to be embedded rather than just a process to please stakeholders.

CSR is the deliberate inclusion of public interest into corporate decision-making, and the honoring of a triple bottom line: people, planet, profit.

EFFECTS OF MINING ON THE ENVIRONMENT

Shrawan Kumar Shukla
Senior Manager – Mining
JSW Cement Limited

1. Water pollution

If proper precautions are not taken, mining can have adverse effects on both the surface and groundwater. Due to the high amount of chemicals that mining activities generate; unnaturally high concentrations of arsenic, mercury, and sulfuric acid will be deposited in the water bodies.

Massive contamination can also occur due to the water generated from the mining sites. This water is concentrated with high amounts of chemicals used for mining as well as metals from the ground ore. Also, water produced from mine cooling, aqueous extraction, and mine drainage among other mining activities further augment the contamination of water surfaces.

Heavy metals can be transported into the groundwater by runoff leading to devastating effect if consumed by humans or animals. Examples are the Britannia Mine – a former copper mine in Vancouver, and the Tar Creek mibe in Picher, Oklahoma which reportedly has high levels of heavy metal contamination.

2. Erosion

The exposed hillsides, tailing dams and mine dumps become eroded through mining activities. Siltation of drainages and rivers due to erosion contribute to environmental degradation. An example is the Ok Tedi Mine located in Papua New Guinea. Moreover, mining activities may render farming or grazing land unproductive. Shallow extraction techniques, geological discontinuity, and weak overburden can cause sinkholes which create a large depression on the surface of the mining area.

3. Effects on biodiversity

When mining, extensive areas of land and vegetation are cleared. The viability of the land for farming activities deteriorate and animals loss their habitats. Biodiversity losses are, therefore, experienced in the area due to habitat modification in terms of factors such as pH changes and temperature changes.

The endemic species of the area will, as a result, be highly affected owing to their sensitivity to the environmental changes. One important thing to note is that the impact of the mining activities on biodiversity will depend on bioavailability and morbidity of the contaminant. When contaminants have low mobility, they will stay inert in the mining area. Those that have high mobility will move into another area occupied by organisms leading to poisoning.

4. Biomagnification

Another critical concern of mining to the environment is Biomagnification. Animals in the lower levels of the food chain and living near mining areas will consume heavy metals. These animals are then consumed by those above them in the food chain and this continues until to the top of the chain. The toxic metals will move gradually from the consumer to the top of the chain through the feeding relationship.

5. Effect on aquatic animals

Mining activities can cause direct poisoning of the marine animals when the toxic chemicals and heavy metals are transported through run off to the water bodies. Due to the bioavailability of these hazardous materials in the water, they can modify the pH affecting the plants that the aquatic animals feed on.

There is also physical effect caused by the silt deposited in water surface as a result of mining which can lead to reduced visibility and clogging of respiratory surfaces of the aquatic animals.

6. Destruction and loss of vegetation cover

Surface mining results in deforestation and this has long term effects even after the mine has been decommissioned and the land refilled with soil and replanted. Besides, the majority of plant species have a very low tolerance to high concentrations of metals in the soil except for grass.

Plants that are intolerant to such conditions will fail to germinate in the reclaimed areas. Plants in such areas are normally affected through direct poisoning, modification of pH, clogging of their leaf surfaces by dust particles, or unavailability of nutrients.

HEALTH AND ENVIRONMENT IN THE MINING INDUSTRY

V.Yugandhar Reddy
Manager (Mines)
JSW CEMENTS LTD

The following text will discuss environmental impacts and health aspects in the mining industry in general. Special attention will be given to the issues of tailings and radiation.

Environmental Impacts

Three main types of changes are distinguished as a result of mining: change in the natural topography which results in restrictions in the possibilities of using the land for other purposes, changes in the hydro geological conditions with consequences for both groundwater and surface water and finally changes in the geotechnical conditions of the rock . Theimpact varies with local conditions of the specific site of mining. These changes caused by mining can give rise to various impacts on the geoenvironment, described below.

Impacts on the Lithosphere

Depending on the type of mining conducted and the site of mining there are several types of impact son the lithosphere. The results range from formation of ridges, depressions, pits and subsidence onthe surface as well as underground cavities affecting the stability of the ground. Furthermore, both the area for mining and the area used for waste dumps, occupy and degrade land that could be usedoor e.g. farming and agriculture

Impacts on the Hydrosphere

Impacts on the hydrosphere resulting from mining include lowering of the groundwater table, mine water discharge into rivers, seas and lakes, leakage from

settling tanks and evaporators that have negative effect on the groundwater quality and pumping of water into the ground for the extractionof a mineral.

Significantly lowered groundwater levels can result in huge surface depressions and drained rivers and lakes with serious impacts on surrounding agriculture for example. Furthermore, depending onthe chemical composition of the rock, the drained water usually becomes highly acidic with the resulting capability of taking into solution a variety of toxic and heavy metals (Aswathanaryana2003).

Impacts on the Atmosphere

Atmospheric emissions during mining occur not only from internal combustion engines in mining machinery but dust and gases are also released from blasts and rocks and mineral masses. One tone explosives produces about 40-50 m3 nitrogen oxides and huge amounts of dust .Smelters are commonly used for mineral purification and emissions from these processes include particulate matter and gases such as sculpture dioxide, carbon monoxide and carbon dioxide. Althoughsome installations use different kinds of flue gas purifications, these are never completely effective

Impacts on the Biosphere

The biosphere is adversely affected by mining mainly by pollution and by degradation of land and vegetation resulting in loss in biodiversity. Mining can also have impact on local microclimate.

Health Aspects

Mining is one of the most hazardous industrial occupations and during the period 1980-89, mining was the industry with the highest annual number of traumatic fatalities. Health impacts from mining can be divided into two categories:

immediate impacts such as accidents; and accumulative and progressive impacts such as stress, radiation and pulmonary diseases. Inters of health hazards, four different types can be distinguished: physical, chemical, biological andmental hazards:

Physical Hazards

Physical hazards include noise, heat, vibrations, falls and explosions, flooding and various forms of dust, aerosols and fine particles with resulting fibro genetic and carcinogenic effects (Aswathanaryana2003). Ionizing radiation is included in the category of physical hazards.

Chemical Hazards

Chemical hazards arise from chemical pollutants in water, solid wastes and air with the most common substances being carbon monoxide and dioxide, oxides of sculpture, nitrogen oxides andfluorine compounds.

Biological Hazards

Biological hazards caused by living organisms such as fungus, bacteria and parasites are more common among mine workers in developing countries with poor standards of hygiene and sanitation.

Mental Hazards

Mental hazards involved with mining include claustrophobia, anxiety, tension or irritability involved with the awareness of the dangerous working site. Fatigue and other disorders linked to shift work are other potential problems among mine workers.

Tailings and Waste Rock

One of the most serious problems for the mining industry is the production of mine tailings, which annually amounts to 18 billion m3. That is more solid waste than generated by any other industry and still, this figure is expected to double in the next 20-30 years as ores with progressively lower grades are being worked .It is estimated that of all material excavated by mining operations, more than 70% is waste. Surface mining is the method that generates the most waste. At the beginning of the 21st Century, surface mining contributed to 80% of the global mineral production but to as much as 99% of all generated mine waste (Younger, Ban wart& Hedin 2002).Mine waste can be classified as waste rock or spoil and as tailings, also known as finings. Waste rock can arise during both the extraction and the processing of ore, while tailings are only generated rock is coarse-grained (1mm-50mm) and tailings can be characterizes as fine grained (<1mm). Furthermore, waste rock is normally tipped dry, while tailings are deposited from flowing water (Younger, Banwart & Hedin 2002).When waste rock is not used as back-fill or used as bulk-fill in construction projects, it is stored in waste rock piles, generally formed by loose tipping from wagons or conveyor belts. Revegetation is currently common practice but until just recently, little has been done to the drainage to minimizedleachate generation Tailings used to be dumped in the nearest watercourse, until the early 20th Century, when it wasdiscovered that this was not a sustainable behavior. The original reason for abandoning this tailings management system was that the water routes required for shipping the products were obstructed. Today, tailings dams and tailings dykes constructed from waste rock and tailings material aregenerally used as storage facilities.

The characteristics of the mine waste can be structured in different regions, where different processes are dominating. These regions are the source term, the near field and the far field. The source term is the actual waste dump, the

near field deals with the treatment and managementof the waste and the far field concerns different interactions between drainage water and the soil andwater outside the constructed deposit. The terms are illustrated in

- The ore: source term and water chemistry
- Age of the operations
- Deposits management
- Metals and substances related to the different minerals and ores
- Process chemicals and complexes
- Geography: precipitation and hydrology

The ore is used as a take-off point and the remaining parameters are presented and further on discussed and compared in relation to the different types of ores of interest.

Source Term – Deposited Waste

The source term refers to the waste dump and characteristics that can be included are the total amounts of waste and the amounts as well as concentration of contaminants. Factors such as grain size, porosity and water retention properties, which are influencing the flow of oxygen and water through the deposits, are also of interest . In this report, however, the source term is limited to the amounts of waste produced and a basic composition of the tailings, excluding the concentrations of different contaminants.

Mineral Composition of Tailings

Copper is most commonly contained in copper-iron-sulphide (e.g. chalcopyrite (CuFeS2) and bornite(Cu5FeS4)) and copper sulphide minerals (e.g. chalcocite

(Cu2S)). Also gold is often found associated withsulphides (Mindat.org: Gold 2008).Oxides as pitchblende (Mindat.org: Pitchblende 2008) and secondary ores formed frompitchblende by weathering are the main uranium minerals (Metzler 2004), even if it can occur insulphideminerals as well .The mineral composition of tailings is directly linked to the water quality of the tailings discharge. Reactions between minerals are dependent on tailings compositions and chemical properties of thewater (pH, oxygen dissolved solutes etc) . When sulphidesgetin contact with water, the sulphide minerals are oxidized and sulphuric acid is produced, lowering pH of the water. This phenomenon, termed Acid Mine Drainage, AMD, is further explained in the following section. Oxides are pH neutral1 while carbonates have a buffering capacity and constitute themost efficient minerals when it comes toneutralising acid from weathering sulphides. Silicates are weathered when pH is lowered. Buffering silicates consume hydrogen ions when pH is low and can therefore counteract a further pH decrease.

BEST WAYS TO REDUCE AIR POLLUTION

S.PRASAD, AGM (Mines)
The KCP Ltd, Macherla**.**

In India we are implementing so many precautions to reduce the air pollutionand thefollowing are best ways to reduce the air pollution. They are as follows**.**

1. Using public transports.
2. Turn off the lights when not in use.
3. Recycle and Reuse.
4. No to plastic bags.
5. Reduction of forest fires and smoking.
6. Use of fans instead of Air Conditioner.
7. Use filters for chimneys.
8. Avoid usage of crackers.
9. Avoid using of products with chemicals.
10. Implement Afforestation.

1. Using public transports:

Using public transport is a sure short way of contributing to less air pollution as it provides with less gas and energy, even carpools contribute to it. In addition to less release of fuels and gas, using a public transport can also help in saving money.

2. Turn off the lights when not in use:

The energy that the lights take also contribute to air pollution, thus less consumption of electricity can save energy. Use energy saving fluorescent lights to help the environment.

3. Recycle and Reuse:

The concept of recycle and reuse is not just conserve resources and use them judicially but also is helpful for air pollution as it helps in reducing pollution emissions. The recycled products also take less power to make other products.

4. No to plastic bags:

The use of plastic products could be very harmful to the environment as they take a very long time to decompose, due to their material made up of oil. The use of paper bags instead is a better alternative as they decompose easily and are recyclable.

5. Reduction of forest fires and smoking:

The collecting of garbage and getting it on fire in dry seasons or dry leaves catching fires is a huge factor for causing air pollution, moreover smoking also causes air pollution and causes the air quality to worsen along with obviously damaging one's health.

6. Use of fans instead of Air Conditioner:

The usage of AC's takes a lot of energy and emits a lot of heat which is bad for the environment. AC's also take a lot of power and energy to work as compared to fans.

7. Use filters for chimneys:

The gas that is emitted from fireplaces in homes and factories are extremely dangerous for air pollution and harms the air quality severely. The use of filters should be used at least if the consumption couldn't be lessened, this will help to reduce the effect of harmful gases absorbing in the air.

8. Avoid usage of crackers:

The use of crackers during festivals and weddings is sadly one of the biggest contributors to air pollution, leading to a layer of smog which is extremely harmful for health. So, practice of no crackers should be implemented.

9. Avoid using of products with chemicals:

Products that use the chemicals in their usage or smell strongly, like paints or perfumes should be used less or outside the house. There can also be an alternative to use products with low chemical content and organic properties.

10. Implement Afforestation:

Last but not the least, plant and grow as many trees as possible. The practice of planting trees provides a lot of benefits to the environment and helps with the release of oxygen.

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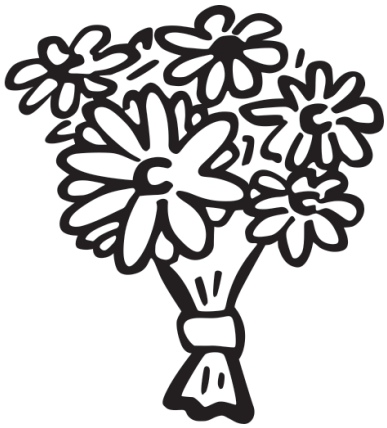


RECLAMATION AND REHABILITATION AT DEVAPUR LIMESTONE MINE OF M/S TSMDC LTD.

Jayant V. Mohgaonkar
General Manager (Geology)
Devapur Limestone Mine

The Devapur Limestone Mining lease area, having an extent of 210 ha, is located in Ralli Reserved Forest of Mancherial Division in Kasipet Mandal of Mancherial Dist, of Telangana State. The mine is connected by a blacktop road connecting the National Highway No 363 between Bellampally and Mancherial. The nearest railway line is at Bellampally at a distance of 18 km and Mancherial at a distance of 33 Km. from the mines. Nagpur and Hyderabad Airports are at an equivalent distance of 280 km from the mines.

The Mining Lease area is a part of the Survey of India Topo Sheet No. 56 M/8 (E44B8). The site falls between N19.015173^0 - N19.036635^0& longitudes E79.318819^0 - E79.343979^0 with an altitude ranging from max RL 331 to min RL 219 above MSL.

The area forms a part of the region of limestone deposits belonging to Penganga series of rocks, comprised of Pranahita sandstone at the base and succeeded by Penganga beds. These Penganga series are overlain by ferruginous Sullavai sandstone and grits. The Pengangas are co-related to the lower Vindhyan age. The Regional geological succession of the region is as follows:

Sullavais Sandstone. Limestone Red Mottled

Penganga Group	Upper Limestone	Series of limestone beds intercalated with shale and sandstone
	Shales, Lower Limestone	Limestone bands intercalated with thin inconsistent shale bands
	Pranahita Sandstone.	

Unconfirmity

Granite

Recycling & Bicycling will save the earth

The limestone-bearing areas are high-relief and undulating land on the regional scale due to hill ranges and valleys. The area and its environs constitute a hilly undulating terrain with small hummocks and intervening saddles. The general strike of the formations is North 40^0 West - South 40^0 East with moderate dips of 3^0 to 8^0 in the SW direction. There are a few fault -zones in the area.

The mine is fully mechanized, and all mining operations are by machinery only. Drilling is with 150 mm & 115 mm dia blast hole drills equipped with water injection systems to prevent dust generation. Blasting involves site mixed ANFO &Slurry explosives initiation with safety fuse and non-electrical detonators.

Limestone loading is by hydraulic excavators, and transportation is by 18 tons tippers. Bench heights are usually kept around eight meters for stability and safe mining. As the Limestone is hard and compact benches are very stable. Water sprinklers are fitted along the haulage road, and water is continuously sprayed to prevent dust generation. Water Tankers are provided to spray the water at mines, haul roads, and wet blasted muck piles to prevent dust generation due to loading & hauling.

Meaning of Reclamation, Rehabilitation and Restoration:

Reclamation- Reclamation means the process of restoring mined out land to a natural or economically usable state. It implies restoring the land to a form and productivity that is useful and inconformity with a prior land use. Reclamation always may not be a single-phase operation.

Rehabilitation- Rehabilitation is to bring back the degraded land to a normal stage by a special treatment. It is a process of taking some mitigation measures for disturbed environmental condition created through mining activities.

Restoration-Restoration is the process of returning the mined out land being fit to an acceptable environmental condition. However, the general acceptable meaning

of the term is bringing the disturbed land to its original form. Restoration is often used to indicate that biological properties of soil are put back to what they were.

Evolution of Provisions for Environment Protection in Mining legislation:

Earlier, Concept of Mining Plan & Provisions for restoration, reclamation and rehabilitation of lands affected by mining operations is well addressed in Mineral Conservation and Development Rules-1988 videRule 31 to 41.

Further, in 1993 emphasis is given in National Mineral Policy for orderly and systematic mine closure. In 2003, amendment in MCDR is carried out by incorporating Mine closure plan along with Financial Assurance.

National Mineral Policy of 2008 envisaged time-bound reclamation to regenerate the better ecosystem, concurrent with extraction, international norms to be integral part of mine development strategy.

Recently as per Mines and Mineral (Development & Regulation) Amendment Act- 2015, vide Sec 9B, new section is introduced to form District Mineral Foundation Trust for the interest and benefit of persons and area affected by mining related activities. Vide Sec 20A, for the conservation of mineral resources, or on any policy matter in the national interest, and for the scientific and sustainable development and exploitation of mineral resources is also introduced.

Issues to be focused for Reclamation and Rehabilitation:

Full extraction of mineral resources in an area.

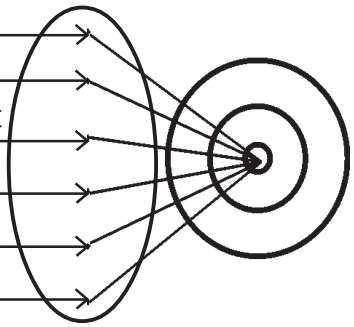
No further deterioration of Environmental Resources

No compromise for Public Health and Safety of habitat

Maximise benefits for Sustainable existence

Conservation of valuable attributes & aesthetics

Involvement of Stake holders



Reclamation and Rehabilitation are carried out keeping in mind the end land use as per local demand and requirement of stakeholders. Final land use can be developed for Green Belt Development, Recreation, as a Water Reservoir, Forest, for development of Residential/Commercial properties; habitats like Wild Life or fisheries, development of grazing or pasture land, etc.

The Devapur Limestone Mine has been in operation since 1981, and progressively mine production capacity has increased to 5.3 million tonnes per annum. The reclamation and rehabilitation thought has been well adopted since its inception.

At Devapur Limestone Mine, reclamation and rehabilitation are carried out mainly by two methods: backfilling overburden/ waste rock and then carrying out afforestation or developing water reservoirs in low lying mined out benches.

All the mining activities for extracting limestone minerals are carried out with the systematic development of benches. Once the mineral is exhausted, DTH drilling is carried out to confirm the same. Based on the analysis of samples, the left-out balance floor mineral is extracted with the help of a Vibro ripper or Rock breaker.

Vibro ripper is of Houtecmake of model DBL650 mounted with Kobelco Excavator 380SK. The average output of Vibro ripper comes to be around 80-100 MT/ hour. Rock breaker is of make Kobelco of model 380SK.

Both Vibro ripper and Rock breaker combination is also used for making final benches as per the findings of slope stability studies and later permission by DGMS.

The topsoil occurs at Devapur Limestone mine on a surface thickness of about 0.20-0.40 meters. Most of the topsoil is black cotton soil in nature. Initially, before the opening of any block or virgin area, the available topsoil is scrapped with the use of a Dozer and stacked separately in the intermediate dump or directly utilized for carrying out afforestation. Emphasis is also given to collecting the topsoil from the surrounding area of construction or development in the colony area.

Conceptual planning of mine life is made with rigorous brainstorming, and accordingly, reclamation and rehabilitation of the area are decided whether to carry out backfilling with waste material or with water reservoir as per RL. All the mining benches are developed in such a manner so that surface runoff water is collected in low-lying benches towards the southern side and balance area kept free for mining during monsoon also.

A water reservoir in a mined-out area of low-lying benches on the southern side is created, with a capacity of 32 lakh cubic meters and developed over about 18 hectares. Chain link fencing all along the water reservoir is provided from a safety

point of view. During the monsoon, all the surface runoff water is collected in this water reservoir and used throughout the year in Captive Power Plant, green belt development, and dust suppression. To reclaim the same, a good garden is developed nearer to this water reservoir and in other mined-out areas.

Ducks and rabbits kept in the mining lease area act as an ecological indicator. In the center of the mining lease area, a small pond is developed for ducks and shelter to keep rabbits. A good regeneration of these species is noticed, indicating the overall ecological balance of the area.

A Mhaisamma temple is established near a crusher over a mined-out area, and behind the temple, a good garden is developed. The in-house nursery was also developed in this area to prepare and develop saplings. These saplings of local native species are used for carrying out afforestation within and outside the mining lease area. In-house Vemi-compose plant is also established to cater manure to saplings and plants.

When you refuse to reuse, it's our Earth you abuse

The area available for backfilling is filled with waste material/overburden generated simultaneously during mining so that no dumping or re-handling of waste material is required. Proper slope and protective measures are being taken to these backfilled areas, like garland drainage and bund with sufficient height.

Once the desired height by backfilling of waste material is achieved, clay material mixed with waste rock is spread over those areas. Finally, a layer of precious topsoil is spread for carrying out afforestation with local native species.

It is noted that native species like Vepa (AzadirachtaIndica), Burugu (Bombaxceiba), Marri (Ficusbenghalensis), Raavi(Ficusreligiosa), Nemali Nara (Holepteleaintegrifolia), Usiri (Phyllanthusemblica), Kanuga (Pongamiapinnata), Tani (Terminalia bellirica), Velaga (Limoniaacidissima), Teak(Tectonagrandis), Palakolsha(Wrightiatinctoria), & Battakadimi (Mitragynaparviflora) are planted in the area.

Environment is life, pollution is death.

Watering to plants is a vital issue in post maintenance care, so to overcome this, a good network of irrigation dip systems has been provided in all the plantation areas since 2017. Due to drip irrigation survival rate is increased to hundred percentages. Even if some of the species are died due to any other reason, the same has been replaced immediately. Due to installation of a drip irrigation system, the workforce cost of watering plants and tanker cost got reduced, and efficiency is increased.

I don't want to protect environment, I want to create a world where the environment does not need protecting.

27th MEMC Week Celebrations -2021-22

Rehabilitation is carried out over non-mineralized zones within the mining lease area and all along the safety zone of 7.5 meter along the mining lease boundary. Developing an acoustic green belt along the mining lease boundary helps in noise attenuation and fine dust spreading in the surrounding buffer area.

At mines, good avenue plantation is carried out along both sides of the permanent road. Aesthetic beauty is well maintained at the entrance of the mines, giving a very soothing effect while entering the actual mine workings.

All other necessary measures like garland drainage, contour trench, check dams, water sprinkling for dust suppression with permanent sprinklers and tankers, regular environment monitoring for air, water, the soil is being carried out regularly.

To date, almost 58 hectares of land within the mining lease area are covered under reclamation and rehabilitation of the area. Authorities well appreciate the holistic approach towards reclamation at Devapur Limestone. It has now become one of the model mines from a region's reclamation and rehabilitation point of view.

SANITATION HELTH AND ENVIRONMENT IN MINING INDUSTRY

Rameshbabu.M,
Asst. Manager (Geology),
M/s Penna cement Industries Limited, TLCW.

Good Environment and good Hygiene (sanitation) gives good Health to society. Access to safe drinking water, adequate *sanitation* infrastructure, and basic *hygiene* facilities, are fundamental for people's health and wellbeing.

Mining industry enhances the life style of the surrounding society, but impact the environment. In the scenario Ministry of Mines and Ministry of Labour and Employment frame the Act, Rules and Regulations to controlling mines environment and conservation of minerals through measuring the quantity of elements through airborne dust survey water analysis and metallurgical research.

Government of India develop the Sustainable Development Framework (SDF) for calculate the mine based Star rating, the rating gives social recommendation output. According to this template sustainability of the mine depends on implementation standards of sanitation (hygiene), Health and environmental

protection (like greenery development, control blasting less ground vibration, sound and fumes, recycle of renewable energy, reuse of waste water through water treatment plant, selling waste oil to authorized vendor).

Sanitation refers to public health conditions related to clean drinking water and 'treatment and disposal of human excreta and sewage'. A sanitation system includes the capture, storage, transport, treatment and disposal or reuse of human excreta and wastewater.

Sanitation through DMF – utilized District Mineral Fund in collection, transportation & disposal of waste, cleaning of public places, provision of proper drainage & Sewage Treatment Plant, provision for disposal of fecal sludge, provision of toilets and other related activities.

"Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." Looking after physical health and well-being also involves reducing the risk of an injury or health issue.

Health care through DMF utilized District Mineral Fund Health care- the focus must be on creation of primary/ secondary health care facilities in the affected areas. The emphasis should not be only on the creation of the health care infrastructure, but also on provision of necessary staffing, equipment and supplies required for making such facilities effective. To that extent, the effort should be to supplement and work in convergence with the existing health care infrastructure of the local bodies, state and Central government. The expertise available with the National Institute of Miners' Health may also be drawn upon the design special infrastructure needed to take care of mining related illnesses and diseases. Group insurance Scheme for health care may be implemented for mining affected persons.

Environment defined as the complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival.

Mine Environment defined as the extraction of minerals from nature often creates imbalances, which adversely affect the environment. The key environmental impacts of mining are on wildlife and fishery habitats, **the water balance, local climates &** the pattern of rainfall, sedimentation, and the depletion of forests and the disruption of the ecology.

Measures to balance the mine Environment DMF utilize in environment preservation and pollution control measures effluent treatment plants, prevention of pollution of streams, lakes, ponds, ground water, other water sources in the region, measure for controlling air and dust pollution caused by mining operations and dumps, mine drainage system, mine pollution prevention technologies and measures for working or abandoned mines and other air, water & surface pollution control mechanisms required for environment-friendly and sustainable mine development.

Save Environment from hazardous wastes.

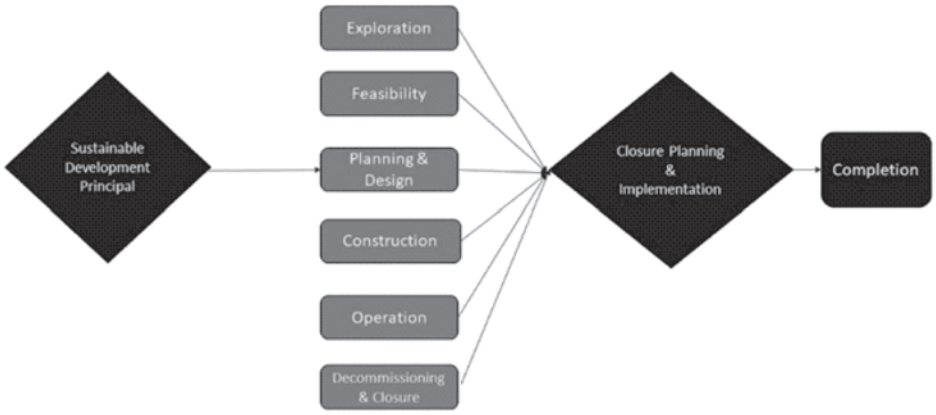
SUSTAINABLE MINING IN INDIA

Ritesh Chattaraj
Sr. Manager (Geology)
JSW Cement Limited, Nandyal unit

Introduction: Mining is the extraction (removal) of valuable minerals or other geological materials from the Earth, usually from an ore body, lode, vein, seam, reef, or placer deposit. Exploitation of these deposits for raw material is based on the economic viability of the material. Mining is irreversible process and degradation mechanism. Historically, the extraction of mineral reserves has always resulted in varying degrees of environmental resource degradation and social impacts, including displacement, all across the globe. The Indian mining sector has been facing severe criticism on several issues relating to its performance vis-à-vis sustainable development. Now Sustainable mining is the minimization of negative environmental, social, and economic impacts associated with mining and processing activities while limiting extraction to rates that do not exceed capabilities to establish new sources, substitutes, or recycle any particular material so as to not compromise potential hazard to mankind and environment. In Graphical representation sustainable mining can be define in following way.

Save Environment! Save our planet Earth!

In a general way Sustainable mining may involve the following process to mitigate potential hazard to mankind and environment



Sustainable Mining in India: A High Level Committee which was set up under the Chairmanship of Shri AnwarulHoda, Member of planning commission in the year 2005, to review the National Mineral Policy recommended that apart from introducing best practices in implementation of environment management, there was also a need to take into account the global trends in sustainable developments in Mining Sector. The High Level Committee specifically studied the impact of mineral development with the need to develop principles in mining, best practices, and reporting standards which may be measured objectively. The committee recommended development of an SDF specially tailored to Indian context taking into account the work done and being done in International Council of Mining and Metals (ICMM and International Union for the Conservation of Nature and Natural Resources (IUCN). A working definition for 'Sustainable Development' in the mining sector was outlined, based on consultation with sector experts, secondary sources on the subject and the Indian context. **Key Principles of the SDF The following eight principles form the core of the Sustainable Development Framework for India**

1. Incorporating Environmental and Social Sensitivities in decisions on leases: This principle integrates sustainable development concepts at the earliest phase of the mining life cycle. The underlying philosophy of the principle is to categorize mineral bearing areas based on an environmental and social analysis taking a risk based approach. At the bidding stage the categorization of lease areas into High and Low risk will allow the investors to take business decision with the knowledge that the cost and uncertainties of getting approvals as well as operations in high risk areas will be significantly higher than the low risk areas. It will also allow regulators to put additional commitments at an early stage for environmental and social performance. This principle allows for the government to balance environmental and social interests of the nation, with mining priorities in the longer term;

2. Strategic Assessment in Key Mining regions: Understanding that mining activities occurs in clusters which have impacts at a regional level, undertake a strategic assessment of regional and cumulative impacts and develop a Regional Mineral Development Plan based on as assessment of the regional “capacity” at periodic intervals. Creating an institutional structure to own and implement such plans in key mining regions and taking critical decisions on mining, new leases, allocation of resources, and even possible moratorium on mining to ensure more sustainable planning and development in such regions;

3. Managing impacts at the Mine level impact through sound management systems. The key elements of this principle are impact assessment of key environmental, social, health and safety issues, development of management framework and systems at the mine level and continual improvement of the same on the basis of international standards on a self-driven basis. A key element is disclosing performance on environmental and social parameters to external stakeholder at every stage of the project lifecycle;

4. Addressing Land, Resettlement and Other Social Impacts. This principle demands a comprehensive assessment of social impacts and displacement of mining projects at the household, community and mining region level, and management commitment to address those impacts through mitigation measures and management plans;

5. Community engagement, benefit sharing and contribution to socio-economic development. This principle seeks commitment to regular engagement with the local community as well as sharing of project benefits with the affected families. It is rooted in the principle of sharing profits with the affected communities already provisioned for the in draft MMDR Act awaiting approval. It dovetails the social impact management of project operations with the CSR initiatives being undertaken and looks at an integrated approach to mitigate impacts and improve local livelihoods and living conditions in the neighborhood areas/communities.

6. Mine Closure and Post Closure Mining operations must prepare, manage and progressively work on a process for eventual mine closure. This process must cover all relevant aspects and impacts of closure in an integrated and multi-disciplinary way. This must be an auditable document and include a fully scoped and accurate estimate of planned cost of closure to the company. The cost estimates must be adequately provisioned to cover national, regional and local legal and regulatory requirements for closure; and must also include the cost of servicing all agreements/commitments made with stakeholders towards post-closure use;

7. Ethical functioning and responsible business practices. This principle underlines the need for ethical business practices and a strong sense of corporate responsibility among mining companies. It recommends companies to go beyond legal compliance; and

8. Assurance and Reporting. This principle seeks mining sector stakeholders to assess their performance against this SDF and demonstrate continual improvement on this performance over the life of the project. It requires this performance to be reported in a structured manner in a Sustainable Development Report to be disclosed in the public domain as well as to regulatory agencies to consider during approval processes.

Expected Outcomes in the long term

- Reduced environmental and social conflicts in areas awarded for mining;
- Greater clarity for all concerned stakeholders, on risk levels of mining lease areas;
- Potentially reduced delays in obtaining clearances (environmental, forest) for mines;
- Improved protection of high risk areas in terms of environment and social considerations;
- A Regional Mineral Development Plan for selected mining areas and addressing key regional and cumulative impacts of mining through coordinated and collective action;
- Opportunity for clustering of small operators to become more competitive, and compliant;
- A robust E&S Management framework in mining companies enabled with continual improvement systems guiding sustainable development of mine and which is commensurate to risk category of mineral bearing area as enunciated under Principle;
- A disclosure process that provides stakeholders with relevant and timely information, and allows issues to be raised in engagement forums;

- Intensive use of geo-spatial and geo-scientific information at mine level for assessment, planning, management and monitoring of the mining sector;

Ways to Make Mining More Sustainable: Despite technological advancements that have made the industry greener, mining still uses significant amounts of resources water, land, carbon and energy and often causes severe harm to the environment. This damage, if not correctly handled, can last for decades after mining operations have shut down, make the land more vulnerable to natural processes like soil erosion and can worsen after the equipment is out.

After decades of studies some ways have been identified to make mining more sustainable

1. Lower Impact Mining Technique.

Traditional mining techniques can have a severe impact on the environment, and some popular methods like open pit and underground mining present some of the most significant environmental risks.By instead using new, alternative low-impact mining techniques like in-situ leaching mining companies can reduce their environmental impact.With many of these techniques, companies can significantly reduce surface disturbance at mining sites, lower soil erosion and move less material that would need backfilled. Lowering interference in this way can both reduce environmental impact and result in less work when preparing a site for quicker revegetation or rehabilitation.

2. Reusing Mining Waste.

Mining naturally produces significant amounts of waste such as tailings, rocks and wastewater. In many cases, businesses leave waste behind when mining operations cease — or, in the case of tailings, stored in large structures like tailings dams, which are prone to failure and, as a result, cause severe environmental

damage.Fortunately, for almost every category of mining waste, there are at least one or two ways to reuse that waste on or off-site.

Companies can use waste rocks in simple on-site construction, like backfilling voids and reconstructing mined terrain in a way that prevents soil erosion.

When adequately treated, mine water can be reused in just about any fashion for agriculture, as coolant, in on-site dust suppression and for drinking water.

Even tailings, often toxic and left behind in mine sites or stored in large-scale tailings dams, can find eco-friendly use. Depending on the mineral and chemical composition of the tailings,

However, not all of the applications are economic right now. The mining industry will likely need to invest in further research and development in the areas of mine waste reuse to make some of the methods workable at scale.

3. Eco- friendly equipment.

Mining companies wanting to reduce their environmental impact can switch to eco-friendlier equipment.Battery-driven mining equipment is often powerful enough to replace diesel-driven options. Replacing diesel engines with electric engines where possible can significantly reduce the amount of CO2 produced by mining operations.In general, the mining industry is already moving in the direction of electric equipment, with more and more mining manufacturers offering eco-friendly alternatives. Some are making more significant commitments

4. Rehabilitating Mines sites

Mine rehabilitation is the process of repairing the damage done by mining activities. This can sometimes involve making the site safe and stable. Many modern mining techniques cause significant disruption to the environment — like stripping the topsoil layer necessary for plant growth and raising soil and water

acidity, making the area inhospitable to new vegetation and leaving it prone to soil erosion.Worse, this erosion can often continue for years after a mining company has packed up and moved out.As a result, many former mine sites are left unproductive, unusable by landowners and, in some cases, almost entirely inhospitable to plant and animal life. However, this damage isn't guaranteed to be permanent. Companies can use many land rehabilitation techniques to make mined land productive again or speed up the land's natural recovery process.

5. Shutting down Illegal Mining activity.

Illegal mining remains a significant issue for the industry — for example, experts estimate that around 100,000 people are currently involved in illegal mining activity in India. There, illegal mining often takes place on properties not suited for large-scale mining and without regard to regulations that reduce the environmental impact.

Preventing illegal or unregulated mining operations can help ensure that all mining is bound by the same environmental standards and ensure accountability.

Way Forward: Despite recent strides and new technology, the mining industry remains unsustainable in many areas. Fortunately, there are a variety of technologies and techniques — both in-use and in development that the sector can use to reduce its environmental impact.

Advanced land rehabilitation techniques, coupled with low-impact mining methods and reuse of mine waste, can cut back on the impact that mining operations have on their immediate environment. companies can also use new equipment powered by electric engines to reduce their carbon footprint and become eco-friendlier.

Not all of these technologies are economical yet. However, the mining industry as a whole does seem to be moving in the direction of sustainability. Over the next

few years, these technologies should become more practical. As a result, it may be easier for companies to make themselves eco-friendlier.

Conclusion: A sustainable development framework along with a set of sustainability indicators is required to enhance public accountability of mining enterprises in India. The key elements that may define an appropriate sustainability framework comprise the following: scientific mining, environment protection and mitigation, community stakeholder engagement, local socio-economic development in mining project areas and transparency and accountability. Sustainability indicators will have to be defined in order to capture specific quantitative and qualitative aspects of an enterprise's sustainability performance. Since a sustainable development framework is primarily designed for improving public disclosures and accountability of mining enterprise, the main initiative to design and implement the framework should be that of the mining industry, its members and associations. The government should neither get directly involved nor should it be made a legally binding requirement. While government may assist the industry in this matter, its main responsibility should be to ensure that appropriate legal provisions are in place to ensure sustainable mineral operations and that these are implemented faithfully and objectively.

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Caring for Earth is not a hippie thing, it is a survival thing.

SUSTAINABLE MINING

N. Jaya Bharata Reddy
GM(Mines), ICL-Yerraguntla

This article is based on **"Mining in India equals selling the family gold"**. It talks about the issues related to the present stateof mining practices and the need to adopt sustainable mining.

India's National Mineral Policy 2019 states that "natural resources, including minerals, are ashared inheritance where the state is the trustee on behalf of the people to ensure that futuregenerations receive the benefit of inheritance."

However, mining is the act of removing and consuming a limited resource. Moreover, theGovernment of India and state governments treat the mineral sale proceeds as revenue orincome. This leaves neither the minerals nor their value for future generations to inherit.

Further, as the mined materials support roughly 45% of the world's economic activities, thislarge-scale mining also has a social and environmental impact.

In this context, there is a need to adhere to the principle of Inter-generational Equity, whichmakes it imperative to ensure future generations inherit at least as much as that of thecurrent generation.

Issues Associated with Unsustainable Mining

Going Beyond Carrying Capacity:

In many cases, mining operations have beencarried out without concern for the 'carrying capacity' of the environment and otherinfrastructural limitations.

- This has put avoidable pressure on the environment and caused inconveniences to the people living in the mining areas.

Loss of Public Revenue:

Driven by lobbying, political donations, and corruption,minerals are often sold at prices significantly lower than what they are worth.

- Illegal mining, in many cases, has a similar effect while additionally causing loss of public revenues.
- According to the International Monetary Fund, due to unsustainable mining, many governments of resource-rich nations face declining public sector net worth.

Large Number of Small Mines:

In India, many small mines (including quarries forextracting minor minerals) operate in most states.

- These present difficult challenges for sustainable development as their financial, technical, and managerial limitations restrict their ability to take adequatecorrective measures.

Growing Inequality & Loss of Natural Wealth:

Naturally, the extractors are keen toextract as quickly as possible and move on. This deepens inequalities, as a fewextractors acquire wealth without proper redistribution to the people.

- It also results in the loss of natural wealth. For example, it is estimated from the annual reports of Vedanta that over eight years (2004-2012), the State of Goa lost more than 95% of the value of its minerals.

Way Forward

Life-Cycle Approach:

There is a need to apply sustainability principles to all stages ofthe mine life cycle – exploration, mine planning, construction, mineral extraction, mineclosure, and

post-closure reclamation and rehabilitation. These principles includeelements such as:

- Intra And Inter-generational Equity,
- The Precautionary Principle,
- Scientific Mining,
- Management of Environmental and Socioeconomic Impacts.

Creation of Future Generation Fund:

Like Norway, the entire mineral sale proceedsmust be saved in a Future Generations Fund.

- Also, in 2014 the Supreme Court set up a global judicial precedent by ordering the creation of a Goa Iron Ore Permanent Fund. This model is worth emulating in all the major mining areas.

Adherence to Zero-Loss Principle:

If we extract and sell our mineral wealth, theexplicit objective must be to achieve zero loss in value.

- The state as trustee must capture the full economic rent (sale price minus thecost of extraction, cost including reasonable profit for extractor).

Consortia of Small Mining Enterprises:

In order to alleviate the limitations of smallmines in carrying out sustainable development activities, consortia of small miningenterprises in a region should be promoted.

- Also, technical advisory services should be made available to them in the relevant areas.

Environmental Footprint Framework:

A common sustainable mining frameworkshould be focused on reducing the environmental impacts of mining.

- Strategies for assessing mining operations' sustainability include measuring, monitoring, and improving various environmental performance metrics. These are used to determine whether a mining operation is sustainable.
- The key metrics for environmental sustainability in mining relate to efficiencies in resource consumption, minimizing land disturbance, pollution reduction, as well as closure and reclamation of exhausted mine lands.

Multi-Stakeholder Approach:

Preparation of a socio-economic assessment report fora mining project should be made a part of the permitting process for the grant andadministration of mineral concession to a mining enterprise.

- Mining enterprises should preferably execute local socio-economic development works rather than government and semi-government agencies to avoid the problems of inadequate capacity, political manipulation, and corruption.

Conclusion

Since minerals are a shared inheritance held in trust for the people and future generations, itis essential that as a nation, we change our paradigm to understand minerals as a "sharedinheritance," not a source of "windfall revenue."

Earth provides enough to satisfy every man's needs, but not every man's greed.

NATURAL RESOURCES

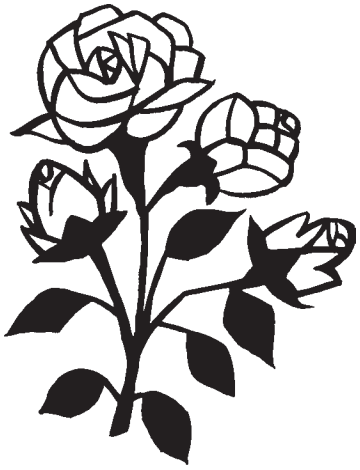
The four most vital Natural Resources are:

Air: Clean air is vital for all the plants, animals, humans to survive on this planet. So it's necessary to implement measures to cut back pollution.

Water: 70% of the world filled with water, and only two parts of that's freshwater. Initiative to educate and regulate the utilization of water should be taken.

Soil: Soil consists of varied particles and nutrients. It helps plants grow.

Forests: Forests provide clean air and preserve the ecology of the planet.



For this earth we adore, let's all do more!

CONSERVATION

V. VijayaBhaskar
Sr.Geologist
APCW Works Ultra Tech Cement, Thadipatri

The use of the term conservation is expanded to consider the environment as a whole. Today, from the ecological point of view, it is science of the interrelationships between living things and their environment. Modern conservation, then, can be defined as the management of the human use of the environment so that it may yield the greatest sustainable benefit to present generations, while maintaining its potential to meet the needs and aspirations of future generations. It is concerned with the quality as well as the basic support of human life. Conservation also ensures that proper consideration is also given to aesthetics and recreation.

Today, conservation is concerned with a small number of major global issues. Each of these affects the others, and all are basic to human survival. Although not strictly conservation issues, population growth and economic factors underlie virtually all conservation problems.

A paramount principle of conservation is that the use of any resource requires consideration of the impacts of that use on associated resources, and on the environment as a whole. The reasonable use of the earth's natural resources-water, soil wild life, forests, and minerals – are a major goal of conservation.

An effective conservation programme results in a continuous production and supply of native plants and animals, and the continued availability of critical mineral resources. Timber, fuels, ores and other resources are being depleted at such a rapid rate that the need to conserve them has become crucial. The prevention of environmental pollution from industrial, agricultural, urban and other domestic sources, including toxic chemicals, radioactive wastes, and elevated water

temperatures, is another concern of conservation. People concerned with conservation seek to prevent the waste of natural resources, to maintain a high quality environment, and to preserve the natural heritage of future generations.

THE GOALS OF RESOURCE CONSERVATION ARE:

1. The maintenance of essential ecological process (which range from the global cycles of nitrogen, carbon dioxide, and water to the localized regeneration of soil, recycling of nutrients, and cleansing of waters and air) and life support systems, coastal and fresh water systems, and forests;
2. The preservation of genetic diversity; and
3. The assurance that utilization of species and ecosystems such as forests and grazing land is sustainable.

Natural resources are sometimes classified as renewable or non renewable. Forests, grass lands, wild life, and soil are examples of renewable resources. They can be regenerated, and prudent management can maintain them at steady levels. Such resources as coal, petroleum, and iron ore are non – renewable. Consumption, wasteful or not, of their limited supply accelerates the rate at which they are depleted.

Natural resources areas vital part of sustaining human life, and conservation measures are designed to control, manage, and preserve them so that they can be used and appreciated to the fullest. Fresh water habitants must be kept clean for drinking and for recreational activities. Soils must be kept fertile, without the accumulation of toxic chemicals from pesticides or herbicides, to provide fruits and vegetables. Forests must be managed in a manner that can provide not only lumber and pulpwood for paper products but also homes for wild life. The use of oil, coal, and minerals important for an industrial society must be carefully monitored to be certain that the supply does not dwindle too rapidly. The proper conservation of these natural resources is of key concern in maintaining the balance of nature in a world with a large human population.

THE CONSERVATION OF NATURAL RESOURCES:

The abuses of the past and even the present have emphasized the need for the wise use of natural resources. Conservation groups have promoted corrective legislation and instituted legal proceedings against violators. People have been made increasingly aware that their continued existence depends on these efforts to stop environmental deterioration.

Conservation is every one's responsibility. It is a uniquely human problem. Stringent laws to stop the waste and destruction of natural resources must be supported and effectively enforced. Conservation can help maintain the natural beauty of a community. When land is mistreated, the country side can become unattractive. Vacant lots covered with trash, bare roadsides, and garbage laden streams are ugly. Conservation also helps preserve areas suitable for recreation. As cities grow crowded, natural areas areneededfor people enjoying leisure time. People need city parks, country forest preserves, and national parks; grass and trees bordering roads and high ways; and sparkling streams.

CONSERVATION OF AGRICULTURAL LANDS:

As the world's population increases, the land needed to produce its food is disappearing, Covered by buildings and roads, their top soil lost through erosion, and their productivity destroyed by the Stalinization caused by irrigation. Large-scale commercial agriculture results in severe and unsustainable rates of erosion soil loss. Over grassing and firewood gathering denude vast areas of arid lands, resulting in the inexorable spread of deserts and desert like conditions. Much of the problem in the developing countries is caused by unsound or ineffective development assistance efforts. At present, about one third of the worlds arable land is non productive.

CONSERVATION OF BIOLOGICAL DIVERSITY:

The ever increasing loss of plant and animal species represents a major conservation concern. Habitat loss, especially in tropical forest areas, such as

whales and the rhinoceros are threatened by over exploitation. The convention on Trader in Endangered species of Flora and fauna has worked well to control trade in most threatened species. A more fundamental solution, however, must be the establishment of global network of areas that protect and maintain representative samples of world's ecosystems. Substantial progress has been made towards this goal, and there are protected areas – on paper at least in virtually all nations. Maintaining species of plants and animals in botanic gardens, zoos gene banks in a secondary solution.

WATER CONSERVATION:

Water supplies are threatened virtually worldwide with depletion and pollution. Globally, the major problem is loss of water shed areas through denudation of vegetation. The solution must come from better land use and the critical water shed vegetation, underground water along with water conservation and recycling.

NON RENEWABLE RESOURCES' CONSERVATION:

The primary Conservation concerned here is with fossil fuels. Solutions include improvements in the efficiency of fuel consumption, as well as more intensive explorations and applications of alternatives, particularly from Solar Energy and other renewable resources.

Minerals are non renewable resources. Once exhausted, they can never be replaced. The wise management of mineral resources has become more pressing because of the growing needs of the world. AS human population increases, a need is generated for more consumer goods, such as house hold appliances and automobiles. Manufacturers must meet these raising demands from already dwindling deposits of metal ore. Some mineral resources, particularly metals may be recycled – i.e., salvaged and reused. The recycling of waste metals is an important conservation practice that has become major business. It is known as secondary production.

Soil Conservation occurs when ever land is stripped of its plant cover, soil is inevitably lost by erosion, the so called silent thief. A single rain storm can wash away centuries – old accumulations of soil from neglected or badly managed fields. Top soil is an extremely valuable natural resource. Under this thin blanket of rich dirt and humus, in which plants grow best, is a less fertile material called subsoil. IF the surface layer of top soil is blown or washed away, the remaining subsoil cannot support plant life. The sub marginal farms must eventually be abandoned.

CONSERVATION AS A POLITICO – ECONOMIC ISSUE:

The benefits of Conservation are often long term and accrue to future as well as present generations. Many of the benefits like environmental quality don't neatly always run counter to the objectives of short term economics gain. For example, Lumber Company can usually make a greater short-term economic gain from rapid indiscriminate mining of the trees in a forest than it can from careful, selective logging, followed by replanting to assure a substantial yield.

The benefits of development can be quantified, the costs of the anticipated damage cannot. Conservation issues can also have a political dimension, especially where they engender conflicts with those whose ideological favors "free enterprise" over government involvement.

In developing countries, it has become clear that conservation and sound development are mutually interdependent. Without development, Conservation has little chance of being sustained. The interdependence of Conservation and development is well illustrated by those development projects which ignored environmental concerns and caused massive deforestation in Latin America, desertification in Africa and Stalinization in Asia.

Conservation can maintain the resource base needed by developing countries and it can directly contribute to economic development.

IMPACTS OF MINING ON OUR ENVIRONMENT

MOHAMMAD RAFI
Sr.Engineer (Mines)
ICL, Yerraguntla.

Mining of minerals is an environmentally unfriendly activity. Mining is a site specific activity and is done at the sites where the minerals exist and the land is of no use to the mining companies in the pre and post mining times. Mining affects all the components of environment and the impacts are permanent/temporary, beneficial/ harmful, repairable/irreparable, and reversible/ irreversible.

Ecological Impacts of Opencast Mining:

1. Removal of all vegetation (flora) and thereby fauna from the area required for mining and other purposes.
2. Dust in atmosphere, contributed by mining and associated activities, when deposited on the leaves of the plants in the surrounding areas may retard their growth.
3. Noise and vibrations due to blasting and operation of the machines drive away the wild animals and birds from the nearby forests.

Ecological Impacts of mineral handling and preparation:

1. Land clearance of almost all vegetation in the area earmarked for the construction of the mineral handling and preparation units.
2. Disturbances to fauna of the nearby areas from the noise and vibrations from the mineral handling and preparation units.

3. Impacts on aquatic ecology due to discharge of effluents from the units.

4. Retardation in vegetation growth in neighbouring areas due to deposition of dust on the leaves.

Impacts on Environment:

The mining and associated activities in the mining complexes not only pollute the air but also cause noise pollution.

1. Removal of vegetation from the area designated for mining and other purposes produces dust which when air-borne causes an increase in the concentration of SPM in the surrounding air.

2. Removal, handling, transportation and storage of soils also cause an increase in the concentration of SPM in the atmosphere. The use of diesel equipment in these activities causes an increase in the level of NO_x.

3. Drilling and blasting of overburden and the mineral contribute SPM and explosive fumes into the atmosphere.

4. Loading, transportation and crushing of the mineral and the overburden rock mass and making the dumps contribute SPM and NO_x

Impacts of mineral preparation activities:

1. Mineral handling, mineral preparation and associated activities mainly contribute SPM to the atmosphere. In the mineral preparation plants having chemical processes producing gases the atmosphere may get polluted due to emission of the gases.

2. The crushers, conveyors and other equipment installed in the mineral handling and preparation plants produce continuous noise.

Impacts of other activities:

1. The transport network using diesel and petrol vehicles and generation of power by DG sets, and other activities in the mining complexes contribute SPM, NO_X, CO_2, CO and other atmospheric pollutants.
2. Industrial activities depending upon their processes, inputs and outputs contribute various air pollutants.

Some of the Remedial measures are as outlined below:

1. Generation of dust in the removal of the vegetation and soils can be minimized by maintaining adequate moisture in the soil. This can also be expected to improve the efficiency of these operations as in dusty atmosphere the efficiency decreases.
2. Use of dust extractors with the drill machines can be expected to minimize air pollution due to drilling.
3. By optimizing the blast design the generation of dust due to blasting can be reduced.
4. Proper maintenance of the haul roads can minimize the generation of air borne dust due to movement of dumpers on them.
5. Water spraying at the transfer points tends to reduce air pollution.
6. Proper maintenance of the equipment and machines in the mines and other places in the complexes helps not only in minimizing the contributions to the air pollution but also the noise generation.
7. Green belts of adequate widths may be planned between the residential areas and the mines not only to attenuate noise but also to arrest dust.

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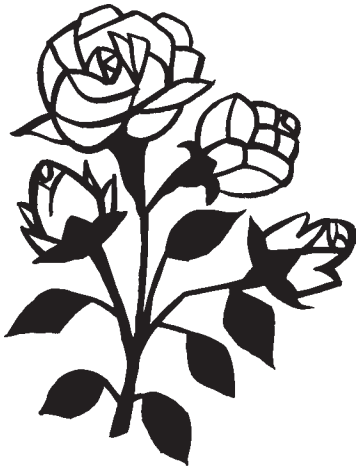
The earth has a skin and that skin has diseases; one of its diseases is called man.



पर्यावरण और मानव स्वास्थ्य पर निबंध

गणेश यादव
कक्षा-८वि

प्रस्तावना :

मानव स्वास्थय को मानव स्थिति के मानसिक, शारीरिक और सामाजिक पहलुओं के संबंध मे कल्याण की स्थिति के रूप मे परिभषित किया गया है । बीमारी की अनुपस्थिति के कारण किसी व्यक्ति को केवल स्वस्थ नही कहा जा सकता है । वह या वह वास्तव मे स्वस्थ होने के लिए सभी तरह से अच्छा करने की जरूरत है ।

कई कारक हमारे स्वस्थ का निर्धारण करने मे भूमिका निबाते है - जैविक, पौषण, मनोवैज्ञानिक और रसायानिक । ये कारक आंतरिक और बाहरी स्थितियो से प्रभावित हो सकते है । बाह्य रूप से हमारे स्वास्थ को प्रभावित करने वाला सबसे बडा कारक हमारा पर्यावरण है ।

पर्यावरण और मानव स्वास्थ्य

हमारा पर्यावरण केवल उस हवा मे नही है जिसे हम सांस लेते है, हालांकि यह एक प्रमुख घटक है, यह उस पानी से होता है जिसे हम पीचे है, यह उस मिट्टी मे होता है जिसे हम अपने आसपास पाते है एवं उस भोजन मे होता है जिसे हम खाते है । प्रत्येक भाग हमे

प्रभावित करता है । वाहनो, कारखानो और आग से उत्सर्जन के साथ, हमारी वायु आपूर्ति विषाक्त रसायनो से भरी हुई है जो फेफडो के कैंसर, हृदय रोग और अस्थमा का खतरा पैश करती है । हम जो भोजन करते है, वह कीटनाशकों मे शामिल होता है जो मिट्टी को कम उपजाऊ बनाता है और हमारे लिए कैंसरकारी हो सकता है । मानव शरीर को जीवित रहने के लिए पानी की आवश्यकता होती है लेकिन हमारे जल स्त्रोत मानव और औद्योगिक कचरे से भरे होते है जो गंभीर स्वास्थ्य मुद्दे को पैदा करते है ।

निष्कर्ष :

हमे यह याद रखने की जरूरत है कि हमे अपने पर्यावरण के साथ तालमेल मे रहना होगा । हम इसमे जो डालेंगे वह हमारे पास वापस आजाएगा । जब तक हम कुछ नही करेंगे, पृथ्वी बहुत जल्द एक रहने के लिए योग्य हो जायेगी ।

सब रोगों की एक ही दवाई हर तरफ रखो साफ सफाई

दवाई से नाता तोडो सफाई से नाता जोडो ।

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

पर्यावरण पर निबंध

वि. लता
कक्षा-7वि
JSW Cements Ltd.

पार्यावरण शब्द का निमाण दो शब्दों परि और आवरण से मिलकर बना है । जिसमें परि का मतलब है हमारे आसपास अर्थात जो हमारे चारों और है । और आवकरण जो हमें चारों ओर से घेरे हुए है । पर्यावरण उन सभी भॉतिक, शसापनिक एवं जॉविक कारकों कू कुल इकाई है जो किसी जीवधारी अथवा परिंतत्रीय अबादी को प्रभावित करते है तथा इनके रूप, जीवन और जीविता को तप करते है । संपृक्त राष्ट्र द्वारा घोषित यह दिवस पर्यावरण के प्रति वैश्विक स्तर पर राजनैतिक और सामाजिक जागृति लाने के लिए मनाया जाता है । इसकी शुरुवात 1982 5 जून से 16 जून तक संपृक्त राष्ट्र महासभा द्वारा अयोजित विश्व पर्यावरण सम्मेलन से हुई । 5 जून 1973 का पहला विश्व पर्यावरण दिवस मनाया गया ।

पर्यावरण के जैविक संघटकों में सूक्ष्म जीवाणु से लेकर कीडे-मकोडे सभी जीव-जंतु और पेड-पौधों के अलावा उनसे जुडी सारी जैव क्रियाए और प्रक्रियाएं भी शामिल है । जवकि पर्यावरण के अजैविक संघटनों में निर्जीव तत्व और उनस्ते जुडी प्रक्रियाएं आती है जैसेः पर्वत, चट्टानें, नदी हवा और जलावायु के तत्व इत्यादि, पर्यावरणीय समस्याएं जैसे प्रदूषण, जलवायु परिवर्तन इत्यादि मनुष्य को अपनी जीवनशैली के बारे में पुनर्विचार के लिये प्रेरित कर रही है, और अभ पर्यावरण संरक्षण और पर्यावरण प्रबंधन की आवश्यकता महत्वपूर्ण है ।

The little effort of everyone may change into big one; save earth

Sanitation & Health Environment

प्रिंक कुमार राय
कक्षा-8वि
Frictia Mission Secondary School

यह तो अविवादित सत्य है कि आज के बदलते औद्योमीकरण और तकनीकी विकास ने इंसान को ऐसी अति आधुनिक सुख-सुविधाएँ प्रदान की है, जिनके कारण उसका जीवन अप्रत्यशित रूप से सरल और सहज बन गया है । लेकिन यह भी उतना ही सत्य है कि बढते औद्योमीकरण और उन्नत औद्योगिकी के कारण पृथ्वी के प्राकृतिक वातावरण में व्यवधान उत्पन्न हो गया है । इस व्यवधान ने प्रकृति के स्वाभाविक सामाजस्य को असंतुलित कर दिया है और, चूँकि मानव जीवन प्रकृति का अभिन्न अंग है, इसलिए बढते प्राकृतिक असंतुलन से इंसान के जीवन को भी असंतुलित कर दिया है, फलस्वरूप आज का बिगडा पर्यावरण मनुष्य के स्वास्थ को बहुत ज्यादा प्रभावित कर रहा है ।

मनुष्य का स्वास्थ्य निस्संदेह उसकी बडी पूंजी क्योकि स्वास्थ्य शरीर मे ही स्वस्थ विचारो का वास होता है स्वस्थ विचारो मे रचनात्मकता, तीव्रता और तत्परता होती है, और साथही कुछ कर गुजरने की इच्छा ही नही, क्षमता भी होती है । स्वस्थ शरीर मे ही खुशाहाल मन रहता है और एक संतुष्ट और खुशहाल मन मे ही यह सामरर्थ हो है कि वह मानव मात्र के लिए सुद्रावता रख सके और बिना किसी भेदभाव के स्व्यं अपने, अपने परिवार, देश और समाज के विकास के बारे मे विचार कर सके । ऐसे हालतों मे कहा जा सकता है, कि मनुष्य का अच्छा स्वास्थ्य न केवल उसके अपने लिए मनुष्य का स्वास्थ्य निस्संदेह उसकी बडी पूंजी है क्योंकि स्वास्थ्य शरीर मे ही स्वस्थ विचारो का वास होता है । स्वस्थ विचारें मे रचनात्मकता, तीव्रता और तत्परता होती है, और साथ ही कुछ कर गुजरने की इच्छा ही नही, क्षमता भी होती है ।

పరిశుభ్రత, ఆరోగ్యం మరియు పర్యావరణం

శ్రీమతి టి. స్వప్న
W/o. టి. సూర్యప్రకాష్ రెడ్డి
డెక్కన్ సిమెంట్స్ లిమిటెడ్

పర్యావరణం అంటే అర్థం భూమి, నీరు, గాలి, చెట్లు, జీవ జంతుజాతుల రూపంలో మన చుట్టూ ఉన్నది ప్రకృతి, ఇది మానవ మనుగడకు, అభివృద్ధికి అత్యంత ఆవశ్యకం, భారతీయ మహర్షులు పర్యావరణాన్ని రెండు రకాలుగా అభివర్ణించారు, ఒకటి మన చుట్టూ ఉన్న బాహ్య పర్యావరణం, రెండవది అంతర్గత పర్యావరణం.

పర్యావరణంలో జీవనానికి హాని కల్గించే భౌతిక, రసాయనిక, జీవ సంబంధమైన పదార్థాలు అవసరానికి మించిన పరిమాణంలో పోగయ్యాయి. దీనివల్ల ప్రతీ చోట వీటి సాంద్రత పెరిగి, పర్యావరణంలో అసమతుల్యత ఏర్పడి కాలుష్యం సంభవిస్తుంది.

1. భారతదేశంలో పర్యావరణ పరిరక్షణ చరిత్రప్రాచీనమైనది హరప్పా నాగరికిత సంస్కృతి పర్యావరణ హితమైనదిగా ఉంది.
2. తీజ్ లాంటి పండుగలు పర్వదినాలు జరుపుకోవడం హిందూ సంస్కృతి ప్రత్యేకతగా చెప్పుకోవచ్చు, హోలీ, దీపావళి, సంక్రాంతి వంటి పర్వదినాలు ఆయా ఋతువులను అనుసరించి ప్రకృతి గొప్పతనాన్ని తెలియజేస్తున్నాయి.
3. భారతీయ మహర్షులు యావత్ ప్రకృతిని, ప్రాకృతిక శక్తులను దైవ స్వరూపాలుగా ఆరాధించారు. సౌరశక్తిని సూర్యదేవునిగా కొలిచారు. నదులను జీవనదాయిని అయిన మాతలుగా భావించారు.

4. భారతీయ సంస్కృతిలో అరటి, రావి, మర్రి, తులసి, మామిడి, ఉసిరి, మారేడు మొదలైన చెట్లను పూడిస్తారు.

5. 1972లో జరిగిన స్టాక్ హోమ్ సమ్మేళనం కారణంగా భారతదేశం పర్యావరణ పరిరక్షణపై దృష్టి సారించడం ఆరంభించింది.

6. 1972లో జరిగిన రాజ్యాంగ సవరణలో అధికరణం 48ఎ ప్రకారం రాష్ట్ర ప్రభుత్వాలు పర్యావరణ పరిరక్షణకు, వాటిలో సమూల మార్పులకు శ్రీకారం చుట్టాలి.

7. అధికరణం 51ఎ పౌరులు పర్యావరణ పరిరక్షణతో పాటు అభివృద్ధికి తోడ్పడుతూ వన్యజీవుల పట్ల సహానుభూతిని కల్గి ఉండాలని తెలుపుతుంది.

జూన్ 5 ప్రత్యేకత ఏమిటి ?

జూన్ 5న విశ్వవ్యాప్తంగా పర్యావరణ దినోత్సవం జరుపుకుంటారు. దీన్ని పురస్కరించుకొని ఐక్యరాజ్య సమితి అంతర్జాతీయ పర్యావరణ కార్యక్రమాలు (UNEP) నిర్వహిస్తూ జాగృచపరిచే ప్రయత్నాలు చేస్తుంది. ప్రపంచ పర్యావరణ దినోత్సవాన్ని ఐక్యరాజ్యసమితి 1972లో ప్రారంభించింది. స్వీడన్‌లో నిర్వహించిన ఈ సమ్మేళనంలో సుమారు 119 దేశాలు పాల్గొన్నాయి. ప్రతి సం॥ జూన్ 5 న ఈ సమ్మేళనం జరుగుతుంది.

ప్రపంచం పర్యావరణ దినోత్సవం ఎందుకు ?

1. ఈ కార్యక్రమ ముఖ్య ఉద్దేశ్యం ప్రజలకు పర్యావరణం పట్ల అవగాహన కలిగించడం.

2. ఐక్యరాజ్యసమితికి చెందిన సద్భావనా రాయబారాలు (Brand Ambassador) పర్యావరణ దినోత్సవంలో భాగస్వాములు కావాలని ప్రజలకు సందేశం పంపుతారు. ప్రపంచ వ్యాప్తంగా ప్రజలు స్వచ్ఛందంగా పర్యావరణ ప్రతినిధులుగా మారి వాస్తవ పరిస్థితులు, జల, వాయు, కాలుష్యం ఎదుర్కోవడానికి ఉపయాలను ఆలోచిస్తారు.

3. మనమంతా మెరుగైన భవిష్యత్ కోసం ఈ కార్యక్రమంలో భాగస్వాములై పర్యావరణాన్ని పరిరక్షిస్తామని ప్రతిజ్ఞ చేయాల్సి ఉంటుంది.

పర్యావరణాన్ని కాపాడుకునేందుకు, పచ్చదనం, పరిశుభ్రతతో కూడిన ధరిత్రి నిర్మాణానికి ప్రతి ఒక్కరం కంకణబద్ధులు కావాలని భారత ఉపరాష్ట్రపతి శ్రీ ముప్పవరపు వెంకయ్య నాయుడు ఆకాంక్షించారు. ఏప్రిల్ 22న ప్రపంచ ధరిత్రి దినోత్సవాన్ని పురస్కరించుకుని ఆయన తన సందేశాన్ని విడుదల చేశారు.

స్వచ్ఛమైన పర్యావరణాన్ని యధావిధిగా ముందు తరాలకు అందించాలి.

- ప్రకృతిని ప్రేమించడం, ప్రకృతితో కలిసి జీవించడం అలవాటు చేసుకోవాలి.
- పునరుత్పాదక ఇంధనం, గ్రీన్ బిల్డింగ్ కాన్సెప్ట్, క్లీన్ టెక్నాలజీ & ఎలక్ట్రిక్ వాహనాల మీద దృష్టి పెట్టాల్సిన అవసరం ఉంది.
- నేలతల్లి అనే మాట వినపడగానే మా తాతగారు గుర్తుకు వస్తారు. చిన్నతనంలో ఆయన దగ్గరే పెరగడం వల్ల నా జీవితం మీద, నా వ్యక్తిత్వం మీద ఆయన ప్రభావం చాలానే ఉంది. నేల గురించి ఆయన చెప్పిన కొన్ని ప్రభావం చాలానే ఉంది. నేల గురించి ఆయన చెప్పిన కొన్ని మాటలు నాకు ఇప్పటికి గుర్తే.
- నేల. తల్లి లాంటిది, మనల్ని పెంచి పోషించడానికి అమ్మ ఎలాంటి జాగ్రత్తలు తీసుకుంటుందో, అమ్మను జాగ్రత్తగా చూసుకోవడానికి మనం కూడా అలాంటి జాగ్రత్తలే తీసుకోవాలి అమ్మ లేని మనిషే కాదు, అన్నం తినని మనిషి కూడా ఉండడు అందుకే ప్రతి మనిషి నేలను అమ్మలాగే చూసుకోవాలి" అని ఆయన ఎప్పుడూ చెబుతుండే వారు. అందుకే నేను పర్యావరణ పరిరక్షణ గురించి చెబుతూ ఉంటాను. ప్రకృతిని ప్రేమించటం, ప్రకృతితో కలిసి జీవించడం ద్వారానే మనిషి మనుగడ సరైన మార్గంలో

ముందుకు సాగుతుందని విశ్వసిస్తుంటాను.

మన పూర్వికులు మనకు ఎంతో స్వచ్ఛమైన పర్యావరణాన్ని అందించారు. అయితే దాన్ని మనం ఎంత వరకు కాపాడుకుంటున్నామని ఎవరికి వారు ప్రశ్నించుకోవాలి. నేల బాగుంటే మనమూ బాగుంటాం. అలాంటి తల్లి అనాలోచిత మానవ చర్యవల్ల కలుషితం అవుతూనే ఉంది. ప్రకృతి విరుద్ధంగా చేస్తున్న చర్యలవల్ల భూమి వేడెక్కుతోంది. ఇంధనాల విచ్చలవాడి వాడకం వల్ల వాయు కాలుష్యం పెచ్చు మీరుతోంది. నగరాల నుంచి వెలువడుతున్న వ్యర్థాలు పర్యావరణ కాలుష్యాన్ని పెంచుతున్నాయి. చివరకు నేలను అమ్మకన్నా మిన్నగా చూసుకునే అన్నదాతలు సైతం రసాయనాల వాడకంతో నేలతల్లి పట్ల చేస్తున్న అపచారాన్ని గుర్తించడం లేదు.

1970లో ప్రారంభమైన ఈ ధరిత్రి దినోత్సవం 50 ఏళ్ళు పూర్తి చేసుకున్న సందర్భంలో ఈ ఏడాది పర్యావరణ చర్యలు నేపథ్యంలో జరుపుకుంటున్నాం. వాతావరణ మార్పులు ప్రస్తుతం ప్రపంచానికి సవాలు విసురుతున్నాయి. ఈ నేపథ్యంలో మన జీవితాలను మార్చేందుకు అదేవిధంగా పర్యావరణాన్ని కాపాడుకునేందుకు మన జీవన విధానంలో మార్పులు రావాలసిన అవసరం ఉంది.

ఇందుకోసం మనం పెద్దగా కష్టపడాల్సిన పని లేదు. తరిగిపోయే వనరులకు బదులు, పునర్వినియోగుంచుకోగలిగే వనరుల మీద దృష్టిపెట్టాలి. పర్యావరణ పరిరక్షణతో పాటు హరిత ఆర్థికాభివృద్ధి మీద దృష్టి కేంద్రకరించాలి. చౌకైన, సమర్థవంతమైన సౌరవిద్యుత్ లాంటి వాటిమీద దృష్టి కేంద్రీకరించాలి గ్రీన్‌హౌస్ వాయువులను తగ్గించగలిగే సాంకేతిక పరిజ్ఞానం మీద దృష్టి పెట్టాలి. అడవుల పెంపకం, జీవ వైవిధ్య సంరక్షణ కోసం ప్రతిన బూనాలి.

వ్యక్తిగత రవాణా స్థానంలో సమర్థవంతమైన ప్రచారవాణాను వినియోగించుకోవాలి.

పునరుత్పాదక ఇంధనం, గ్రీన్ బిల్డింగ్ కాన్సెప్ట్, క్లీన్ టెక్నాలజీస్ మరియు ఎలక్ట్రిక్ వాహనాల మీద వెల్లాల్సిన అవసరం ఉందు. సహజ వనరులను పరిరక్షించడానికి వినియోగం తగ్గించడం, పునర్వినియోగం మరియు రిసైకిల్ అనే మంత్రాన్ని అవలంభించాలి. వీటితో పాటు ప్రకృతి వ్యవసాయం దిశగా ప్రభుత్వాలు చర్యలు చేపట్టాలి. రసాయనాలు వాడని వ్యవసాయానికి మరింత ప్రోత్సాహం అందించాలి.

పర్యావరణాన్ని కాపాడుకోవాడంలో ప్రభుత్వాల బాధ్యత ఎంత ఉందో, ప్రతి మనిషిబాధ్యత కూడా ఎంతో ఉందని ప్రతి ఒక్కరూ భవిష్యత్తులో గుర్తించగలిగితే, ధరిత్రి దినోత్సవం గురించి భవిష్యత్తులో ఇలా మాట్లాడుకోవాలసిన అవసరం రాదని భావిస్తున్నాను.

ప్రస్తుతం ప్రపంచాన్ని వణికిస్తున్న కరోనా వైరస్ మనమధ్యదూరం ఉండాలని చెబుతుందే తప్ప, పర్యావరణాన్ని కాపాడుకునే దిశగా మనం వేసే అడుగులను అది ఆపలేదు. అంతే కాదు భయపడి పారిపోతుంది కూడా. ప్రస్తుత పరిస్థితి ఇలానే కొనసాగితే భూలోపం మరింత పెరిగి, 2100 కల్లా భూమి మీద మానవుడు బ్రతికే పరిస్థితి ఉండబోదని పరిశోధనలు నొక్కి చెబుతున్నాయి. సుజలాం, సుఫలాం, మలయజ శీతలాం, సస్యశ్యామలాం మాతరం వందేమాతరం... అని నిత్యం నినదించే మనం భవిష్యత్ తరాలకు ఎలాంటి భూమిని అందించబోతున్నాం గీతం స్ఫూర్తిని ప్రతి మదిలోనూ నింపుకుని మన నేలతల్లిని మనమే కాపాడుకునేందుకు సిద్ధం కావాలి. మన పూర్వాకులు అందించిన స్వచ్ఛమైన గాలి, నీరు, నేలను యధావిధిగా ముందు తరాలకు అందించటం తమ బాధ్యతగా ప్రతి ఒక్కరూ గుర్తించాలి పరిశుభ్రత, పచ్చదనంతో కూడిన ఆరోగ్యవంతమైన సమాజం కోసం ప్రతి ఒక్కరు పునరంకితం కావాలని ఆకాంక్షిస్తున్నాను.

మన పరిసరాల పరిశుభ్రత మన ఆరోగ్య రక్షణ, పరోక్షంగా ఆరోగ్యపరంగా సామాజిక సేవ కూడ అవుతుంది.

We are living on this planet as if we had another one to go to.

పరిశుభ్రత మనిషి ఆరోగ్య సూత్రాలలో ప్రధానమైనది మనషి తన వంటికి పరిశుభ్రత పాటిస్తే ఆరోగ్యంగా ఉంటాడు అలాగే తన చుట్టూ ఉండే పరిసరాలను పరిశభ్రంగా ఉంచితే తన నివాసం పరిశుభ్రతగా ఉంటుంది.

ఒక మనిషి తన పరిశుభ్రతతో పాటు పరిసరాల పరిశుభ్రత ఖచ్చితంగా పాటిస్తే అది సమాజంపట్ల తన కర్తవ్యమ్ నిర్వహించినట్టే అవుతుంది. అలాగే సామాజిక పరిశుభ్రత కోసం కృషి చేయడంతో సామాజిక సేవ చేసినట్టే అవుతుంది.

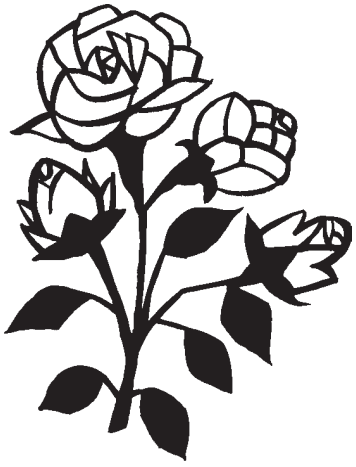
ఇల్లు పరిశుభ్రతతో ఉంటే, ఆ ఇంట్లో అందరి ఆరోగ్యం బాగుంటుంది.

మనందరి ఆరోగ్యం కోసం పర్యావరణం, పరిశుభ్రత

"మనిషికొక మొక్కను నాటుదాం పర్యావరణాన్ని కాపాడుదాం జీవకోటి ప్రాణదాతల మవుదాం".

"పర్యావరణాన్ని మనం రక్షిస్తే.... పర్యావరణం మనల్ని రక్షిస్తుంది".

జై ప్రకృతి మాత జై హింద్ జై కిసాన్



We are living on this planet as if we had another one to go to.

పర్యావరణ పరిరక్షణపై భవానీపురం లైమ్ స్టోన్ డెక్కన్ సిమెంట్స్ లిమిటెడ్

లక్ష్మన రాజు
డెక్కన్ సిమెంట్స్ లిమిటెడ్

నేటి మానవుడు కాలుష్య కారకుడు

ఒకప్పటి మనిషి ఎండ తగలకుండా వానకు తడవకుండా చలికి వణక్కుండా చలికి వణక్కుండా ఉండేందుకు ఏ గూడూ తినడానికి సరిపడ పంట పండించుకోవడానికి కాస్తంత నేలా ఉంటే చాలనుకునేవాడు. అందుకే ఏ మొక్క వేసినా విరగపండేంత సారవంతంగా ఉండేది నేల. అడవులు విస్తారంగా ఉండి వర్షాలు కురిపించేవి. నదులు జీవనదులై పారేవి. గాలి ప్రాణవాయువుని పుష్కలంగా నింపుకుని వీచేది. అన్ని కలిసి ఔషదంలా మనిషి నూరేళ్ళు హాయిగా బతికేందుకు తోడుగా ఉండేవి. కాని రానురాను మనిషిలో ఆశ పెరిగింది. తరతరాలు తిన్నా తరగనంత సంపాదించాలన్నంత అరాటంలో పడిపోయాడు. చివరకు బంగారు కోడిగుడ్డు కథలోలా దురాశపరుడిగా మారి ప్రమాదాన్ని కొనితెచ్చుకుంటున్నాడు. అవును, కోడి రోజుకు ఒక గుడ్డు మాత్రమే పెడుతుంది. అది నియమం, ప్రకృతిలోని నేలా, నీరు, గాలీ అడువులూ అన్నిటికీ ఆ నియమమే వర్తిస్తుంది. కాదని అవసరానికి మించి ముందుకెళ్తే అనర్థమే. ఇప్పటికైనా కళ్లు తీరుద్దాం, మన పిల్లలకు ఆస్తులూ అంతస్తులకన్నా పీల్చుకునేందుకు స్వచ్ఛమైన ప్రాణవాయువును ఇవ్వడం ముఖ్యమని గుర్తిద్దాం.

కాలుష్య రహిత వాతావరణం – మానవుడికే సాధ్యం :-

ఇప్పటికే 24 గంటల విద్యుత్తుని అన్నిపట్టణాలూ పల్లెలకు సరఫరా చెయ్యలేకపోతున్నాయి మన ప్రభుత్వాలు. కోట్లమంది యువతకు ఉద్యోగాలను కల్పించడమూ ఇక్కడ సమస్యే కారణాల వల్ల బొగ్గు తధారిత విద్యుదుత్పత్తి కేంద్రాలను భారత్ మూసెయ్యడం అసాధ్యం.

కానీ కాలుష్య నివారణ చట్టాలను కఠినంగా అమలు చేసి, వాతావరణంలోకి రసాయనాలను విడుదల చేసే పరిశ్రమల పనిపట్టాచ్చు, కరెంటుతో నడిచే మెట్రో రైళ్ళు కాలుష్యాను బాగా తగ్గిస్తాయి.

ప్రభుత్వాలు ఆ వైపు మరింతగా దృష్టి సారించొచ్చు. మనిషికి ఒక్కకారే అన్న నిబంధన విధించి డబ్బున్న వాళ్లు కార్లమీద కార్లను కొనకుండా ఆపొచ్చు. నగరాల్లో ఎక్కువ కాలుష్యాన్ని విడుదల చేసే వాహనాలు తిరక్కుండా కట్టడి చెయ్యొచ్చు. సౌర విద్యుదుత్పత్తిని పెంచొచ్చు. పర్యావరణాన్న కాపాడుకోవడానికి ప్రకృతికి ఇచ్చిన అతిగొప్ప పరమిది. ఇతరదేశాలు తమ శ్రీవసరాలకు కావాల్సిన కరెంటును చెత్త నుంచే తయారుచేసుకుంటోంది. తమ దేశంలో ఇళ్లనుంచి పోగయ్యే ఒకశాతం చెత్త కూడా వృధాగా పోయి అన్నది. అక్కడి ప్రభుత్వం మాట, ఆశ్చర్యం ఏంటంటే... స్థానికంగా నివాసప్రంతాలన్నిటికీ మూడొందల మీటర్ల దూరంలో రీసైక్లింగ్ సెంటర్లు ఉంటాయి. ప్రజలు ప్లాస్టిక్, కాగితాలు ఆహార వ్యర్థాలను ఇళ్ళలోనే వేరుచేసి ఆ సెంటర్లలో ఇస్తారు. మన ప్రభుత్వాలూ చెత్తను తగలబెట్టుకుండా రీసైకిల్ చేసే వైపు మొగ్గు చూపితే బాగుంటుంది. రాజకీయాలను పక్కనపెట్టి ప్రభుత్వాలు కాలష్యానికి వ్యతిరేకంగా పోరాడకపోతే ముందు ముందు రాజకీయాలు చేసేందుకు మనుషులే మిగలకుండా పోయే ప్రమాదం ఉంది.

నేటి ప్రపంచం – కాలష్య మయం

ప్రపంచ బ్యాంకు లెక్కల ప్రకారం వాయు కాలుష్యం ప్రపంచ ఆర్థిక వ్యవస్థకు ఏటా రూ॥ 14.5 లక్షల కోట్ల నష్టాన్ని మిగిల్చుతోంది.

- భూమి వేడెక్కడానికి ప్రధాన కారణం వాయు కాలుష్యమే.
- కలుషిత గాలి కారణంగా ఆమ్ల వర్షాలు పడే అవకాశం పెరుగుతుంది. దీనివల్ల పంటలకీ పచ్చని చెట్లకీ కాదు, వారసత్వ సంపదకూ నష్టమే.

- బయటి కాలుష్యం కన్నా ఇంటి లోపల విడుదలయ్యే కాలుష్యం ఎక్కువ మరణాలకు దారి తీస్తోంది.
- ట్రాఫిక్‌లో గంటల తరబడి వేచి చూసేవారికి హార్ట్‌ఎటాక్ వచ్చే అవకాశం ఎక్కువట. ఎందుకంటే మన చుట్టూ ఉండే వాహనాలు విడుదల చేసేకాలుష్యాన్ని చాలా దగ్గరగా పీల్చుతుంటాం.
- నాసా లెక్కల ప్రకారం అణు విద్యుత్తు తయారీ పెరగడం వల్ల 1971 నుంచి 2009 మధ్య 18 లక్షల మరణాలు తగ్గాయి. విద్యుత్ ఉత్పత్తికి బొగ్గు వాడగం తగ్గడమే దీనిక్కారణం.
- ప్రపంచవ్యాప్తంగా బొగ్గు వినియోగం, సిమెంట్ ఉత్పత్తి వల్ల వస్తున్న కాలుష్యం – మొత్తం కాలుష్య ఉదారాల్లో 70శాతం.

పరిష్కార మార్గాలు :

- ధూమపానం ఆరోగ్యానికి హానికరం, అతివేగం ప్రమాదకరం ... అంటూ మనకు హాని కలిగించే వాటికి దూరంగా ఉండడానికి ప్రయత్నిస్తుంటాం. మరి అతి ప్రమాదకరమైన వాయుకాలుష్యాన్ని మాత్రం గాలికొదిలేస్తే ఎలా... చేయీ చేయీ కలుపుదాం. చేతనైనంత వరకూ తగ్గిద్దాం !
- వాయు కాలుష్యాన్ని తగ్గించే అతి సులభమైన మార్గం పచ్చదనమే. అందుకోసం అడువుల్ని కాపాడుకోవడమే కాదు. ఇంటి చుట్టూ వీలైనన్ని ఎక్కువ మొక్కలు పెంచాలి. వంద కోట్ల మందితలో పది మొక్కలూ పెంచినా వెయ్యి కోట్ల చెట్లవుత్యాట. మనల్నీ మన దేశాన్ని పదికాలాల పాటు పచ్చగా బతికేలా చేస్తాయి.
- ఇళ్ళనుంచి విడుదలయ్యే కాలుష్యాన్ని తగ్గించేందుకు ప్రధాన ప్రత్యామ్నాయం కట్టెల పొయ్యి వాడకాన్ని తగ్గించడమే. కిటీకీలూ తలుపుల నుంచి ధరళంగా లోపలికీ బయటికీ

వెళ్లేలా చూసుకుంటే ఇంటి కాలుష్యం వల్ల వచ్చే శ్వాస సంబంధిత వ్యాధుల్ని తగ్గించుకోవచ్చు.

- చాలామంది వీధి చివర ఉన్న దూకాణానికెళ్ళడానిక్కూడా బైక్ తీసేస్తారు. దానికి బదులు సరదాగా నడుచుకుంటూనో సైకిల్ మీదో వెళ్తే కాలుష్యాన్ని కొంతలో కొంత తగ్గించడంతో పాటు వ్యాయామమూ అవుతుంది. వీలైనంత వరకూ ఆఫీసులకు దగ్గరగా ఇళ్ళు తీసుకుని ఉండడం మేలు. కుదరవదనుకుంటే ఇద్దరు ముగ్గురు కలసి ఒకే కార్లో వెళ్లొచ్చు. బస్సులూ, రైళ్ళను ఉపయోగించుకుంటే ఇంకా మంచిది.
- ట్రాఫిక్ సిగ్నళ్ళలో పావుగంట సిగ్నల్ పడినా కొంతమందికి మోటారు వాహనాల ఇంజన్ ఆపే అలవాటుండదు. కానీ అలా ఆపడం వల్ల కాలుష్యాన్ని తగ్గించుకోవచ్చు. ఇంధనమూ ఆదా అవుతుంది.
- ఫ్యాన్లు లైట్లతో పాటు ఇంట్లోని ఎలక్ట్రానిక్ వస్తువులతో పనిపూర్తవగానే కట్టేయడం మంచి పద్ధతి. ఎంత విద్యుత్తును ఆదా చేస్తే వాతావరణ కాలుష్యం అంత తగ్గుతుంది. ఒక్క విద్యుత్తు వృదా కారణంగానే ప్రపంచవ్యాప్తంగా యాభై మెట్రిక్ టన్నుల కార్బన్‌డయాక్సైడ్ గాల్లోకి విడుదలవుతోంది. మరోవైపు ఏసీలు, ఫ్రిడ్జ్‌లు, కూలర్లూ విడుదల చేసే క్లోరోఫ్లోరో కార్బన్లు ఓజోన్ పొరకు చిల్లుపడుతున్నాయి. విద్యుత్తుని తక్కువ ఉపయోగించుకునే పరికరాలు యంత్రాలను కొనడం కూడా మంచి ప్రత్యామ్నాయం.

Change yourself, not the nature!

తెలుగు ఎస్సె

యస్. కులశేఖర్
మైన్స్ ఫోర్‌మెన్
SJCPL

ఆఫ్రికాలో పర్యావరణవేత్తగా పేరుగాంచిన "వంగరి మాతాయి" నోబెల్ శాంతి బహుమతి పొందారు. జపాన్‌కు చెందిన యన్.హెచ్.కె. రేడియో వారు ఆమెను ఓ సందర్భంలో ఇంటర్వ్యూ చేసారు. ఆ ఇంటర్వ్యూయే ఈ వ్యాసం.

గ్రామీణ ప్రాంతాలలో కనీస అవసరాలైన నీరు, ఆహారం, పంటచెరకు, గృహనిర్మాణ సామాగ్రి, పశువులమేత వంటివన్నీ అడవులనించే వస్తాయని, కావున వాటిని పరిరక్షిద్దాం. అని ఆమె కోరారు. అదేవిధంగా భూమితో పాటు వాయు, నీరు, శబ్ద కాలుష్యాలకు మన యొక్క పారిశ్రామికత నిర్లక్ష్యం కూడా ఒక కారణం.

కావున అడవుల నరికివేత వలన వర్షం, ఋతువుల గమనాలు మారి ప్రకృతి దెబ్బతింటుందని కనుక చెట్లను పెంచాలని కోరారు. మొదట్లో తక్కువమంది పాల్గొన్నా తర్వాత్తర్వాత ప్రజలంతా ఎంతో ఉత్సాహంగా పాల్గొని డిప్లమోలెస్ ఫారెస్ట్ అధికారులు అయ్యారు. పరిసరాలు పరిరక్షించడం, వారి హక్కుల కోసం వారే పోరాడడం వంటి మార్పులు ఎంతో ఆశాజనకంగా ఉన్నాయని కొనియాడారు.

"కావున ఒక మొక్కను నాటితే ఒక ఆశను నాటినట్లే"

I go to nature to be soothed and healed, and to have my senses put in order.

అంశం శానిటేషన్, హెల్త్ & ఎన్విరాన్‌మెంట్

టి.కె. వరలక్ష్మి , టి.వి. రమణారావు

డిప్యుటి మేనేజర్ (మైన్స్) చిట్టినాడ్ సిమెంట్స్ కార్పోరేషన్ ప్రై. లి.

ప్రస్తుతం మనదేశం ఎదుర్కొంటున్న ప్రధాన సమస్యల్లో పరిసరాల పరిశుభ్రత సరిగా లేకపోవడం ఒకటి, గ్రామీణ, పట్టణ ప్రాంతాలతో సహా పేరొందిన నగరాల్లో కూడా పారిశుద్ధ్యం కొరవడింది. దీనివల్ల అనేక వ్యాధులు ప్రభలుతున్నాయి. రీప్రొడెక్టీవ్ ట్రాన్స్ ఇన్ఫెక్షన్లు, శ్వాసకోశ వ్యాధులు, చర్మవ్యాధులు కరోనా లాంటి మహమ్మారులు పరిశుభ్రత, శానిటేషన్ లేకపోవడం వల్లే వస్తాయి. అందుకే పరిసరాల పరిశుభ్రత చాలా ముఖ్యం.

శానిటేషన్ : శానిటేషన్ అనేది సాధారణంగా మానవ మలమూత్రాలు సురక్షితంగా పారవేయడానికి సౌకర్యాలు మరియు సేవల అందిచడాన్ని సూచిస్తుంది.

పారిశుద్ధ్యం అనేది చెత్తసేకరణ మరియు మురుగునీటి పారవేయడం వంటి సేవల ద్వారా పరిశుభ్రమైన పరిస్థితుల నిర్వహణను కూడా సూచిస్తుంది.

పారిశద్ధ్యం అనేది ముఖ్యంగా 4 విషయాల మీద ఆధారపడి ఉంటుంది. ఈ 4 విషయాలు పారిశుద్యానికి నాలుగు స్తంబాల వంటివి.

1. పరిశుభ్రమైన నీరు :

- క్రిమిమరియు రసాయన రహితనీరు, త్రాగడానికి మరియు వంటకు అందుబాటులో ఉండడం.

I can find God in nature, in animals, in birds and the environment.

- కేంద్రీకృత, సమూహాస్థాయి లేదా గృహాలనీటిని శుద్ధిచేసే పరిష్కార మార్గాలు.

2. మరుగుదొడ్లు :

- బాగుగా రూపకల్పన చేసిన మరియు వీలుగా ఉండే మరుగు దొడ్లను కలిగిఉండడం మరియు క్రమం తప్పకుండా వాడడం.
- పోగైన చెత్త, మలం సురక్షితంగా పారవేయడానికి సహకరించే మరిగు నిర్వహణ వ్యవస్థ.

3. సబ్బుతో చేతులు కడగడం :

- ముఖ్యమైన సమయాలలో, భోజనానికి ముందు, మల మూత్ర విసర్జన తర్వాత మరియు చిన్నపిల్లల మూత్ర విసర్జన శుభ్రం చేసిన తర్వాత సబ్బుతో చేతులు కడగడం తప్పనిసరి.

4. ఋతుక్రమ శుభ్రత :

- సురక్షిత ఋతుక్రమ శుభ్రత అలవాట్లు అనగా సరైన వస్తువులు మరియు స్థానిక పరిష్కారాలు క్రమం తప్పకుండా వినియోగించే అవసరాన్న కలిగి ఉండడం.

ఆరోగ్య అంశాలు :

ఆరోగ్యవంతమైన జీవితానికి పారిశుధ్యం అవసరం సురక్షితమైన పారిశుద్ధ్య వ్యవస్థలు లేకపోవడం వలన

- ప్రపంచవ్యాప్తంగా 4.0% మరణాలకు మరియు 5.7క్ష వ్యాధిభారానికి సరిపోని

పారిశుద్యం కారణమని 2002లో అంచనావేశారు.

- 2011లో ఇన్ఫ్లక్షన్, డయేరియా వల్ల 5 సం॥లోపు పిల్లలలో 0.7% మిలియన్ల మంది మరణించారు. 250 మిలియన్ల మంది స్కూళ్ళకు గైర్హాజరయ్యారు.
- సరైన శానిటేషన్, పరిశుభ్రత, మాస్క్ ధరించకపోవడ్ వలన 2019లో చైనాలో మొదలైన కరోనావైరస్ మనదేశంలో కొన్ని లక్షల మందిని కబళించివేసింది.

దీనిని బట్టి మనకు తెలిసేదేమంటే మానవ ఆరోగ్యానికి క్రమం తప్పకుండా పాటించే సురక్షిత చర్యలు, పరిసరాల పరిశుభ్రత మెరుగైన శానిటేషన్ పద్ధతులు పాటించాలని అర్థమవుతుంది.

పర్యావరణ అంశాలు :

వాతావరణ మార్పు అనేక విధాలుగా ఇప్పటికే పారిశుద్యసేవలపై ప్రతికూల ప్రభావం చూపుతుంది. వరదలు, తుఫానుల కారణంగా మురుగునీటి వ్యవస్థపై తీవ్ర ప్రభావం పడడం వలన పరిశుభ్రతకు భంగం వాటిల్లుతుంది.

నీరు మరియు పారిశుద్యసేవలు గ్రీన్‌హౌస్ వాయు ఉద్గారాలకు దోహదం చేస్తాయి. గ్రీన్‌హౌస్ వాయువుల్లో ఒకటైన మీథేన్‌ను పారిశుద్ధ్య సేవలు 2-6% ఉత్పత్తి చేస్తాయని అంచనా.

- 2020లో కోవిడ్-19 మహమ్మారి వచ్చిననాటి నుండి స్వచ్ఛమైన నీరు మరియు పారిశుద్ధ్యం కోసం పోరాటంతో గతంతో కంటే ముఖ్యమైనది.
- హ్యాండ్‌వాష్ అనేది కరోనావైరస్ నివారణకోసం వాడ్ పద్ధతుల్లో అత్యంత

ముఖ్యమైనది అయినప్పటికి మనదేశంలో ప్రతి 5గురలో ఇద్దరికి హ్యాండ్‌వాష్ అందుబాటులో లేదు.

పారిశుద్ధ్యాన్ని ప్రత్సోహించే కార్యక్రమాలు:

2011లో బిల్ మరియు మెలిందా గేట్స్ ఫౌండేషన్ మానవ వ్యర్థాలు శుద్ధిచేయడానికి సురక్షితమైన మరియు ప్రభావవంతమైన మార్గాలు ప్రోత్సహించడానికి "రీ ఇక్వెంట్‌ది టాయిలెట్" ఛాలెంజ్‌ని ప్రారంభించింది.

2015లో నీరు, పారిశుద్ధ్యం మరియు పరిశుభ్రత వ్యూహాల పోర్ట్‌ఫోలియో నవీకరణ మరియు అవలోకనం "బిల్డింగ్ డిమాండ్ ఫర్ శానిటేషన్" పేరుతో ప్రచురించింది.

భారతదేశంలో పారిశుద్ధ్య కార్యక్రమాలు :-

ప్రధానమంత్రి నరేంద్రమోది స్వచ్ఛభారత్ అన్ కార్యక్రమాన్న గాంధీజయంతి సందర్భంగా 2014 అక్టోబర్ 2న "స్వచ్ఛభారత్ అబియాన్" కార్యక్రమానికి పిలుపునిచ్చారు.

- ఈ మిషన్ 2014 అక్టోబర్-2 నుండి ప్రారంభమై 5 ఏళ్ళు అమలు జరుగుతుంది.
- ఈ మిషన్ 4041 పైగా పట్టణాల్లో అమలు చేస్తారు. మొత్తం ఖర్చు 62,009 కోట్లలో 14623 కోట్లు కేంద్రం భరిస్తుంది.

ఉపసంహారం :

దేశంలో ప్రస్తుతం సాగుతున్న "సంపూర్ణ పారిశుద్ధ్యం" "మహాత్మగాంధీ పరిశుభ్ర భారతం" కార్యక్రమాలు, ప్రతి ఇంటికి మరిగునీటి వ్యవస్థ కల్పించడం లక్ష్యంగా

అమలవుతున్నాయి తద్వారా బహిరంగ మలమూత్ర విసర్జన నిర్మూలనపై దృష్టిసారించవచ్చు.

అయితే ఈ సదుపాయల కల్పన తర్వాత నీటిని ఎన్ని ఇళ్ళల్లో ఉపయోగిస్తున్నారనేది ఎవరూ పట్టించుకోవడం లేదన్నది బహిరంగ రహస్యం.

అంతేకాక మరుగుదొడ్ల నిర్మాణం వల్ల వ్యాపించే వ్యాధులు ఎంతమేర తగ్గాయన్నదానిపై సరైన పరిశోధన సాగడం లేదు.

ఏతవాతా ప్రజారోగ్య ప్రయోజనం సిద్ధించాలంటే పారిశుద్ధ్య కార్యక్రమాలు, శానిటేషన్ పాటించడం వంటివి ప్రజల దైనిందిన వ్యవహారాల్లో అర్థవంతమైన మార్పులు తెచ్చే దిశగా మమేకం చేయాలని స్పష్టమవుతుంది.

Look deep into nature, and then you will understand everything better.

పర్యావరణ పరిశుభ్రణకు పరిచయం

సిహెచ్. అక్షయ
8వ తరగతి

"ఒకసారి మనం స్వచ్ఛమైన నీటిని మరియు ప్రజలందరికీ తగిన పారిశుద్ధ్య సౌకార్యాలను పొందగలిగితే, వారి జీవన పరిస్థితులలో లేదా లేకుండా అన్నిరకాల వ్యాధులకు వ్యతిరేకంగా భీరీ యుద్ధంలో విజయం సాధించబడితుంది."

పర్యావరణ పరిశుభ్రత అనేది పరిశుభ్రమైన వాతావరణాన్ని అందించడం ద్వారా మరియు వ్యాధి యొక్క చక్రాన్ని విచ్ఛిన్నం చేయడం ద్వారా సమాజ చక్రాన్ని విచ్ఛిన్నం చేయడం ద్వారా ఆరోగ్యాన్ని పొంపొందించడాన్ని సూచిస్తుంది. ఇది ప్రజల పరిశు భ్రత స్థితి, అందుబాటిలో ఉన్న వనరుల రకాలు, సమాజ అవసరాలకు అనుగుణంగా వినూత్న మరియు తగిన సాంకేతికలు, దేశ సామాజిక ఆర్థిక అభివృద్ధి, పర్యావరణ పరిశుభ్రతకు సంబంధించిన సాంస్కృతిక అంశాలు, రాజకీయ నిబద్ధత, సామర్థ్యం పెంపుదు సంబంధించిన సాంస్కృవంటి వివిధ అంశాలపై ఆధారపడి ఉంటుంది.

సంబంధిత రంగాలు, సంఘం యొక్క ప్రవర్తనా సరళితో సహా సామాజిక అంశాలు, ఆమోదించబడిన శాసన చర్యలు మరియు ఇతరలు.

పర్యావరణ పరిశుభ్రత విషయంలో భారతదేశం ఇప్పటికీ చాలాదేశాల కంటే చాలా వెనుకబడే చాలా దేశాల కంటే చాలా వెనుకబడి ఉంది. భారదేశాలలో అపరిశు భ్ర పరిస్థితులు భయానకంగా ఉన్నాయి మరియు 19వ శతాబ్దం మధ్యకాలంలో లండన్‌లో జరిగినట్టుగానే గొప్ప పారిశుద్ధ్య మేల్కొలుపు అవసరం – పారిశుధ్యంలో

మెరుగుదలకు తదుపరి మూల్యాకనంతో కొత్త వ్యూహాలు మరియు లక్ష్యజోక్యాలు అవసరం.

ప్రస్తుతం ఉన్న పర్యావరణ పరిశుభ్రత వ్యవస్థనను దాని నిర్మాణం మరియు పనితీరుకు సంబంధించి గుర్తించడం మరియు దేరే అవసరాలకు అనుగుణంగా నియంత్రణ వ్యూహాలకు ప్రాధాన్యత ఆరోగ్య సమస్యలు, వేగవంతమైన జనభా పెరుగుదల, నీటి వనపల అసయాన పంపిణీ, పరిపాలనా సమస్యలకు సంబంధించిన సమస్యలు, జనాభా వలసలు మరియు వేగవంతమైన ఆర్థిక వృద్ధి కారణంగాఈ ప్రాధన్యతలు చాలా ముఖ్యమైనవి.

పర్యావరణ పరిశుభ్రత యొక్క ప్రస్తుత దృశ్యం :

అంచనాల ప్రకారం, సరిపోని పారిశుధ్యం కారణంగా 2006లో భారతదేశానికి దాదాపు 554 బిలియన్లు లేదా దేశ జిడిపిలో 6.4% ఖర్చవుతుంది. ఈ ఆర్థిక ప్రభావంలో 70% లేదా దాదాపు 588.5 బిలియన్లు ఆరోగ్యానికి సంబంధించినవి, అతిసారం తర్వాత తీవ్రమైన క్వాసకోశ ఇన్ఫెక్షన్లు 12% ఉన్నాయి. ఆరోగ్యానికి సంబంధించినవి, అతిసారం తర్వాత తీవ్రమైన శ్వాసకోశ ఇన్ఫెక్షన్లు 12% ఉన్నాయి ఆరోగ్య సంబంధిత ప్రభావాలు.

అన్ని అభివృద్ధి చేయుతున్న ప్రపంచ ఉప–ప్రాంతాలలో అన్ని నీరం మరియు పారిశుధ్య మెరుగుదలలు ఖర్చుతో కూదుకుకు వ్యవని సూచిస్తున్నాయి, ప్రధానంగా పట్టణీకరణ కారణంగా భారతదేశంలో నీటికోసం రంగాల డిమాండ్లు వేగంగా పెరుగుతున్నాయి మరియు 2025 నాటికి, దేశ జనాభాలో 50% కంటే ఎక్కువ

మంది జీవిస్తానని అంచనా వేయబడింది. నగరాలు మరియు పట్టణాలలో జనాభా పెరుగుదల, పెరుగుతున్న ఆదాయాలు మరియు పారిశ్రామిక వృద్ధి కూడా ఈ నాటకీయ మార్పుకు కారణం. నేషనల్ అర్బన్ శానిటేషన్ పాలసీ 2008 దేశంలోని పట్టణ ప్రాంతాలో పారిశుధ్యాన్ని వేగంగా ప్రోత్సహించడానికి ఇటీవలి నేషనల్ అభివృద్ధి. భారతదేశ పట్టణాభివృద్ధి మంత్రిత్వ మార్పుకు కారణం. నేషనల్ గ్రామీణ ప్రాంతాల్లో, మౌలిక సదుపాయాల నిర్వహణ మరియు నిర్వహణ బాధ్యత కలిగిన స్థానిక ప్రభుత్వ సంస్థల బలహీనంగా మరియు తమ విధులను నిర్వహించడానికి ఆర్థిక వనరులు లేవని భావించబడతాయి అనదంగా, భారతదేశంలోని ఏ ప్రధాన నగరమా నిరంతర నీటిని నగరమూ నిరంతర నీటి సరఫరాను కలిగి ఉన్నట్లు తెలియదు మరియు 72% మంది భారతీయులు ఇప్పటికీ మెరుగైన పారిశుద్ధ్య సౌకర్యాలకు అందుబాటులో లేరని అంచనా. నీటి సరఫరా మరియు పారిశుధ్యాన్ని మెరుగుపరచడానికి అనేక వినూత్న, కమ్యూనిటి నేతృత్వంలోని సంపూర్ణ యొక్క కొనసాగింపును మెరుగుపరచడానికి ప్రభుత్వ ప్రైవేట్ భాగస్వామ్యం మరియు నీటి సదుపాయాన్ని మెరుగుపరచడానికి మహిళలకు మైక్రోక్రెడిట్ ఉపయోగించడం వంటివి ఉన్నాయి.

సంపూర్ణ పారిశుద్ధ్య ప్రచారం పంచాయితీ రాజ్ సంస్థలు (PRIలు) కమ్యూనిటి ఆధారిత సంస్థలు మరియు ప్రభుత్వేతర సంస్థలు (NGOలు) మొదలైన వాటి ప్రమేయంతో సమర్థవంతమైన సమితిమైన ప్రవర్తన మార్పుకోసం సమాచారం, విద్య మరియు కమ్యూనికేషన్. (JEC) సామర్థ్యం పెంపుదల మరియు పరిశుభ్రత విద్యపై బలమైన ప్రాధాన్యతినిస్తుంది.

పర్యావరణ పరిశుభ్రత యొక్క వ్యూహాలు

నీటి సరఫరా మరియు పారిశుధ్యాన్ని మెరుగుపరచడానికి అనేక వినూత్న విధానాలు భారతదేశంలో ముఖ్యంగా 2000ల ప్రారంభంలో పరీక్షించబడ్డాయి. 1999 నుండి గ్రామీణ నీటి సరఫరాలో డిమాండ్ – ఆధారిత విధానాలు, కమ్యూనిటి – నేతృత్వంలోని సంపూర్ణ పారిద్యం, కర్ణాటకలో పట్టణ నీటి వ్యక్తిగత గృహ మరుగుదొడ్లు (IHHL) పాఠశాల పారిశుధ్యం మరియు పరిశుభ్రత విద్య (SSHE), కమ్యూనిటీ యార్డ్‌లు (RSMలు) మరియు ఉత్పత్తి కేంద్రాలు (PCలు) మద్ధతుతో అంగన్‌వాడీ మరుగుదొడ్లు కీలకజోక్యం ప్రాంతాలు. భారత ప్రభుత్వం (GOI) యొక్క ప్రధాన లక్ష్యం 2010 నాటికి బహిరంగ యలవిసర్జన పద్ధతిని నిర్మూలించడం.

ఈ ప్రయత్నానికి పూరకం ఇవ్వడానికి, GOI పూర్తిగా కవర్ చేయబడిన PRIలు మరియు వారి కార్యకలపాల ప్రాంతంలో పూర్తి పారిశుద్య కవరేజీని నిర్ధారించడంలో గణనీయంగా సహకరించిన వ్యక్తులు మరియు సంస్థల కోసం నగదు అవార్డుల పరంగా ప్రయత్నాలను ప్రారంభించింది. జిల్లా యూనిట్‌గా తీసుకుని తీసుకుని గ్రామీణ ప్రాంతాల్లో ఈ ప్రాజెక్టును అమలు చేస్తున్నారు.

కవరేజ్ యొక్క నిరంతర విస్తరణ మరియు సేవల అప్‌గ్రేడ్‌ను పూర్తిచేయడానికి మొరుగైన గృహనీటి నాణ్యత నిర్వహఱను చేర్చడానికి మెరుగైన గృహనీటి నాణ్యత నిర్వహణను చేర్చడానికి మెరుగైన గృహనీటి నాణ్యత నిర్వహణను చేర్చడానికి పాలసి మార్పు అనేక అభివృద్ధి చెందుతున్న దేశాలలో ఖర్చుతో కూడుకున్న ఆరోగ్య జోక్యంగా కనిపిస్తుంది అని అటీవల అధ్యయనం హైలైట్ చేసింది.

పర్యావరణం

టి. వెంకట్ రామా రావు

జియోలజిస్ట్, చిట్టినాడ్ సిమెంట్ కార్పోరేషన్ లి.

పర్యావరణ

భూమి, నీరు, గాలి మొదలైన వాటితో మానవునకు ఉండే సంబంధమే పర్యావరణం, పర్యావరణం అంటే పరిసరాల వాతావరణం అని అర్థం. దీనిని కలుషితం కాకుండా కాపాడుకోవటమే పర్యావరణ సంరక్షణ

ప్రకృతిలో మనిషి కూడా ఒక భాగం అంతే కాని ప్రకృతి మనిషి కోసం కాదు. మనిషి శరీరంలాగే వాతావరణానికి కూడా బ్యాలన్స్ అవసరం కానీ, ఆ సంతులనం నిలిపేందుకు మనిషి తన వంతుగా ఎలాంటి కృషి చేయడం లేదు. పైకి తెలిసో తెలియకే చేస్తున్న తప్పుం వల్ల ప్రస్తుతం ఉ్న ఆ కాస్త బ్యాలన్స్ కూడా చెడగొడుతున్నారు.

ఇప్పటికీ పర్యావరణ పరిరక్షణ కోసం ఏంచాయాలి. చేయకూడదు అనే దాని మీద ప్రజలకు అవగాహన లేదు. కరోనా వైరస్ నేపధ్యంలో పర్యావరణం కుదుట పడింది. కాని లాక్‌డౌన్ ఎత్తివేసిన తర్వాత మళ్లీ దయనీయ స్థితికి చేరుతుంది. దీనికి ప్రత్యక్షసాక్ష్యమే ఢిల్లీ లోని యమునా నదిపై తేలియాడే కాలుష్యమైన నురుగులు.

పర్యావరణాన్ని ప్రభావితం చేసే అంశాలు :

పర్యావరణం –ప్లాస్టిక్ :

ప్లాస్టిక్ వాడకం లేని పర్యావరణం ప్రపంచ శ్రేష్ఠమైనది. ప్రపంచ వ్యాప్తంగా ప్రతి సంవత్సరము సుమారు 100 మిలియన్ టన్నుల ప్లాస్టిక్ ఉత్పత్తి అవుతుంది. దానికోసం రోజు 7 మిలియన్స్ బ్యారల్స్ పెట్రోలియం ఖర్చువుతుంది.

పర్యావరణం – కాలుష్యం:

పెరుగుతున్న జనాభా తరుగుతున్న ఉత్పాదకత మానవజాతి మనుగడకు ప్రమాదం. దీని ప్రభావం పర్యావరణము పై పడుతుంది. దీనివలన భూమి, జల, వాయు కాలుష్యం పెరుగుతుంది. దీనిని దృష్టిలో ఉంచుకుని స్వయం సేవక్ సంఘ్ 10వ మార్చి 2019లో జరిగిన సభలో పర్యావరణ పరిరక్షణ పరికల్పాన్ని ప్రారంభించింది.

పర్యావరణం – ఓజోన్ :

పర్యావరణ పరిరక్షణకు ఓజోన్ ఎంతగానో ఉపయోగపడుతుంది. ఇది 1000 కీ॥మీ॥ వరకు వ్యాపించి ఉంది. కాని మానవ తప్పిదాల వాహనాలు, పరిశ్రమలు, సూపర్‌సోనిక్ జెట్ విమానాలు వాటి కారణంగా ఇది కూడా క్షీణతకు గురి అయ్యి భూతాపానికి గురవుతుంది.

పర్వారణం పరిరక్షణకు – ప్రభుత్వ చర్యలు :

కేంద్ర ప్రభుత్వం "స్వచ్ఛ భారత్" అనే ఒక బృహత్కర కార్యక్రమంలా చేపట్టింది. కాని అది కూడా మూడునాళ్ల ముచ్చటగా మారిపోయింది. రాష్ట్ర ప్రభుత్వాలు మొదలు పెట్టిన హరితహారం, నీరు–చెట్టు వంటి కార్యక్రమాలు కూడా మధ్యలోనే ఆగిపోయాయి.

మనం ఏం చేయాలి:

- సామాజిక వనాలు, చెట్లను బాగా పెంచాలి.
- రాలిన చెట్ల ఆకులను, నేలలో గొయ్యి తీసి పూడ్చాలి, కంపోస్టుగా మార్చాలి.
- సముద్ర జిలాల్లో ఫైటో ప్లాంక్టన్ వృక్షజాలాలు విపరీతంగా అభివృద్ధి చెందేలా చూడాలి. ఇవి వాతావరణములో Co_2 వాయువును తగ్గిస్తాయి. ఫలితంగా భూమి వేడి తగ్గుతుంది.

Nature is one of our greatest teachers.

- ఓజోన్ పొరని నాశనం చేసే ఫ్లోరో, క్లోరో కార్బన్‌లను తగ్గించాలి.
- CFC లేని ఫ్రిజ్‌లు, ఎయిర్ కండీషనర్లనే ఉపయోగించాలి.
- పరిశ్రమల వ్యర్థ వాయువులను నియంత్రించాలి.
- వాహనాల నుంచి వెలువడే No_2 ను నియంత్రించడానికి, వహనాలకి కెటలిటిక్ కన్వర్షన్లను ఉపయోగించాలి. దీనివల్ల No_2 విడిపోయి నైట్రోజన్ నీరుగా మారుతుంది.
- వ్యవసాయములో సేంద్రీయ ఎరువులను వాడాలి.

ముగింపు : ఎప్పుడైతీ పరసరాలను పరిశుభ్రంగా ఉంచుకుంటూ, ప్లాస్టిక్ రహిత వస్తువులను వాడుకుంటూ, పచ్చదనానికి ప్రాముఖ్యత నిచ్చే విధంగా ఆటవీకరణకు పాల్పడుతూ ముందుకు వెల్లితే కొంతమేరలోనైనా పర్యావరణ పరిరక్షణకు పాటుపడిన వారమవుతాము.

ప్రభుత్వాలు, ప్రజలు పర్యావరణ పరిరక్షణకై పాటుపడాలని ఆశిద్దాం. ..

Nature is our best friend.

పర్యావరణము - వ్యాసము

శ్రీమతి యస్‌కె. సుల్తానా బేగం

యస్‌కె. జాని సైడా

పర్యావరణం యుగయుగానికి ప్రకృతి మారదు. ప్రకృతి స్వభావంతో మార్పులేదు. అభివృద్ధి పేరుతో ప్రకృతిని మనమే కలుషితం చేస్తున్నాము. పర్యావరణ సమస్యలు వస్తున్నాయి. దీనికి విరుద్ధంగా సాగించే ప్రమాణం వలన సముద్రాలు, నదులు, వర్వతాలు, అడవులు, వ్యవసాయక్షేత్రాలు ప్రకృతి మరియు పర్యావరణం అన్నింటికి ముప్పు పొంచివుంది.

ప్రకృతికి ముప్పుగా ఉండే అభివృద్ధి, ఇంకా సహజవనరుల్ని నాశనంచేసే అభివృద్ధి వద్దు. ప్రకృతి చల్లగా క్షేమంగా లేకపోతే మానవాళి క్షేమంగా శాంతిగా ఉ ండలేరు. అభివృద్ధి పేరిట మనకు మనమే మరియు భావితరాలకు ముప్పు తెస్తున్నాము. మన పూర్వీకులు చెట్లు, నదులు, పర్వతాలు, మరియు ప్రకృతి వీటన్నింటిని ఎల్లప్పుడూ పూజించారు. మన దేశంలో ఒక చెట్టును నరికేముందు ఐదు మొక్కలు నాటడం ఆచారంగా ఉండేది అలాగే నదులు, భూమిని, ప్రకృతిని దేవతలుగా ఆరాధించి, గౌరవించే సంప్రదాయాన్ని ఎల్లప్పుడూ పాటించాలి. నదుల్ని సముద్రాలను కలుషితం చేయ్యకుండా, వ్యవసాయరంగంలో రసాయనాలను వాడడం తగ్గించి, కర్మాగారాలనుండి విషపదార్థాలు, రసాయనాలను వీదుల్లో, కాల్వలలోకి పంపరాదు, వాహనాల రద్దీని తగ్గించాలి. ఇలా వివిధ రకాల కాలుష్యాన్ని మనిషీ సృష్టిస్తున్నారు. మనిషిలోని దురాశే కాలుష్యానికి మూలకారణం ఈ దురాశేపర్యావరణాన్ని కలుషితం చేస్తుంది. ఈ పరిస్థితుల్లోనే మనిషి ఆరోగ్యాన్ని పాడుచేసుకుంటున్నారు.

ఈ సృష్టిలోని గ్రహాల్లో ఒక భూమి అనే గ్రహంలోనే సమస్త జీవులకు జీవించే అవకాశం వుంది. ప్రకృతిలోని, గాలి, నీరు, ఎండ, వాన, మట్టి, నిప్పు, అడవులు, జంతువులు, మొదలైనవి ఇలాంటి ప్రకృతిని మనం ఎల్లప్పుడు సిరక్షితంగా మరియు స్వచ్ఛమైనదిగా ఉంచుకోవాలి. ఇది ప్రతి ఒక్కరి భాద్యత.

ఈ సృష్టిలో మనిషి మాత్రమే తెలివైనవవాడు తన తెలివితేటలతో ఈ ప్రపంచాన్ని అభివృద్ది పథంలో నడిపేదిశగా రకరకాల ఆవిష్కరణలు చేస్తున్నాడు. అలాగే రకరకాల కాలుష్యాలను కూడా చేస్తున్నాడు. దానిఫలితంగా మన వర్యావరణం నెమ్మది –నెమ్మదిగా నష్టపోతున్నది. దానిప్రభావం మనుషులు, పశు–పక్షులు, మొక్కలు, చెట్లు, మరియు ఇతర జీవ జంతువులు ఆరోగ్యం మీద ప్రభావం చూపుతుంది.

మనం తినే ఆహారం పండిచే రైతులు సైతం కాలానికి అనుగుణంగా తక్కువ సమయంలో ఎక్కువ పంటలు పండించే స్వార్థంతో రకరకాల రసాయనాలను వాడుతున్నారు. దీనివల్ల మనం తినే ఆహార పదార్థాలు రసాయనాలతో కూడినవిగా ఉంటున్నాయి. వాటిని తిన్న మనము అనారోగ్యాలు తెచ్చుకుంటున్నాము.

కర్మాగారాల నిర్మాణాలు కూడా అభివృద్ధి పథంలో ఎక్కువైనాయి. వాటి ద్వారా వెలనవడే విషపూరితమైన పొగ గాలిలో కలిస్తుంది. ఆ గాలి పీల్చే మనుషులు, జీవ జంతువులు జబ్బుల బారిన పడుతున్నారు. అలాగే వాటి ద్వారా వెలువడే రసాయన వ్యర్థ్య పథార్థాలను నదులు, కులువలో కలుపుతున్నారు. కలుషితమైన ఆనీటిని త్రాగే జీవ–జంతువులు మరియు మనుషులు అస్వస్థకు గురి అవుతున్నారు. అధిక వాహనాల వల్ల గాలి కాలుష్యం మరియు ధ్వని కాలుష్యం కూడా జరుగుతుంది. దాని వల్ల కూడా చెవులకు సంబంధించిన రోగాలు వస్తున్నాయి. ఇలా ఎదావిధంగా అభివృద్ధికై చేసే పనుల ద్వారా మనిషి రకరకాల కాలుష్యాల్ని రూపొందిస్తున్నారు. ఈ అభివృద్ధిలో

సుఖసంతోషాలలో మన ఆరోగ్య సమస్యలు మనమే రూపొందిస్తున్నాము. దాని ప్రభావం మనకు మరియు మన భావితరాలకు ఎంతో నష్టపరుస్తున్నాము.

వివిధరకాల అభివృద్ధికై అడవులను, చెట్లను నరికేస్తున్నాము దాన్నివల్ల ఆక్సీజన్ తగ్గిపోయి కార్బండైఆక్స్‌డ్ పెరుగుతుంది. దాంతో వాతావరణంలో ఉష్ణోగ్రత పెరుగుతుంది. దాంతో సమయానికి వర్షాలు కురవక అతివృష్టి, అనావృష్టిలాంటివి సంభవిస్తున్నాయి. అలాగే సెల్‌ఫోన్స్ వాడకం కూడా ఏమైనది. వాటి కోసం కావాల్సిన సిగ్నల్స్‌కొరకై సెల్ టవర్స్ ఏర్పాటుచేస్తున్నారు. వాటివల్ల రేడియేషన్ పెరిగి దానివల్ల మనుషులకు వివిధ రకాల జబ్బులు వస్తున్నాయి. ప్రకృతి మనకు ఒక అందమైన, స్వచ్ఛమైన వాతావరణం ఇచ్చింది ఇలాంటి ప్రకృతిని మన చేతులతోనే కలుషితము చేస్తున్నాము. దాని ప్రభావాన్ని మనమే అనుభవిస్తున్నాము. దైనందిన జీవితంలో వివిధరకాల పనుల వల్ల వివిధ రకాల కాలుష్యాన్ని ఎదురుకొనుట ఎన్నోరకాల ఇబ్బందులు, సమస్యలు, మానసిక, శారీరక సమస్యలు ఎదురుకుంటున్నాం. ఇలాగే మన జీవన విధానానికి ఎంతో ముఖ్యమైన భూమిని అన్నిరకాలుగా కలుషితము చేస్తున్నాము. మనము తినటానికి కావాల్సి ఆహార పదార్థాలన్ని మనకు భూమి ద్వారానే లభించును. ఈ బూమి మీద వ్యవసాయం చేసి మనకు కావాల్సిన పంటలు పండించుకొని తింటునానము. చెట్లు మనకు పండ్లు ఇస్తున్నాయి. మనం శ్వాసించటానికి కావాల్సిన ఆక్సీజన్ (గాలి) చెట్ల దావారానే లభిస్తున్నది. అలాంటి ఈ అందమైన భగ్రహాన్ని చాలా కలుషితము చేస్తున్నాం లోతైన చావులు, బోర్లులాంటి వాటికోసం, తవ్వకాలు చేస్తున్నాం. ఈలోతైన తవ్వకాల వల్ల ఈ భూమి కంపించటం జరుగుతుంది. దాని ద్వారానే మనకు భూకంపాలు వచ్చి చాలా రకాల నష్టాలు జరుగుతన్నాయి. అలాగే భూమిని చెత్త చెదారము, ఎక్కడబడితే అక్కడ వేసి కలుషితము చేసి అనారోగాలు

తెచ్చుకుంటున్నాము. ఈ రోజుల్లో ప్లాస్టిక్ వాడకం ఎక్కువైనది ప్రతి పనులలో ఈ ప్లాస్టిక్‌ను ఉపయోగిస్తున్నాము. ఇంటికి కావల్సిన వస్తవులను, సరుకులను, కూరగాయలను ఇలా ప్రతి పనిలో మనకు ఈ ప్లాస్టిక్ కవర్స్‌ను ఉపయోగిస్తున్నాం. ఇంట్లోని వస్తువులు కూడా ఎక్కువ ప్లాస్టిక్‌తో తయారైనవి వాడుతున్నాం. వీటిని వాడి పడేస్తున్నాము. అవి భూమిలా నాశనం అవ్వవు. దానివల్ల భూమిలో అలాగే ఉ ండిపోతాయి. మనం వాడిపడేసిన ప్లాస్టిక్ కవర్లు గాలలో ఎగిరి నదులు కాలువల్లో ఉ ండిపోతాయి. అవి నీటిలో కూడా కరగవు.

సంవత్సరాల తరబడి ఈ ప్లాస్టిక్ కవర్లు మరియు వస్తువులు అలాగే ఉండి పోతాయి. వీటి ద్వారా నెమ్మది నెమ్మదిగా విషరసాయనాలు వెలువడతాయి. ఆనీటిని మనము ఉపయోగిస్తున్నాము. భూమిలో పంటలకు ఆటంకం ఏర్పడుతున్నాయి. కనుక ప్లాస్టిక్ వస్తువులు కూడా మన ప్రకృతిని కలుషితం చేస్తున్నాయి. వాటి బదులుగా క్లాత్‌తో చేసిన బ్యాగులను మరియు మట్టితో చేసిన ఇంటి వస్తువులను వాడవలెను.

పర్యావరణ పరిరక్షణలో భాగంగా ప్రతి మనిషి తనవంతు ప్రయత్నంగా మొక్కలు పెంచే ప్రయత్నం చేయాలి. ఎన్నో చెట్లను మనుషులు తమ అవసరాలకు నరికివేస్తున్నారు. బదులుగా మొక్కల్ని నాటాలి పర్యావరణ పరిరక్షణలో చెట్లు చాలా ముఖ్యమైనవి. అలాగే జంతువులు, గాలి, నీరు అనేక విధాలుగా పాలుపంచుకుంటాయి. వాటి సహజంగా ఉంజేలాగా కృషి చేయవలసిన బాధ్యత, ప్రకృతిని వినియోగించుకుంటూ, ప్రకృతిని ఆధారంగా జీవించే ప్రతి మనిషి వాటిని కాపాడుకునే బాధ్యత ఉంది.

పర్యావరణ సంరక్షణ

వి. నేహాప్రశంస

9వ తరగతి, డి.సి.యల్. ఉన్నత పాఠశాల

పర్యావరణములో హానికర పదార్థాలు ఎక్కువ పరిమాణములో ఉండి, జీవులకు హాని కల్గిస్తుంటే దాన్ని కాలష్యము అని పేర్కొనవచ్చును. అడవుల్లో రగిలే కార్చిచ్చు, అగ్ని పర్వతాలు బద్దలు కావటం వంటివి సమాజ కాలుష్య కారణాలు. శిలాజ ఇంధనాలను, కట్టెలను మండించడము, పారిత్రశామిక వ్యర్థ పదార్థాలు వంటివి మానవ చర్యల వల్ల కలిగే కాలుష్య కారణాలు కాలుష్యాన్ని కలిగించే వాటిని కారణాలు అంటారు. అవి ఐదు రకాలు వాటిలో మూడురకాలు.

విచ్ఛిన్నము చెందే రకాలు/కారణాలు : పేపరు, కూరగాయలు, వృక్ష, జంతు ఉత్పత్తులు

విచ్ఛిన్నము చెందిన రకాలు/కారణాలు : ప్లాస్టిక్, అల్యూమినియం, సీసము, లోహము, పురుగులమందులు

వాయు కాలుష్యము : నీటి కాలుష్యము భూమి కాలుష్యము

వాయు కాలుష్యము :

వాహనాల నుంచి, పరిశ్రమల నుంచి వెలుపడే వాయువుల దీనికి ముఖ్య కారణము, ఉదా– కార్బన్‌డైయాక్సైడ్, కార్బన్ మోనాక్సైడ్, సల్ఫర్ డై ఆక్సైడ్, నేట్రోజనమ ఆక్సైడ్ దూళి రేణువుల వంటివి వాయుకాలుష్యాన్ని కారకాలు. ఇంధనాలు మండడంవల్ల కార్బన్‌డై ఆక్సైడ్ వెలుపడుతుంది.... కార్బన్‌డై ఆక్సైడ్ వల్ల గ్రీంహోస్ ఎఫెక్స్ లేదా గ్లోబర్ వార్మింగ్ కలుగుతుంది. భూమి చుట్టూ ఉష్ణోగ్రతలు పెరగడాన్ని గ్లోబర్ వార్మింగ్ అంటాము. దీనివల్ల సముద్రమట్టాలు పెరగడము, తీర ప్రాంతాలు మునిగిపోవడము, అతివృష్టి, ఎల్‌నినో, లానినో.... సంభవించడము, వ్యాధుల ప్రబలడము, వంటి అనేక ప్రభావాలు కలుగుతాయి.

కార్బన్‌డైఆక్స్‌డ్‌తో పాటు మీథన్ నైట్రోజన్ ఉంటాయి.

నీటి కాలుష్యము :

నీటి కాలుష్యము అనేది నీటి మరియు నీటి వనరులు, కలుషితమైన, ప్రక్రియ లేదా పరిస్థితి, ఈ వనరులు అనగా సరస్సులు, నదులు, సముద్రాలు. ఇంకా భూగర్భ జలాలు మనుషులు చర్యల వల్ల కలుషిత మవుతాయి. ఈ నీటి వనరుల మీద ఆధారపడి బ్రతికే ప్రాణులు మరియు మొక్కలకి ఇది హానికరమైనది. నీటిని శుద్ధి చేయకుండా కలుషితాలను నేరుగా నీటి వనరులకి వదిలి వేయడం వలన ఇది ఏర్పడతుంది. చెరువులో ఒకే చోట బట్టలు ఉతకడం, అదే చోట స్నానం చేయడం మరియు పెంపుడు జంతువులను శుభ్రపరచడం, ఈత కొట్టడం లాంటివి చేయడం వలన నీరు కాలుష్యమవుతుంది.

భూమి కాలుష్యము :

ఈ భూమిని కూడా కాలుష్యం చేస్తున్నారు మానవులు. పారిశ్రామిక ప్రాంతంలో పరిశ్రమలు వదులుతున్న కాలుష్యంతో భూగర్భ జలాలు కాలుష్యమవుతున్నాయి. వ్యవసాయ ఎరువుల వాడకం ద్వారా, పురుగు మందులు చల్లడం వలన మట్టితో సహా పండ్లు, కూరగాయలు, చిరుధాన్యాలు మొదలైనవి. కలుషితమవుతున్నాయి. వీటిని తిని మనము అనారోగ్యానికి గురిఅవుతున్నాము. రోడ్లపై చెత్తా చెదారములు కుళ్ళి సూక్ష్మక్రిములు ఉత్పత్తికి భారం పెరుగుతుంది. మరియు వాతావరణంలో సమతుల్యం లేక పోవడం వలన ఎక్కువగా ఈ మధ్య భూమి కనిపించడం లేదు.

పర్యావరణ సంరక్షణలో వాతావరణం

భూమి, గాలి, నీరు, ఆకాశము, చెట్లు సమస్త, జలజీవరాశులు మొదలైనవి అన్నియు వాతావరణములో ఒక భాగము. ఈ వాతావరణంలో అనేక రకాలుగా మానవచర్యల ఫలితంగా మార్పులు చేర్పులు చోట చేసుకుంటాయి. ఈ వాతావరణములె చెట్లు చాలా ప్రాముఖ్యత వహిస్తాయి. చెట్లను, అడవులను నరికి వేయడం వలన వాతావరణములో చెట్లు చాలా

ప్రాముఖ్యత వలన మనకు స్వచ్ఛమైన గాలి లభించును. అంతేగాన మానవకోటి జీవించడానికి అవసరమైన ఆక్సిజన్ (ప్రాణవాయువు) ఈ చెట్ల నుండియే లభించును. అంతేకాకుండా చెట్లనుండి అనేక రకాలుగా పువ్వులు, పండ్లు, కూరగాయలు మొదలగునవి లభించును. మరియు ఫుడ్ కూడాలభించును. దీనిని బట్టి చూస్తే వాతావరణములో ఈ చెట్లు చాలా ప్రాముఖ్యతను సంతరించుకుంటున్నాయి.

అంతే కాకుండా ఈ వాతావరణము అనేక రకాలుగా కాలుష్యానికి గురిఅవుతుంది అని చెప్పవచ్చును అనగా ఈ పర్యావరణంలో హానికరణ పదార్థాలు ఎక్కువ పరిమాణంలో ఉండి, జీవులకు హానికలిగిస్తుంది, దాన్ని కాలుష్యం అని పేర్కొనవచ్చు. ఈ కాలుష్యం అనేది మానవ చర్యల వలనే జరుగుతుంది చెప్పవచ్చును. ఉదా ప్లాస్టిక్, వృక్ష, జంతు కళేబరాలు, పేపరు, లోహం, సీసం మొదలైనవి ఈ కాలుష్యాన్ని వివిధ రకాలుగా చెప్పవచ్చును.

వాహనాల నుండి, పరిశ్రమల నుండి వెలుపడే పొగ అనగా వాయువులను దీనికి ముఖ్య కారణం. నీరు అనేది కూడా వాతావరణములో ఒక భాగము ఇది మానవులకు చాలా అవసరము నీరు లేకుండా జీవించడం కష్టముదీనికి ముఖ్యకారణం. భూమిని కూడా మానవుల పారిశ్రామిక ప్రాంతంలో పరిశ్రమ వదులుతున్న కాలుష్యంతో భూగర్భ జలాలు కాలుష్య మనవటానికి దీనికి ముఖ్య కారణం.

మన నివాసము నేలపైననే అందలి పరిసరములు పరిశుభ్రంగా నుండవలెను. లేనిచో ఆరోగ్యము చెడును. గుంటలలోని మురుగునీరు. బురద, రొచ్చు పెంట ప్రోగులు కుళ్ళు కంపు.

కళ్ళు కంపు, క్రిమికోటకాలు పెంపుచేసి రకరకాలు రోగములను పుటించును. గాలి కలుషితమై దుర్గంధ భూయిష్టమైన భరింపలేము క్రిములు.

పెరుగుటచే మలేరియా టైపాయిడు, కలరా మశూచి బోదకాలు వంట బయంకర వ్యాదులు సంక్రమించును.

పర్యవరణాన్ని కాపాడుకుందాం. ప్రాణాంతకిమైన జబ్బులు నుండి కాపాడుకుందాం.

పరిశుభ్రత ఆరోగ్యం పర్యావరణము

వేముల గోపాలకృష్ణ

మై హోం ఇండస్ట్రీస్ ప్రై. లి., సూర్యపేట్, తెలంగాణ.

ఉపోద్ఘాతం : ప్రస్తితకాలంలో ఎక్కడ చూసినా, విన్నా పరిశుభ్రత (నానాటైజేషన్) గురించే, పురాతన కాలం నుండి పరిశుభ్రత విధానాలు, ఆచారాలు తెలిసిఉన్న. గత రెండు సంవత్సరాల నుంచి ప్రాధాన్యత – ఇస్తున్నాం, కారణం కరోణాలాంటి భయంకర మృత్యుకోరల నుండి మనలని మనం రక్షించుకునే ఆయుధంగా పరిశుభ్రతను (శానిటైజేషన్) అనుసరిస్తున్నాము. ఆరోగ్యం అనేది పరిశుభ్రత మరియు పర్యావరణం మీద ఆధారపడి ఉంటుంది. మానవుడి మనుగడ పర్వావరణంపై ఆధారపడి ఉంటుంది. ఆరోగ్యం పరిశుభ్రత ద్వారా లభిస్తుంది. ఆరోగ్యం ఉంటే అదృష్టం. సంపదలు అన్ని ఉన్నట్టే. అందుకే పెద్దలు అనేది.

–: ఆరోగ్యమ్ మహా భాగము :– అని

వివరణ : మానవుని మనుగడ భూమి మీద మొదలై కాన్నికోట్ల సంవత్సరాలు అవుతుంది. కాలంతో పాటుగా మనము ఎంతో అభివృద్ధి సాదించాము. గతంతో పాల్చుకుంటే ఇప్పుడు ఎంత అభివృద్ధి చెందాలంటే మనుషులను సందర్శనార్థం అంతరిక్షంలోనికి తీసుకు వెళ్ళేంతగా అభివృద్ధి చెందాము. అయితే అభివృద్ధిని చూసి సంతోషపడాలా, లేదా పర్యావరణ కాలుష్యాన్ని చూసి బోధపడాలా తెలియని పరిస్థితి, పర్యావరణ రూపాలయిన గాలి, నీరు, భూమి, ఆకాశం, అగ్నిలో గాలి, నీరు, భూమిని చాలా వరకు పూర్తిగా కలుషితం చేశాము. మిగిలిన అగ్ని, ఆకాశాన్ని కలుషితం చేయడానికి మనం ఇంకా వ్యర్థాలను కనుక్కోలేదు. కాబట్టి ప్రస్తుతానికి అవి బాగానే ఉన్నాయి. భవిష్యత్‌లో వాటిపనికూడా స్వాహా అయిపోవచ్చు.

తరువాత మన పని కూడా స్వాహా అయిపోతుంది. పర్యావరణం ఎంతగా కలుషితం అయిదంటే మన తాతలు, ముత్తాతలు ఆరోగ్యంగా సుమారు 120 లేదా 100 సంవత్సరాలు జీవించారు. తల్లిదండ్రులు సుమారు 70 నుండి 80 సంవత్సరాల మధ్య జీవించారు. ప్రస్తుతం మన సంగతి అయితే అనేక రోగాలతో 60 నుండి 50 సంవత్సరాలకు జీవనప్రమాణం పడిపోయింది. రాబోయే భావితరాల పరిస్థితి ? దీనికి కారణం పర్యావరణ కాలుష్యం, పరిశుభ్రతను పాటించపోవడం.

ప్రతి చిన్న అవసరానికి ప్రకృతి మీద ఆధారపడే మనం, ఆ పర్యావరణాన్నే కలుషితం చేసుకుంటున్నాము. తానుకూర్చున్న చెట్టుకొమ్మను తానే నరుకున్న విధంగా ఉంది పరిస్థితి. పరిశుభ్రత (శానిటైజేషన్) విషయానికివస్తే ప్రస్తుతం కరోణా పున్యమా అని ప్రపంచదేశాలకు పరిశుభ్రత యొక్క అవశ్యకత విపరీతంగా పెరిగింది. పరిశ్రమలో కార్మికులకు కూడా యాజమాన్యంలో పరిశుభ్రతపట్ల పూర్తి బాధ్యత వహిస్తున్నాయి. కార్మికులు కూడా వాటిని అనుసరిస్తున్నప్పటికీ కొంత మందిలో నిర్లక్ష్యం వహిస్తున్నాయి. కార్మికులు కూడా వాటిని అనుసరిస్తున్నప్పటికీ కొంతమందిలో నిర్లక్ష్యం వహిస్తున్నారు. దీనివలన ఇతర కార్మికులు ప్రభావితం అనడమే కాకుండా అనారోగ్యానికి గురి అవ్వవచ్చు. అందువలన కార్మికులకు పరిశుభ్రత మరియు ఆరోగ్యంపై అవగాహన కల్పించడం. పరిశుభ్రతపట్ల వారిలో వారినే నాయకత్వం వహించేలా చేయడం, వారివారి పని ప్రదేశాలలో పరిశుభ్రతకు సంబంధించి భాగస్వాములను చేయడం పరిశుభ్రత పట్ల నిర్లక్ష్యాన్ని కార్మికులుకు దూరంచేయవచ్చు. పర్యావరణాన్ని కాపాడుక్కోవడానికి ఒకే ఒక్క మార్గం చెట్లుపెంచడం.

ముగింపు :- పనిప్రదేశాలలో హ్యాండ్‌వాష్, శానిటైజర్లు, వృధాలను అరిక్షిడం, చేతులు కడిగిన నీటిని శుద్ధి చేసి మొక్కలకు ఉపయోగించడం, ఇతర వ్యర్థాలను సరియైన పద్ధతిలో తొలగించడం. శుభ్రపరిచే ప్రమాదకర రసాయనాలను తగ్గించడం. కార్మికులకు పరిశుభ్రతపట్ల అవగాహన మరియు భాగస్వాములను చేయడం, సామూహికంగా ఉపయోగించే వస్తు

పరికరాలను (శానిటైజ్) పరిశుభ్రపరచడం ద్వారా ఆరోగ్యాన్ని మెరుగుపరుచుకోవచ్చు. పర్యావరణంలోకి వ్యర్థాలను కలవకుండా చూసుకోవడం, మన తోటివారికి అవగాహన కల్పించి చెట్లు పెంచేలా చేయడం, పుట్టిన రోజులకు, పెళ్ళిరోజులకు, శుభకార్యాలకు కొత్త సెల్‌ఫోన్లు, బైకులు, ఇతర వాహనాలు కొన్నప్పుడు తప్పుకుండా ఒక యొక్క నాటడం అలువాటుగా చేసుకుందాం. ఇటువంటి విషయాలు వాట్స్‌ఆఫ్, ఫేస్‌బుక్‌లో షేర్‌చేసుకుని లైక్‌లు కొడితే సరిపోదు ఆచరించిచూపాలి. అంతేకాక కార్మికులను వారి పని ప్రదేశాలలో మొక్కలను వాటివాటిని పెంచేలా ప్రోత్సహించాలి. మొక్కలను బాగాపెంచిన వారిని అభినందించడం వలన ఇతర కార్మికులలో ఆసక్తి పెరుగుతుంది. మన జీవితం జీవనం పర్యావరణం, పరిశుభ్రత మీదనే ఆరోగ్యం ఆధారపడి ఉన్నందున పర్యావరణాన్ని, పరిశుభ్రతను, ఆరోగ్యాన్ని కాపాడుకుంటూ అందరూ సంతోషంగా ఉండాలని ఆ భగవంతున్ని ప్రార్థిస్తూ.

I can find God in nature, in animals, in birds and the environment.

గనుల పర్యావరణ మరియు ఖనిజ సంరక్షణ, వారోత్సవము - 2021-2022

వి. శ్రీతులసి

వి.వియస్.యం. కిశన్ (మేనేజర్ సేఫ్టి)

విషయం :- పారిశుధ్యం, ఆరోగ్యం మరియు మహిళా సాధికారిత.

ఉపోద్ఘాతం:- అద్భుతం, ఆనందం, అపూర్వం, అనంతం, అత్యంత రహస్యం, భారీ విస్పోటం, అఖండ విశబ్ధం, అన్నింటిని అమద్చుకున్న ఈ అనంత సృష్టిలో అవనితల్లిదే ప్రత్యేకత. ఈ అవనితల్లి చుటుకున్న అందమైన వస్త్రమే ప్రకృతి.

ప్రకృతి కాంతకి ఎన్నెన్ని వయలో, కలలో చూడండి, ఏ హృదయం ఉందనిపంచభూతాలు మనకు ఉపకారం చేస్తున్నాయి.

ప్రకృతి నుంచి మనిషి ఏమి నేర్చుకోవాలి ?

ఏ హృదయంలేని గాలి, ప్రతి మనిషి మనుగడకు ఆధారమైనది...

ఏ హృదయంలేని నీరు, జీవులకు జీవనాధారమైనది...

ఏ హృదయం లేని తరువు, తనువుకు ప్రాణాధారమైనది.

మరియు హృదయం ఉన్న మనిషి ఇంక ఎన్ని పనులు చేయగలడో మనం ఆలోచించాలి.

మనిషి జీవితం, నేలకు ఉన్న సంబంధం విడదీయలేనిది, దురదృష్టవశాతం మట్టిని గౌరవించే బాధ్యతను మాత్రం సమాజం మరచిపోతుంది. చుట్టూ ఉన్న చెట్లు, జంతువులు, మనుషులు, గాలి, నీరు, నేల నింగి ఇవన్నీ కల్పిస్తేనే పర్యావరణం, మనిషికి ప్రకృతికి ఇచ్చిన వరం అది. ఇప్పుడు పర్యావరణమే ప్రమాదంలో పడింది. జీవకోటి భవిత

ప్రశ్నార్థకమైనది.

ఇప్పుడు జరుపుకుంటున్న గనుల పర్యావరణ వారోత్సవాలు సదస్సు... ఇలా సమావేశాలు ఏవైన ఒకటేఏజెండా... పర్యావరణం (పరిశుభ్రత పరిరక్షణ మీదనే అందరి దృష్టి ప్రపంచంలో ఏక్కడోఒక చోట మీదనే చర్చ.

మరి ఈ ఆలోచన ప్రతిఒక్కరిలో కలిగినప్పుడు వీటికి సంపూర్ణం, మరి ఈ పర్యావరణ పరిరక్షణలో భాగంగా మనము చేపట్టవలసిన బాధ్యతనల గురించి ఈ వ్యాసంలో చర్చించుకుందాం.

వ్యాసవివరణ :

ఈ పర్యావరణంలో మనం చేపట్టవలసిన బాధ్యతలు

I :- పారిశుధ్యం :

ఇల్లు చూసి ఇల్లాలని చూడమని సామెత, మనందరికి తెలిసిందే, మరి ఆ ఇల్లు, ఇంటి పరిసరాలు శుభ్రంగా ఉంచుకోవడమే పారిశుధ్యం. మరిదీని గురించి తెలుసుకుందాం..

పారిశుధ్యం, పారిశుధ్యం ఏనోట విన్నా ఇదేమాట, అసలు మనం నివసించే పరిచరాలు శుభ్రంగా ఉంచుకోవాలి, అనే సామాజిక బాధ్యత ఎవరో వచ్చి చెప్తేనేగాని తెలియని స్థితిలో ఉంది. మన మానవ మనుగడ.

మనము ఎక్కడికి వెళ్ళి, స్వచ్ఛభారతలు చేయవలసిన అవసరం లేదు, మనం నివసించే పరిసరాలను శుభ్రంగా ఉంచుకుంటే చాలు. అదే పారిశుధ్యం. ఈ కార్యక్రము ఇంటినుండే మొదలు పెట్టాలి. మనం నివసించే ప్రాంతంలో మురుగు నీరు చేరకుండా, తగు జాగ్రత్తలు చేసుకుంటు, ఇంటింట చెత్తను తీసుకువెళ్ళి వీధిలో వేయకుండా ప్రతి ఇంటికి చెత్తబుట్టలను ఏర్పాటుచేసి, పరిసరాలను శుభ్రంగా ఉంచుకోవాలి.

ఇవియే కాకుండా మన ఇంటి పెరిటిలో మొక్కలను పెంచుకోవాలి, మంచి వాతావరణాన్ని పెంపొందించుకోవాలి. స్వచ్ఛభారతం కావాలంటే ముందు మన ఇల్లు పరిశుభ్రం కావాలి.

శుభ్రత ఎక్కడ ఉంటే భగవంతుడు అక్కడ నివాసం ఉంటాడు. అపరిశుభ్రత దారిద్ర్య లక్షణంగా ప్రస్తుతానికి కనిపిస్తాయి. మన నిర్లక్ష్యమే అనేక రోగాలకు ఆహ్వానము అని మనము మరచిపోకూడదు. ప్రపంచానికి కరోనా అనే మహమ్మారి ఒక గొప్ప పాఠాన్ని నేర్పించింది. అదే ప్రతిఒక్కరు ఈ వ్యక్తిగత శుభ్రతు పాటించకపోతే పౌరవాణికి తప్పదు భారీ మూల్యం. అని ప్రతిఒక్కరు తెలుసుకోవాలి.

స్వార్ధం లేని పుడమి తల్లి ఎదపై కాలుష్యాన్ని నిర్మూలిద్దాం..

స్వచ్ఛ తరంగాలను ప్రవహింపజేసి పవిత్రమైన పావన క్షేత్రంలా తీర్చిదిద్దుదాం...

ఆరోగ్యం –

కడుపుకింత తిండి, కంటినిండా నిద్ర వేళకు ఉంటే అవుతుంది ఆరోగ్యమే మహాభాగ్యం.

డబ్బుంటే ఏమైన చెయ్యుచ్చు, దీన్నైనా కొనచ్చు కాని ఆరోగ్యం మాత్రం కొనలేం, వ్యక్తిగత పరిశుభ్రత, పరిసరాల పరిశుభ్రత ఆరోగ్యానికి తొలిమెట్టు.

మంచి తిండి, కంటి నిండా నిద్ర, కాలుష్యంలేని వాతావరణం ఇవేకదా మన అరోగ్యానికి మూలం. అవి ఎలాగు కొరవడ్డాయి అనరోగ్య సమస్యలు మన మీద ప్రభావితం పడుతుంది. దీనిని తట్టుకునే దారి కూడా ఒక్కోసారి కనిపించదు. పరిష్కారాల మార్పుకోసం అంటూ ఎందరినో కలిసిఉంటాం. ఎన్నో మందులు వాడి ఉంటాం. హోమియోపతి, అలోపతి ఇలా ఎన్నెన్నో అనేకమైన అనారోగ్యాలకు కారణం. మనం తీసుకునే ఆహారం, ఇవేకాకుండా శారీరక, మానసిక వ్యాయామాలు లేకపోవడం.

ప్రధాన కారణం వైరస్సులు ప్రవహించినప్పుడు మాత్రమే ఆరోగ్య సూత్రాలు పాటించడం

కాదు. అది మన నిత్యజీవితంలో ఒక భాగమే. నిత్యం చేతులను సబ్బులతో శుభ్రం చేసుకోవాలి. బయటకు వెళ్ళేటప్పుడు మాస్కులు ధరించాలి, కాళ్ళు కడుక్కోవాలి, ఇలాంటి జాగ్రత్తలు తీసుకుంటూ, వ్యాయామాలు చేస్తూ, ఆరోగ్యసూత్రాలను పాటిస్తూ ఆరోగ్యవంతమైన జీవితాన్ని కొనసాగించాలి.

III. మహిళా సాధికారిత :-

యత్ర నార్యేస్తు పూజ్యంతే రమంతే తత్ర దేవతః అంటూ వేద ఘోషలు చేస్తూనే....

కార్యేషు దాసి కరణేషు మంత్రి

భోజ్యేషుమాతా శయనేషు రంభా అంటూ..

స్త్రీలను వంటింటి, పడకంటి పనులకు పరిమితం చేశారు.

మారుతున్న కాలంలో పాటు అన్ని రంగాలులోను మారకపోతే కొన్ని అడుగులు ముందుకు వేసిన స్త్రీలను సమాజంలో చితుక్కుపోతున్నారు.

లైంగిక దాడులు, గృహ నిర్భందాలు, వైశాచిక ప్రణాళికలకు వేధింపులతో స్త్రీల బ్రతుకు దుర్భరమౌతున్నాయి. మనం స్త్రీలను గౌరివించే స్థితికి రావాలి, అంటే మహిలా సంక్షేమ పథకాలు అమలులోకి రావాలి. విద్య, ఉద్యోగ వ్యాపార రంగాలలో స్త్రీలకు ఉన్నత స్థానం కల్పించాలి.

సామాజిక, రాజకీయ, ఆర్థిక పరంగా స్త్రీలను బలోపేతం చేసి, స్వయం నిర్ణయాత్మక శక్తిని, ఆత్మవిశ్వాసాన్ని పెంపొందించేవిధంగా వారిని ప్రోత్సహించాలి.

మహిళా సాధికారత అంటే స్త్రీ పురుషులతో సమానంగా అన్నీ రంగాలలో రాణించి తనుకంటూ ఒక ప్రత్యేక గుర్తింపును ఏర్పరుచుకోవడం, కూతురిగా సోదరిగా, గృహిణిగా తల్లిగా చూడాలి. సామాజికంగా, ఆర్థికంగా, వృత్తిలో, ప్రవర్తనలో, నింగిలో, నీటిలో, అవనిపై

సమస్య రంగాలలో, పురుషులతో సమానంగా అన్నీ రంగాలలో తనకంటూ ముద్రను వేయడమే మహిలాసాధికారత.

మరి మానసికంగా దృఢంగా ఉండగలగుతున్నారా ! లేదు కదా, స్త్రీలు అన్నీ రంగాలలో రాణించినా ఇంట్లో మాత్రం అక్కడక్కడ కొందరు స్త్రీలు కుటుంబం నుండి శారీరక, మానసికింగా, ఏదో ఒక హింసలను ఎదుర్కుంటున్నారు.

దీనికి మన రాజ్యాంగంలో 39వ అధికరణ, ఉద్యోగ విషయాలలో, పురుషులతో పాటు సమాన హక్కులను కల్పించాలి. అంతేకాకుండా నాటి నుండి నేటి వరకు మహిళలు విద్యావంతులై అన్నీ రంగాలలో రాణించగలిగారు.

స్త్రీ చూపిన సాహసాలకు అంతరిక్షమే చిన్నదైందీ...

కదనరంగమునకే మనకు పుట్టినది.

ఇలా చెప్పుకుంటూ పోతే, ఒక కల్పన చావ్లా, రాణి రుద్రమదేవి, వీరనారి ఝాన్సీ లక్ష్మీబాయి, కిరణ్ బేడి, ఇలా ఎంతో మంది మహిళలు గొప్ప చరిత్రను సృష్టించారు.

ముగింపు – మన చుట్టూఉన్న పరిసరాల పరిశుభ్రంగా స్వచ్ఛంగా ఉంచుకోవడమే అసలైన "పారిశుధ్యం" అంతేకాకుండా వ్యక్తిగత పరిశుభ్రతను కూడా పాటిస్తే అప్పుడే మనం మన పరిసరాలు, మన ఆరోగ్యం బాగుంటుంది. దేశం ప్రపంచం అంత ఆరోగ్యంగా ఉండవచ్చు. ఎటువంటి వ్యాధులు, జబ్బులు రాకుండా ఉండటానికి ఆస్కారం ఉండదు.

అప్పుడే మనం మన పరిశుభ్రత, పారిశుధ్యం, ఆరోగ్యంపై శ్రద్ధ తీసుకున్న వాళ్ళ మౌతాము.

ఇకపోతే "మహిళా సాధికారత" అంశంపై విశ్లేషించాలంటే మహిళలు ప్రతి రంగంలో ముందంజలో ఉండి ప్రపంచాన్ని నడిపించాలని కోరుకుంటున్నాను. మహిళలపై దాడులు, అసభ్య ప్రవర్తనలు చెలరేగవు. అప్పుడే మహిళలపై గౌరవం

పెరుగుతుంది. ప్రతి ఒక్క బాలబాలికలు, మహిళలు ప్రతి వృత్తిని గౌరవిస్తూ అన్నీ రంగాలలో దూసుకెళ్ళాలని ఆశిస్తున్నాను. అప్పుడే మహిళాసాధికారతను సాధించినవాళ్ళౌతాం. ఈ చైతన్యం ప్రతి గ్రామం నుండి ప్రతి గ్రామం నుండి రాష్ట్రం. రాష్ట్రం నుంచి దేశం, దేశం నుంచి ప్రపంచం అంతా విస్తరించి నవసమాజానికి సమాజిక అభివృద్ధిని సాధించుకుందాం ! చివరిగా ఒక్కటే పారిశధ్యం, ఆరోగ్యం, మహిళా సాధికారిత అనే అంశంపై ప్రతి ఒక్కరం విజయాన్ని సాధించాలని ఆశిస్తున్నాను.

మహిళా సాధికారిత

ఆద్యాత్మికంగా, రాజకీయంగా, సామాజికంగా, ఆర్థికంగా స్త్రీలను బలోపేతం చేయడమనే విషయాలు మహిళాసాధికారతలో ప్రస్తావించబడ్డాయి స్వశక్తిపై విశ్వాసాన్ని అభివృద్ధి పరచడం కూడా సాధికారితలో కలసి ఉంటుంది. సాధికారత దాదాపుగా కింది అంశాలలో లేదా అదే సమర్థ్యాముతో ఉంటుంది అని.

- స్వయం నిర్ణయాత్మక శక్తిని కల్గి ఉండడం
- తగిన సమయంలో తగిన నిర్ణయాన్ని తీసుకోవడానికి అవసరమైన సమాచారం మరియు వనరులు అందుబాటులోకి తెచ్చుకోవడం.
- సామాదాయిక నిర్ణయంలోని స్పందించే ఖచ్చితత్వాన్ని కలిగి ఉండడం.
- మార్పుకకనుగుణమైన సానుకుల దృక్పధాన్ని పొందగలగడం.
- వ్యక్తిగతంగాను లేదా సాముహిక శక్తిగాగల నైపుణ్యాల సామార్థ్యాలను మెరుగు పరచుకోవడం.
- ప్రజాస్వామిక పద్ధతులు ద్వారా ఇతరుల గ్రహణశక్తిని మర్చే సామర్థ్యాన్ని కల్గి ఉండడం.
- మంచి చదువు చదువుకోవాలి.

I can find God in nature, in animals, in birds and the environment.

भारत का राजपत्र
The Gazette of India

सी.जी.-डी.एल.-अ.-03112021-230956
CG-DL-E-03112021-230956

असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)
PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 632] नई दिल्ली, बुधवार, नवम्बर 3, 2021/कार्तिक 12, 1943
No. 632] NEW DELHI, WEDNESDAY, NOVEMBER 3, 2021/KARTIKA 12, 1943

खान मंत्रालय

अधिसूचना

नई दिल्ली, 3 नवम्बर, 2021

सा.का.नि. 780(अ).—केंद्रीय सरकार, खान और खनिज (विकास और विनियमन) अधिनियम, 1957 (1957 का 67) की धारा 18 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, खनिज संरक्षण और विकास नियम, 2017 का और संशोधन करने के लिए निम्नलिखित नियम बनाती है अर्थात्:-

1. (1) इन नियमों का संक्षिप्त नाम खनिज संरक्षण और विकास (संशोधन) नियम, 2021 है।

(2) ये राजपत्र में प्रकाशन की तारीख को प्रवृत्त होंगे।

2. सम्पूर्ण खनिज संरक्षण और विकास नियम, 2017 में (जिसे इसमें इसके पश्चात मूल नियम कहा गया है), "पूर्वेक्षण अनुज्ञप्ति-सह-खनन पट्टा" शब्द जहां कहीं वे आते हैं, [नियम 4 के उप-नियम (1) के सिवाय], के स्थान पर "संयुक्त अनुज्ञप्ति" शब्द रखे जाएंगे;

3. मूल नियमों में, नियम 3 में, उप-नियम (2) के पश्चात् निम्नलिखित उप-नियम अंत:स्थापित किया जाएगा, अर्थात:-

"(3) इन संपूर्ण नियमों में, अधिनियम की प्रथम अनुसूची के भाग ख में विनिर्दिष्ट खनिजों के संबंध में, जहां कहीं भी भारतीय खान ब्यूरो या उसके अधिकारियों की कोई शक्ति, कार्य या उत्तरदायित्व विनिर्दिष्ट हैं या भारतीय खान ब्यूरो या उसके अधिकारियों को कोई सूचना दी जानी है, तो उसे परमाणु खनिज गवेषण और अनुसंधान निदेशालय या उसके अधिकारियों की शक्ति, कार्य या उत्तरदायित्व या उक्त अधिनियम की प्रथम अनुसूची के भाग ख में विनिर्दिष्ट खनिजों के संबंध में उक्त निदेशालय या उसके अधिकारियों को सूचना प्रस्तुत करने की अपेक्षा समझा

जाएगा, जहां ऐसे परमाणु खनिजों का प्रवर्ग, परमाणु खनिज रियायत नियम, 2016 की अनुसूची 'क' के अधीन, निम्नलिखित रीति में, घोषित सीमा मूल्य के बराबर या उससे अधिक है, अर्थात:-

(क) भारतीय खान ब्यूरो को कोई निर्देश परमाणु खनिज गवेषण और अनुसंधान निदेशालय को निर्देश समझा जाएगा;

(ख) महा नियंत्रक या मुख्य खान नियंत्रक या खान नियंत्रक या क्षेत्रीय नियंत्रक या भारतीय खान ब्यूरो के प्राधिकृत अधिकारी को कोई निर्देश परमाणु खनिज गवेषण और अनुसंधान निदेशालय के यथा स्थिति, निदेशक या प्राधिकृत अधिकारी, को निर्देश समझा जाएगा।"

4. मूल नियमों में, नियम 4 में, उप-नियम (1) में, "पूर्वेक्षण अनुज्ञप्ति-सह-खनन पट्टा का प्रत्येक धारक" शब्दों के स्थान पर "संयुक्त अनुज्ञप्ति का प्रत्येक धारक या संयुक्त अनुज्ञप्ति के अनुदान के लिए चयनित अधिमानित बोलीदाता" शब्द रखे जाएंगे।

5. मूल नियमों में, नियम 5 के उप-नियमों (1) और उप-नियम (2) में "और क्षेत्रीय नियंत्रक" शब्दों का लोप किया जाएगा।

6. मूल नियमों में, नियम 6 में, महा नियंत्रक और क्षेत्रीय नियंत्रक" शब्दों के स्थान पर "महा नियंत्रक" शब्द रखे जाएंगे।

7. मूल नियमों में, नियम 9 में,—

(i) उप-नियम (1), में, "सुसंगत पूर्वेक्षण अनुज्ञप्ति विलेख के निष्पादन की तिथि से बारह महीने की समाप्ति या पूर्वेक्षण अनुज्ञप्ति या पूर्वेक्षण अनुज्ञप्ति-सह-खनन पट्टे की समाप्ति होने के बाद, इनमें से जो भी पूर्ववर्ती हो," शब्दों के स्थान पर "सुसंगत अवीक्षण अनुज्ञा पत्र, पूर्वेक्षण अनुज्ञप्ति विलेख के निष्पादन की तारीख से बारह मास की समाप्ति या अवीक्षण अनुज्ञा पत्र, पूर्वेक्षण अनुज्ञप्ति या संयुक्त अनुज्ञप्ति, की समाप्ति होने के बाद, इनमें से जो भी पूर्ववर्ती हो" शब्द रखे जाएंगे;

(ii) उप-नियम (3) में, "प्रपत्र ख में एक वार्षिक रिपोर्ट" शब्दों के स्थान पर "प्रपत्र ख के साथ-साथ वार्षिक रिपोर्ट" शब्द रखे जाएंगे;

(iii) उप-नियम (4) में, "पूर्वेक्षण परिचालन" शब्दों के स्थान पर "अवीक्षण या पूर्वेक्षण संक्रियाएं" शब्द रखे जाएंगे;

(iv) उप-नियम (5) में,"पूर्वेक्षण अनुज्ञप्ति" शब्दों और अंकों के स्थान पर "अवीक्षण अनुज्ञा पत्र, पूर्वेक्षण अनुज्ञप्ति" शब्द रखे जाएंगे।

8. मूल नियमों में, नियम 11 में, उप-नियम (3) में, परंतुक में "नीचे" शब्द के स्थान पर "समतुल्य या उपरोक्त" शब्द रखें जाएंगे—

9. मूल नियमों में, नियम 12 में,—

(i) उप-नियम (3) में, "खनन पट्टे के अंतर्गत" शब्दों के पश्चात यथास्थिति, "खनिज (खनिज अंतर्वस्तु का साक्ष्य) नियम, 2015 या परमाणु खनिज रियायत नियम, 2016 में विनिर्दिष्ट रीति में", शब्द, कोष्ठक और अंक अंत:स्थापित किए जाएंगे;

(ii) उप-नियम (4) के स्थान पर निम्नलिखित उप-नियम को रखा जाएगा, अर्थात्:—

"(4) विद्यमान खनन पट्टे के मामले में, खनन पट्टे के अधीन संपूर्ण संभावित खनिजीकृत क्षेत्र में यथास्थिति खनिज (खनिज अंतर्वस्तु का साक्ष्य) नियम, 2015 या परमाणु खनिज रियायत नियम 2016, में विनिर्दिष्ट रीति में, इन नियमों के लागू होने की तारीख से पांच वर्ष की अवधि के भीतर विस्तृत गवेषण (जी1 स्तर) किया जाएगा।

(iii) उप-नियम (4क) के स्थान पर, निम्नलिखित उप-नियम रखे जाएंगे, अर्थात्:—

"(4क) अधिनियम की धारा 8क की उप-धारा (6) के अधीन आने वाले खनन पट्टों के मामलों में, जहां ऐसे पट्टे की अवधि की समाप्ति की तारीख 31 मार्च, 2022 या उससे पूर्व है, खनिज (खनिज अंतर्वस्तु का साक्ष्य) नियम, 2015 में विनिर्दिष्ट रीति में खनन पट्टे के अधीन संपूर्ण खनिजीकृत क्षेत्र पर सामान्य गवेषण (जी2 स्तर) करेंगे और 31 मार्च, 2022 या पट्टे की अवधि की समाप्ति की तारीख के पूर्व, इनमें से जो भी पहले हो, इन नियमों में यथाविनिर्दिष्ट रीति में एक भू-वैज्ञानिक रिपोर्ट तैयार करेंगे और राज्य सरकार तथा भारतीय खान ब्यूरो को प्रस्तुत करेंगे।

(4ख) उप-नियम (3) और उप-नियम (4) के अधीन किए गए गवेषण के लिए, खनन पट्टाधारक, राज्य सरकार और भारतीय खान ब्यूरो को गवेषण कार्य पूरा होने के तीन मास के भीतर, खनिज (खनिज अंतर्वस्तु का साक्ष्य) नियम, 2015 में विनिर्दिष्ट रीति में तैयार भूवैज्ञानिक अध्ययन रिपोर्ट प्रस्तुत करेगा।

(4ग) राज्य सरकार, इसके सत्यापन हेतु इस नियम के अधीन यथा प्रस्तुत भूवैज्ञानिक अध्ययन रिपोर्ट की तकनीकी लेखा परीक्षा करेगी और यदि पट्टाधारक यथा विनिर्दिष्ट अपने कर्तव्यों का निर्वहन करने में असफल रहता है तो राज्य सरकार, पट्टाधारक को सुनवाई का अवसर देने के पश्चात, ऐसा अनुपालन सुनिश्चित करने के लिए ऐसी कार्रवाई कर सकेगी, जैसा यह उचित समझे।"

10. मूल नियमों में, नियम 18 में, "महानियंत्रक" शब्द जहां कहीं वे आते हैं, के पश्चात, "या भारतीय खान ब्यूरो के प्राधिकृत अधिकारी" शब्द अंत:स्थापित किए जाएंगे।

11. मूल नियमों में, नियम 24 में, —

(i) उप-नियम (1) में, "खान को बंद करने" शब्दों के पश्चात "भारतीय खान ब्यूरो द्वारा यथा विनिर्दिष्ट शुल्क सहित या खनन पट्टे के समग्र अथवा आंशिक क्षेत्र का अभ्यर्पण" शब्द अंत:स्थापित किए जाएंगे;

(ii) उप-नियम (2) के पश्चात्, निम्नलिखित उप-नियम अंत:स्थापित किया जाएगा, अर्थात्:—

"(3) उप-नियम (1) के अधीन विनिर्दिष्ट अवधि के भीतर अंतिम खान बंदी योजना को प्रस्तुत नहीं करने पर यथास्थिति वित्तीय सुनिश्चयन या किसी खनन पट्टे को यथा लागू निष्पादन प्रतिभूति को जब्त कर लिया जाएगा जिसमें पट्टाधारक और राज्य सरकार के बीच खान विकास और उत्पादन करार पर हस्ताक्षर किए गए हैं तथा निष्पादन प्रतिभूति प्रस्तुत की गई है।"

12. मूल नियमों में, नियम 26 में, उप-नियम (2) में "प्रत्येक वर्ष जुलाई से पहले दिन से पूर्व" शब्दों के पश्चात "वार्षिक विवरणी के साथ" शब्द अंत:स्थापित किए जाएंगे।

13. मूल नियमों में, नियम 27 में, उप-नियम (1) में, —

(i) 'क' श्रेणी की खानों के लिए तीन लाख रूपये और 'ख' श्रेणी की खानों के लिए दो लाख रूपये" शब्दों और अंकों के स्थान पर "श्रेणी 'क' खानों के लिए पांच लाख रूपये और श्रेणी 'ख' खानों के लिए तीन लाख रूपये" शब्द और अंक रखे जाएंगे;

(ii) दूसरे परंतुक के स्थान पर निम्नलिखित परंतुक रखा जाएगा, अर्थात्: —

"परंतु यह और कि ऐसे खनन पट्टे के लिए उप नियम (1) के उपबंध लागू नहीं होंगे जिसमें पट्टाधारक और राज्य सरकार के बीच खान विकास और उत्पादन करार पर हस्ताक्षर किए गए हैं और निष्पादन प्रतिभूति प्रस्तुत की गई है।"

14 . मूल नियमों में, नियम 31 में,—

(i) उप-नियम (1) में, खंड (ख) में, "पत्र" शब्द के स्थान पर "टीका" शब्द रखा जाएगा;

(ii) उप-नियम (4) में, "तीन महीने के भीतर" शब्दों के स्थान पर "तीन मास के भीतर, उस वर्ष से संबंधित विभिन्न गतिविधियों हेतु स्वीकृत खनन योजना के संबंधित प्रस्ताव को भी दर्शा रहा है" शब्द अत:स्थापित किए जाएंगे।

15. मूल नियमों में, नियम 32 में, उप-नियम (1) में, खंड (क) में "चराई भूमि और सतह लाभकारी संयत्रों पर विलेय" शब्दों के के स्थान पर "चरागाह, सतह सज्जीकरण संयंत्रों" शब्द रखे जाएंगे।

16. मूल नियमों में, नियम 33 में 'नियम 32 के अंतर्गत अनुरक्षित' शब्दों के पश्चात "वार्षिक विवरणी के साथ" शब्द अंत:स्थापित किए जाएंगे।

17. मूल नियमों में, नियम 34 में, उप-नियम (1) के पश्चात्, निम्नलिखित उप-नियम अंत:स्थापित किया जाएगा, अर्थात् : —

"(1क) सभी योजनाओं और खंडों को अंतर वैश्विक स्थिति निर्धारण प्रणाली (डीजीपीएस) अथवा कुल स्टेशन या ड्रोन सर्वेक्षण के संयोजन का प्रयोग कर या पट्टों की कुछ या सभी श्रेणी के संबंध में भारतीय खान ब्यूरो द्वारा इस संबंध में यथा विनिर्दिष्ट का प्रयोग कर तैयार किया जाएगा।"

18. मूल नियमों में, नियम 34 के पश्चात्, निम्नलिखित नियम अंत:स्थापित किया जाएगा, अर्थात : —

"**34क खनन पट्टा क्षेत्र के डिजीटल चित्र**.— (1) प्रत्येक पट्टाधारक जिसके पास : —

(क) किसी विशेष वर्ष में एक मिलियन टन या उससे अधिक की वार्षिक उत्खनन योजना है; अथवा

(ख) पचास हेक्टेयर या उससे अधिक का पट्टा क्षेत्र है,

वह प्रत्येक वर्ष के अप्रैल या मई मास में पट्टा क्षेत्र का और पट्टा सीमा के बाहर सौ मीटर तक ड्रोन सर्वेक्षण करेगा तथा प्रत्येक वर्ष के जुलाई के पहले दिन या उससे पूर्व महानियंत्रक को ऐसे सर्वेक्षण में लिए तैयार [डिजीटल एलिवेशन मॉडल (डीईएम) और ऑर्थोमोसिक] चित्र या इस संबंध में भारतीय खान ब्यूरो द्वारा विनिर्दिष्ट किसी अन्य प्रारूप में प्रस्तुत करेगा;

(2) प्रत्येक पट्टाधारक, उप-नियम(1) के अधीन आने वाले पट्टाधारकों से भिन्न मेटाडेटा के साथ जियोटीआईएफएफ जैसे मानक प्रारूपों या इस संबंध में भारतीय खान ब्यूरो द्वारा यथा विनिर्दिष्ट किसी अन्य प्रपत्र में उस वर्ष के जुलाई के प्रथम दिन को या उससे पूर्व महानियंत्रक को, प्रत्येक वर्ष के अप्रैल से जून मास में लिया गया पट्टा क्षेत्र और पट्टा सीमा के बाहर सौ मीटर के हाई रिजोल्यूशन जियोरिफ्रेन्सड अर्थो-रेकटीफाइड मल्टीस्पेक्ट्रल उपग्रह चित्रों की सॉफ्ट प्रति प्रस्तुत करेगा ।

परंतु जिस पट्टाधारक ने उप-नियम (3) के अधीन चित्रों को प्रस्तुत कर दिया है उसे उस वर्ष के लिए इस उप-नियम के अधीन चित्रों को प्रस्तुत करना अपेक्षित नहीं होगा जिस वर्ष में उप-नियम (3) के अधीन चित्र प्रस्तुत किए गए हैं।

(3) प्रत्येक पट्टाधारक अनुमोदन हेतु भारतीय खान ब्यूरो को किसी खनन योजना दस्तावेज अथवा उसके उपांतरण प्रस्तुत करने से पूर्व छह मास के भीतर अपने पट्टा क्षेत्र तथा पट्टा सीमा के बाहर सौ मीटरों तक का ड्रोन सर्वेक्षण करेगा और ऐसे सर्वेक्षण में प्राप्त प्रसंस्कृत [डिजिटल एलिवेशन मॉडल (डीईएम) और ऑर्थोमोसिक] चित्रों या इस संबंध में भारतीय खान ब्यूरो द्वारा यथा-विनिर्दिष्ट किसी अन्य प्रारूप में खनन योजना के अनुमोदन या उपांतरण हेतु आवेदन सहित संबंधित क्षेत्रीय खान नियंत्रक और महानियंत्रक को प्रस्तुत करेगा:

परंतु पट्टाधारक जिसने खनन पट्टा दस्तावेज को प्रस्तुत करने से ठीक पूर्व वाले जुलाई के प्रथम दिन या उससे पूर्व उप-नियम (1) के अधीन चित्र प्रस्तुत किए हैं उसे उप-नियम (3) के अधीन प्रस्तुत करना आवश्यक नहीं होगा।

(4) सभी अधिमानित बोलीदाता, जिन्हें खनन पट्टे के अनुदान हेतु आशय पत्र जारी किया गया है, वे नीलामी के माध्यम से दिए गए खनन ब्लॉक का ब्लॉक सीमा से बाहर सौ मीटरों तक का ड्रोन सर्वेक्षण करेंगे तथा खनन योजना सहित ऐसे सर्वेक्षण से प्राप्त प्रसंस्कृत [डिजिटल एलिवेशन मॉडल (डीईएम) और ऑर्थोमोसिक] चित्रों या इस संबंध में भारतीय खान ब्यूरो द्वारा यथा-विनिर्दिष्ट किसी अन्य प्रारूप में क्षेत्रीय नियंत्रक और महानियंत्रक को प्रस्तुत करेंगे।

(5) ड्रोन सर्वेक्षण करने के लिए मानक प्रचालन प्रक्रिया और प्रस्तुत किए जाने वाले डेटा के प्रपत्र को समय-समय पर भारतीय खान ब्यूरो द्वारा विनिर्दिष्ट किया जाएगा:

परंतु भारतीय खान ब्यूरो, ड्रोनों के प्रयोग को विनियमित करने के लिए तत्समय प्रवृत्त किसी कानून के अधीन ड्रोनों के प्रयोग पर किसी प्रतिबंध के मामले में, सर्वेक्षण और डेटा या चित्रों की प्रस्तुति के लिए उप-नियम (1) से उप-नियम (4) में विनिर्दिष्ट पद्धति से भिन्न कोई वैकल्पिक पद्धति निर्धारित कर सकेगा।"

19. मूल नियमों में, नियम 35 में, —

(i) उप-नियम (2) के स्थान पर, निम्नलिखित उप-नियम रखा जाएगा, अर्थात्: —

"(2) किसी खनन पट्टा का प्रत्येक धारक, भारतीय खान ब्यूरो द्वारा समय-समय पर इस संबंध में विनिर्दिष्ट प्रपत्र में स्टार रेटिंग के टेम्पलेट के अनुसार खनन और सहबद्ध क्रियाकलापों की निगरानी करेगा और नियम 34क के अधीन खनन पट्टे के डिजिटल चित्रों के साथ पिछले वित्तीय वर्ष हेतु प्रत्येक वर्ष जुलाई के प्रथम दिन से पूर्व अपनी स्व-मूल्यांकित रिपोर्ट क्षेत्रीय नियंत्रक या भारतीय खान ब्यूरो के प्राधिकृत अधिकारी को ऑनलाइन प्रस्तुत करेगा:

परंतु उन खनन पट्टाधारकों, जो यथाविनिर्दिष्ट टेम्पलेट को नहीं भरते हैं और प्रस्तुत नहीं करते हैं, को उप-नियम (4) के अधीन यथा उपबंधित अर्हक स्टार रेटिंग से निम्न का स्व-निर्धारित स्टार रेटिंग समझा जाएगा और तदनुसार कार्रवाई प्रारंभ की जाएगी।";

(ii) उप-नियम (4) के स्थान पर, निम्नलिखित उप-नियम रखे जाएंगे, अर्थात: —

"(4) प्रत्येक खनन पट्टाधारक, 27 फरवरी, 2017 से यथास्थिति चार वर्षों की अवधि या खनन संक्रियाओं के प्रारंभ की तारीख से चार वर्षों के भीतर, कम से कम तीन स्टार प्राप्त करेगा और तत्पश्चात उसे वर्ष-दर-वर्ष बनाए रखेगा।

(4क) क्षेत्रीय नियंत्रक या भारतीय खान ब्यूरो का प्राधिकृत अधिकारी उन खानों में खनन संक्रियाएं स्थगित कर सकेगा जहां—

(क) 27 फरवरी, 2017 से यथास्थिति, चार वर्षों की अवधि या खनन संक्रियाओं के प्रारंभ की तारीख से चार वर्षों, के भीतर कम से कम तीन स्टार रेटिंग प्राप्त नहीं की गई है, या

(ख) वर्ष दर वर्ष आधार पर कम से कम तीन स्टार रेटिंग बनाए नहीं रखी गई है, या

(ग) जहां पट्टेदार यथास्थिति, स्टार रेटिंग की अर्हता प्राप्त करने या स्टार रेटिंग टेम्पलेट प्रस्तुत करने के लिए पैंतालीस दिनों का कारण बताओ नोटिस देने के पश्चात्, स्टार रेटिंग टेम्पलेट प्रस्तुत करने में असफल रहा है।

(4ख) उप-नियम(2) में यथा उल्लिखित टेम्पलेट को फाइल नहीं करने की दशा में, खनन पट्टाधारक, ऐसी देरी के लिए भारतीय खान ब्यूरो के प्राधिकृत अधिकारी को दस हजार रूपये प्रतिदिन संदाय करने का दायी होगा।";

(iii) उप-नियम (5) में, "उप-नियम (3), (4) और (5)" शब्दों, कोष्ठकों और अंकों के स्थान पर "उप-नियमों (3), (4), (4क), (4ख) और (5)" शब्दों, कोष्ठक और अंक रखे जाएंगे।

20. मूल नियम में, नियम 45 में,—

(i) उप-नियम (1), (2) और (4) में "खनन पट्टा", शब्द, जहां कहीं वे आते हैं, के स्थान पर "खनिज रियायत"शब्द रखे जाएंगे;

(ii) उप-नियम (1), (2), (4), (6), (7), (9), (11) और (12) में,"निर्यात" शब्द, जहां कहीं वह आता है, के स्थान पर "निर्यात या आयात"शब्द रखे जाएंगे:

(iii) उप-नियम (1) में, "देश में खानों" शब्दों का लोप किया जाएगा।

(iv) उप-नियम (2) में, "लीज विलेख के रजिस्ट्रीकरण" शब्दों के स्थान पर "यथा स्थिति, परमिट, अनुज्ञप्ति या पट्टा विलेख का अनुदान या रजिस्ट्रीकरण" शब्द रखे जाएंगे;

(v) उप-नियम (5) में,—

(क) "क्षेत्रीय नियंत्रक या भारतीय खान ब्यूरो के किसी भी अन्य प्राधिकृत अधिकारी" शब्दों के स्थान पर "क्षेत्रीय नियंत्रक और भारतीय खान ब्यूरो के किसी भी प्राधिकृत अधिकारी" शब्द रखे जाएंगे;

(ख) खंड (क) का लोप किया जाएगा;

(vi) उप-नियम (7) में,—

(क) "दैनिक या" शब्दों का लोप किया जाएगा;

(ख) खंड (क) में, "राज्य सरकार को सलाह दे सकते हैं" शब्दों के स्थान पर "या राज्य सरकार के प्राधिकृत अधिकारी द्वारा किया जा सकता है" शब्द रखे जाएंगे; तथा "सभी खनन कार्रवाईयों" शब्दों के स्थान पर "और प्रेषण" शब्द अंत:स्थापित किए जाएंगे;

(ग) खंड (ग) में, परंतुक का लोप किया जाएगा;

(vii) उप-नियम (7) के पश्चात्, निम्नलिखित उप-नियम अंत:स्थापित किया जाएगा, अर्थात्:—

"(7क)(i) उप-नियम (7) के अधीन विनिर्दिष्ट किसी कार्रवाई को करने से पूर्व, संबंधित प्राधिकारी यथा स्थिति, किसी खनन पट्टा धारक या व्यक्ति या कंपनी को उप-नियम (7) के अधीन किए गए उल्लंघनों को सूचित करते हुए तथा कारणों के बारे में पूछते हुए कारण बताओ नोटिस जारी करेगा, कि क्यों नहीं ऐसे धारक, व्यक्ति या

कंपनी के विरूद्ध उप-नियम (7) के अधीन कार्रवाई की जाए और ऐसी सूचना में वर्णित उल्लंघन के उत्तर और सुधार हेतु तीस दिनों की अवधि प्रदान करेगा;

(ii) यदि ऐसा धारक, व्यक्ति या कंपनी,—

(क) कारण बताओ नोटिस में वर्णित उल्लंघन में सुधार करता है और नोटिस प्राप्त होने की तारीख से तीस दिनों की उक्त अवधि के भीतर, विवरणी प्रस्तुत करने की नियत तारीख से उल्लंघन के सुधार के दिन तक की अवधि के लिए अनुसूची-II में यथा विनिर्दिष्ट ऐसी रकम जमा करता है, तो आगे कोई कार्रवाई नहीं की जाएगी;

(ख) तीस दिनों की उक्त अवधि के भीतर संतोषजनक उत्तर नहीं देता है या उल्लंघन में सुधार नहीं करता है तो खनन प्रचालनों और प्रेषणों को निलंबित कर दिया जाएगा और उप-नियम (7) के अधीन कोई कार्रवाई की जा सकेगी;

(iii) खनन प्रचालनों का निलंबन, उल्लंघन-सह-कारण बताओ नोटिस में यथा इंगित उल्लंघन में सुधार और विवरणी प्रस्तुत करने की नियत तारीख से उल्लंघन में सुधार की तारीख तक की अवधि के लिए अनुसूची-II में यथा-विनिर्दिष्ट ऐसी रकम जमा कराने के बाद ही रद्द किया जा सकेगा।"

21. मूल नियमों में, नियम 49 के स्थान पर निम्नलिखित नियम रखा जाएगा, अर्थात्:—

"49. खान के नाम के परिवर्तन को सूचित किया जाना- राज्य सरकार स्वयं या पट्टाधारक से आवेदन की प्राप्ति पर, खान के नाम को परिवर्तित कर सकेगी और ऐसा परिवर्तन होने पर, वह ऐसे परिवर्तन से तीस दिनों के भीतर पट्टाधारक और क्षेत्रीय नियंत्रक को अवगत करायेगी।"

22. मूल नियमों में, नियम 55 में,—

(i) उप-नियम (1) में,—

(क) खंड 3 के स्थान पर, निम्नलिखित खंड रखा जाएगा, अर्थात्: —

"3. प्रत्येक खनन पट्टाधारक, यदि: —

(i) पच्चीस हेक्टेयर के बराबर या उससे अधिक पट्टा क्षेत्र वाली श्रेणी 'क' खानें हैं, तो एक पूर्णकालिक खनन इंजीनियर और एक भूविज्ञानी नियोजित करेगा;

(ii) पच्चीस हेक्टेयर से कम पट्टा क्षेत्र वाली श्रेणी 'क' खानें और श्रेणी 'ख' खानें हैं; तो एक अंशकालिक खनन इंजीनियर और एक अंशकालिक भूविज्ञानी नियोजित करेगा:

परंतु पूर्णत: मशीनीकृत श्रेणी 'क' खानों के मामले में, खनन इंजीनियरों और भूविज्ञानियों के पास खनन के क्षेत्र में पर्यवेक्षी क्षमता में काम करने का न्यूनतम पांच वर्षों का व्यवसायिक अनुभव होगा";

(ख) खंड 3 के पश्चात, निम्नलिखित खंड अंत:स्थापित किया जाएगा, अर्थात:—

"4. ऐसी नियुक्ति या निलंबन के नोटिस की सूचना को नियम 45 के अधीन मासिक और वार्षिक विवरणी में दिया जाएगा।"

(ii) उप-नियम (6) में,—

(क) "खनन इंजीनियर : एक केंद्रीय अधिनियम" से आरंभ होने वाले और "या अन्य समकक्ष अर्हता" से अंत होने वाले पैरा के स्थान पर निम्नलिखित पैरा रखा जाएगा, अर्थात् :—

"पूर्णकालिक खनन इंजीनियर:	केंद्रीय अधिनियम, प्रांतीय अधिनियम या राज्य अधिनियम द्वारा या उसके अधीन स्थापित या सम्मिलित विश्वविद्यालय द्वारा अनुदत्त खनन इंजीनियरी में डिग्री, जिसके अंतर्गत विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 (1956 का 3) की धारा 4 के अधीन स्थापित विश्वविद्यालय अनुदान आयोग द्वारा मान्यताप्राप्त संस्थान भी है या खान सुरक्षा महानिदेशक द्वारा जारी द्वितीय श्रेणी सक्षमता प्रमाणपत्र के साथ-साथ सम्यक रूप से मान्यताप्राप्त संस्थान द्वारा अनुदत्त खनन और खान

	सर्वेक्षण में समतुल्य अर्हता या डिप्लोमा।
अंशकालिक खनन इंजीनियर:	केंद्रीय अधिनियम, प्रांतीय अधिनियम या राज्य अधिनियम द्वारा या उसके अधीन स्थापित या सम्मिलित विश्वविद्यालय द्वारा अनुदत्त खनन इंजीनियरी में डिग्री जिसके अंतर्गत विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 (1956 का 3) की धारा 4 के अधीन स्थापित विश्वविद्यालय अनुदान आयोग द्वारा मान्यताप्राप्त संस्थान भी है या खान सुरक्षा महानिदेशक द्वारा जारी द्वितीय श्रेणी सक्षमता प्रमाणपत्र या फोरमैन सक्षमता प्रमाणपत्र के साथ-साथ सम्यक रूप से मान्यताप्राप्त संस्थान द्वारा प्रदत्त खनन और खान सर्वेक्षण में समतुल्य अर्हता या डिप्लोमा।"

23. मूल नियमों में, नियम 62 के स्थान पर निम्नलिखित नियम रखा जाएगा, अर्थात्:—

"61. शास्ति— (1) नियम 4 से 9, नियम 11 के उप नियम (1), (2), और (3), नियम 13 से 17, 21, 24, 26, 27, 30, 32 से 42, 44, 45, 47, 48, 50, 52 से 54, 58, 60, 63, 67 और 72 का उल्लंघन ऐसी अवधि के कारावास जिसे दो वर्षों तक बढ़ाया जा सकेगा या जुर्माना जिसे पांच लाख रूपये तक बढ़ाया जा सकेगा या दोनों के साथ दंडनीय होगा और यदि इस प्रकार का उल्लंघन, ऐसे प्रथम उल्लंघन के लिए दोषी ठहराए जाने के बाद भी जारी रहने की दशा में, प्रतिदिन पचास हजार रूपये तक के अतिरिक्त जुर्माने से दंडनीय हो सकेगा।

(2) नियम 11 के उप नियम (4), नियम 12, 18, 19, 20, 23, 28, 29, 46, 51 और 55 का कोई भी उल्लंघन अनुसूची-III में यथाविनिर्दिष्ट रकम के जुर्माने से दंडनीय होगा।

(3) अधिनियम की प्रथम अनुसूची के भाग ख में विनिर्दिष्ट खनिजों, जहां ऐसे परमाणु खनिज की श्रेणी का प्रारंभिक मूल्य परमाणु खनिज रियायत नियम, 2016 की अनुसूची-क के अंतर्गत घोषित प्रारंभिक मूल्य के यथास्थिति, बराबर या उससे अधिक है, के संबंध में महानियंत्रक या निदेशक, परमाणु खनिज अन्वेषण और अनुसंधान निदेशालय द्वारा इस संबंध में विनिर्दिष्ट ऐसी राशि को सरकार के खाते में जमा कराने हेतु, इन नियमों के अधीन किसी भी दंडनीय अपराध पर मुकदमा चलाने से पूर्व या पश्चात् उस अपराध के संबंध में न्यायालय में शिकायत करने के लिए अधिनियम की धारा 22 के अधीन प्राधिकृत व्यक्ति को भुगतान करने पर, उसके द्वारा उस अपराध को शमन किया जा सकेगा:

परंतु केवल जुर्माने से दंडनीय किसी अपराध के मामले में, ऐसी राशि, उस अपराध के लिए अधिरोपित की जाने वाली अधिकतम रकम से अधिक नहीं होगी:

परंतु यह और कि जहां इन नियमों के अधीन अपराध शमनीय है, वहां ऐसे शमन किए गए अपराध के संबंध में अपराधी के विरूद्ध, यथास्थिति, कोई कार्यवाही या अगली कार्यवाही नहीं की जाएगी; और अपराधी यदि अभिरक्षा में है, तो उसे तुरंत छोड़ दिया जाएगा।"

24. मूल नियमों में, नियम 71 के स्थान पर, निम्नलिखित नियम रखा जाएगा, अर्थात:—

"71. फार्मेट, टेम्प्लेटों और नियम पुस्तकों का पुनर्विलोकन— यथास्थिति, भारतीय खान ब्यूरो या निदेशक, परमाणु खनिज अन्वेषण और अनुसंधान निदेशालय, आवीक्षण स्कीम, पूर्वेक्षण स्कीम, खनन योजना, खान समापन योजना के फॉर्मेटों तथा इसके द्वारा प्रदत्त खानों की स्टार रेटिंग के टेम्प्लेटों को पणधारियों से परामर्श के पश्चात्, उचित समझे गये ऐसे अंतराल पर, पुनरीक्षित या अद्यतित कर सकेगा।**"**

25. मूल नियमों में, नियम 71 के पश्चात, निम्नलिखित नियम अंत:स्थापित किया जाएगा, अर्थात्:—

"71क. किसी अपेक्षा के पूर्ण होने का दिन — जब इन नियमों के अधीन किसी अपेक्षा के पूर्ण होने का दिन, किसी सार्वजनिक छुट्टी को पड़ रहा है, तो इसके पूर्ण होने का दिन, अगले कार्य दिवस को समझा जाएगा।

स्पष्टीकरण- इन नियमों के प्रयोजनों के लिए "सार्वजनिक अवकाश" में शनिवार, रविवार और यथास्थिति केंद्रीय सरकार या राज्य सरकार द्वारा घोषित सार्वजनिक छुट्टी सम्मिलित हैं।**"**

26. मूल नियमों में, अनुसूची को अनुसूची—1 के रूप में संख्यांकित किया जाएगा और इस प्रकार संख्यांकित अनुसूची—I के पश्चात् —

(i) प्ररूप ट में, "निर्यात" शब्द, जहां कहीं वह आता है, के स्थान पर "निर्यात या आयात," शब्द रखे जाएंगे।

(ii) अनुसूची—1 के पश्चात, निम्नलिखित अनुसूचियां अंत:स्थापित की जाएंगी, अर्थात्:—

"अनुसूची-2

[नियम 45 (7क) देखें]

नियम 45 के अधीन उल्लंघन के मामले में भुगतान की जाने वाली रकम

मद	रकम (रूपये में)	स्पष्टीकरण
(1)	(2)	(3)
नियत तारीख तक प्रस्तुत नहीं करने पर या प्ररूप च1, च2, च3 में मासिक विवरणी में अपूर्ण/गलत/मिथ्या सूचना देने पर	नियम में यथा-विनिर्दिष्ट विवरणी जमा करने की नियत तारीख के पश्चात उल्लंघन में सुधार तक प्रति दिन 10,000/- रूपये	पट्टाधारक द्वारा किए जाने वाले, आवश्यक सुधारों को सम्मिलित करने हेतु भारतीय खान ब्यूरो द्वारा संदर्भित वापसी विवरणी के मामले में और यदि आबंटित समय सीमा के भीतर सुधार कर लिया जाता है और उसके बाद भारतीय खान ब्यूरो द्वारा स्वीकृत कर लिया जाता है, तो ऐसे सुधारों की मध्यावधि के लिए कोई रकम, देय नहीं होगी। ऐसे मामलों में सुधार नहीं किए जाने पर यथा विनिर्दिष्ट भुगतान करना होगा।
नियत तारीख तक प्रस्तुत नहीं करने पर या प्ररूप छ1, छ2, छ3 में वार्षिक विवरणी में अपूर्ण/गलत/मिथ्या सूचना देने पर	नियम में यथा-विनिर्दिष्ट विवरणी जमा करने की नियत तारीख के पश्चात उल्लंघन में सुधार तक प्रति दिन 10,000/- रूपये	
नियत तारीख तक प्रस्तुत नहीं करने या प्ररूप ठ में मासिक विवरणी में अपूर्ण/गलत/मिथ्या सूचना देने पर	नियम में यथा-विहित विवरणी जमा करने की नियत तारीख के पश्चात उल्लंघन में सुधार तक प्रति दिन 5,000/- रूपये	
नियत तारीख तक प्रस्तुत नहीं करने पर या प्ररूप ड में वार्षिक विवरणी में अपूर्ण/गलत/मिथ्या सूचना देने पर	नियम में यथा-विहित विवरणी जमा करने की नियत तारीख के पश्चात उल्लंघन में सुधार तक प्रति दिन 5,000/- रूपये	

अनुसूची-3

[नियम 62(2) देखें]

<u>नियम जिनका उल्लंघन जुर्माने से दण्डनीय होगा</u>

नियम संख्या	नियम का पार्श्व शीर्ष	जुर्माने की रकम (रूपये में)
(1)	(2)	(3)
नियम 11 का उप-नियम(4)	खनन पट्टे के अधीन खनन प्रचालन	अधिकतम 5,00,000/- के अध्यधीन 2,000/- प्रतिदिन
12	पूर्वेक्षण और खनन प्रचालन	5,00,000/-
18	किया जाने वाला सज्जीकरण अध्ययन	5,00,000/-
19	मशीनरी और संयंत्र	5,00,000/-
20	खान खोलने हेतु सूचना	5,00,000/-

23	प्रगामी खान बंदी योजना प्रस्तुत करना	5,00,000/-
28	खानों में अस्थायी रूप से कार्य बंद की सूचना और पट्टाधारकों की बाध्यताएं	5,00,000/-
29	खान को पुन: खोलने की सूचना	5,00,000/-
46	कतिपय नियुक्तियों की सूचना	अधिकतम 1,00,000 के अध्यधीन 2,000/-प्रतिदिन
51	खनन पट्टे के समामेलन की सूचना	नियम में यथा विहित नियत तारीख के पश्चात अधिकतम 1,00,000 के अध्यधीन 2,000 रूपये प्रतिदिन
55	भूवैज्ञानिकों और खनन इंजीनियरों का नियोजन	5,00,000/-

[फा. सं. एम.VI-8/1/2021-माइंस VI]

डॉ. वीणा कुमारी डरमल, संयुक्त सचिव

टिप्पण : मूल नियम भारत के राजपत्र, भाग II, खंड 3, उपखंड (i) में अधिसूचना संख्यांक सा.का.नि. 169(अ) तारीख 27 फरवरी, 2017 द्वारा प्रकाशित किए गए थे और उनका अंतिम संशोधन सा.का.नि. 570(अ) तारीख 13 अगस्त, 2019 द्वारा किया गया था।

MINISTRY OF MINES

NOTIFICATION

New Delhi, the 3rd November, 2021.

G.S.R. 780(E).—In exercise of the powers conferred by section 18 of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957), the Central Government hereby makes the following rules further to amend the Mineral Conservation and Development Rules, 2017, namely:—

1. (1) These rules may be called the Mineral Conservation and Development (Amendment) Rules, 2021.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Throughout in the Mineral Conservation and Development Rules, 2017 (hereinafter referred to as the principal rules), for the words "prospecting licence-cum-mining lease" and "prospecting license-cum-mining lease", wherever they occur [except sub-rule (1) of rule 4], the words "composite licence" shall be substituted.

3. In the principal rules, in rule 3, after sub-rule (2), the following sub-rule shall be inserted, namely:—

"(3) Throughout these rules, wherever any power, function or responsibility of the Indian Bureau of Mines or its officers is specified or any information is to be submitted to the Indian Bureau of Mines or its officers, the same shall be deemed as power, function or responsibility of the Atomic Minerals Directorate for Exploration and Research or its officers or requirement of submission of information to the said Directorate or its officers in respect of minerals specified in Part B of the First Schedule to the Act where the grade of such atomic minerals is equal to or above the threshold value limits declared under Schedule-A of the Atomic Minerals Concession Rules, 2016, in the following manner, namely:-

(a) any reference to the Indian Bureau of Mines, to be deemed as reference to the Atomic Minerals Directorate for Exploration and Research;

(b) any reference to the Controller General or the Chief Controller of Mines or the Controller of Mines or the Regional Controller or the authorised officer of Indian Bureau of Mines, to be deemed as reference to the Director or as the case may be, the authorised officer of Atomic Minerals Directorate for Exploration and Research.".

4. In the principal rules, in rule 4, in sub-rule (1), for the words "prospecting license-cum-mining lease" the words "composite licence or the preferred bidder selected for grant of composite licence" shall be substituted.

5. In the principal rules, in sub-rule (1) and sub-rule (2) of rule 5, the words "and Regional Controller" shall be omitted.

6. In the principal rules, in rule 6, for the words "the Controller General and Regional Controller", the words "Controller General" shall be substituted.

7. In the principal rules, in rule 9,—

(i) in sub-rule (1), for the words "from the date of execution of the relevant prospecting licence deed or the expiry of the prospecting licence or prospecting license-cum-mining lease, whichever is earlier", the words "from the date of execution of the relevant reconnaissance permit, prospecting licence deed or the expiry of the reconnaissance permit, prospecting licence or composite licence, whichever is earlier" shall be substituted;

(ii) in sub-rule (3), for the words "yearly report in Form B", the words "yearly report along with Form B" shall be substituted;

(iii) in sub-rule (4), for the words "prospecting operations", the words "reconnaissance or prospecting operations" shall be substituted;

(iv) in sub-rule (5), for the words "prospecting licence", the words and figure "reconnaissance permit, prospecting licence" shall be substituted.

8. In the principal rules, in rule 11, in sub-rule (3), in the proviso, for the word "below", the words "equal to or above" shall be substituted.

9. In the principal rules, in rule 12,—

(i) in sub-rule (3), after the words "under the mining lease," the words, brackets and figures "in the manner specified in the Minerals (Evidence of Mineral Contents) Rules, 2015 or the Atomic Minerals Concession Rules, 2016, as the case may be," shall be inserted;

(ii) for sub-rule (4), the following sub-rule shall be substituted, namely: —

"(4) In the case of existing mining leases, detailed exploration (G1 level) over the entire potentially mineralised area under the mining lease shall be carried out in the manner specified in the Minerals (Evidence of Mineral Contents) Rules, 2015 or the Atomic Minerals Concession Rules, 2016, as the case may be, within a period of five years from the date of commencement of these rules.";

(iii) for sub-rule (4A), the following sub-rules shall be substituted, namely:—

"(4A) In case of mining leases covered under sub-section (6) of section 8A of the Act where the date of expiry of the period of such lease is on or before 31st March, 2022, the holders of such mining lease shall carry out general exploration (G2 level) over the entire mineralised area under the mining lease in the manner specified in the Minerals (Evidence of Mineral Contents) Rules, 2015 and prepare and submit to the State Government and the Indian Bureau of Mines, a Geological Study Report prepared in the manner specified in the said rules before the 31st March, 2022 or date of expiry of lease, whichever is earlier.

(4B) For the exploration done under sub-rule (3) and (4), the holder of mining lease shall submit to the State Government and the Indian Bureau of Mines, a Geological Study Report prepared in the manner specified in the Minerals (Evidence of Mineral Contents) Rules, 2015, within three months after the completion of the exploration work.

(4C) The State Government shall conduct technical audit of Geological Study Report as submitted under this rule for its verification and in case lease holder fails to perform his duties as so specified, the State Government may, after giving the lease holder an opportunity of being heard, take such action for enforcing compliance, as it deems fit.".

10. In the principal rules, in rule 18, after the words "Controller General", wherever they occur, the words "or the authorised officer of Indian Bureau of Mines" shall be inserted.

11. In the principal rules, in rule 24,—

(i) in sub-rule (1), after the words, "closure of the mine", the words "or surrender of the entire or part area of the mining lease, accompanied by such fee as may be specified by the Indian Bureau of Mines" shall be inserted;

(ii) after sub-rule (2), the following sub-rule shall be inserted, namely:—

"(3) Non-submission of final mine closure plan within the period specified under sub-rule (1) will attract the forfeiture of financial assurance, or, as the case may be, performance security as applicable for a mining lease wherein the Mine Development and Production Agreement has been signed between the lessee and the State Government and performance security has been submitted.".

12. In the principal rules, in rule 26, in sub-rule (2), after the words "before 1st day of July every year", the words "along with annual return" shall be inserted.

13. In the principal rules, in rule 27, in sub-rule (1),—

(i) for the words and letters "three lakh rupees for Category 'A' mines and two lakh rupees for Category 'B' mines", the words and letters "five lakh rupees for Category 'A' mines and three lakh rupees for Category 'B' mines" shall be substituted;

(ii) for the second proviso, the following proviso shall be substituted, namely:—

"Provided further that the provisions of sub-rule (1) shall not be applicable for a mining lease wherein the Mine Development and Production Agreement has been signed between the lessee and the State Government and performance security has been submitted.".

14. In the principal rules, in rule 31,—

(i) in sub-rule (1), in clause (b), for the words "the letter", the word "observation" shall be substituted;

(ii) in sub-rule (4), for the words "within three months", the words "showing also the respective proposal of approved mining plan for various activities pertaining to that year, within three months" shall be inserted.

15. In the principal rules, in rule 32, in sub-rule (1), in clause (a), for the words "grazing land and subsidence on the surface beneficiation plants", the words "grazing land, surface beneficiations plants" shall be substituted.

16. In the principal rules, in rule 33, after the words "maintained under rule 32", the words "alongwith the annual return" shall be inserted.

17. In the principal rules, in rule 34, after sub-rule (1), the following sub-rule shall be inserted, namely:—

"(1A) All plans and sections shall be prepared by using a combination of Differential Global Positioning System (DGPS) or Total Station or by the use of drone survey or as may be specified in this regard by the Indian Bureau of Mines in relation to certain or all category of leases.".

18. In the principal rules, after rule 34, the following rule shall be inserted, namely:—

"**34A. Digital aerial images of mining lease area.**— (1) Every lessee having—

(a) an annual excavation plan of one million tonne or more in a particular year; or

(b) leased area of fifty hectare or more,

shall carry out a drone survey of the leased area and upto hundred metres outside the lease boundary in the month of April or May every year and submit the processed output [digital elevation model (DEM) and Orthomosaic] images obtained from such survey or any other format

as may be specified by the Indian Bureau of Mines in this regard to the Controller General on or before 1st day of July every year.

(2) Every lessee, other than those covered under sub-rule (1), shall submit soft copy of high resolution Georeferenced Ortho-rectified Multispectral satellite images of the leased area and upto hundred metres outside the lease boundary taken in the month of April to June of every year, to the Controller General on or before 1st day of July of the that year in the standards formats such as GeoTIFF along with metadata or any other format as may be specified by the Indian Bureau of Mines in this regard:

Provided that the lessee who has submitted images under sub-rule (3) shall not be required to submit the images under this sub-rule for the year in which images are submitted under sub-rule (3).

(3) Every lessee shall carry out a drone survey of his leased area and upto hundred metres outside the lease boundary within six months before submission of any mining plan document or modification thereto to the Indian Bureau of Mines for approval and shall submit processed output [digital elevation model (DEM) and Orthomosaic] images obtained from such survey or any other format as may be specified by the Indian Bureau of Mines in this regard to the concerned Regional Controller of Mines and the Controller General along with the application for approval or modification of mining plan:

Provided that the lessee who has submitted the images under sub-rule (1) on or before the 1st day of July falling immediately before submission of mining plan document, shall not be required to submit the same under sub-rule (3).

(4) All preferred bidders who are issued with a letter of intent for grant of a mining lease shall carry out a drone survey of the mining block granted through auction and upto hundred metres outside the block boundary and submit the processed output [digital elevation model (DEM) and Orthomosaic] images obtained from such survey or any other format as may be specified by the Indian Bureau of Mines in this regard along with the mining plan to the Regional Controller and the Controller General.

(5) The standard operating procedure for carrying out the drone survey and form of the data to be submitted shall be specified by the Indian Bureau of Mines from time to time:

Provided that the Indian Bureau of Mines may specify any alternate mechanism for survey and submission of data or images other than the mechanism specified in sub-rules (1) to (4), in case of any restriction on use of drones under any law for the time being in force regulating the use of drones.".

19. In the principal rules, in rule 35,—

(i) for sub-rule (2), the following sub-rule shall be substituted, namely:—

"(2) Every holder of a mining lease shall monitor his mining and allied activities as per the template of star rating in the format specified in this behalf by the Indian Bureau of Mines from time to time, and shall submit online its self-assessment report before the 1st day of July every year for the previous financial year, alongwith the digital images of mining lease area under rule 34A, to the Regional Controller or the authorised officer of the Indian Bureau of Mines:

Provided that those mining lease holders who do not fill and submit the template as specified shall be deemed self-assessed star rating below the qualifying star rating as provided under sub-rule (4) and action shall be initiated accordingly.";

(ii) for sub-rule (4), the following sub-rules shall be substituted, namely:—

"(4) Every holder of a mining lease shall achieve at least three-star rating within a period of four years with effect from the 27th February, 2017 or four years from the date of commencement of mining operations, as the case may be, and thereafter maintain the same on year- on- year basis.

(4A) The Regional Controller or the authorised officer of the Indian Bureau of Mines may suspend the mining operations in those mines where,—

(a) at least three-star rating has not been achieved within a period of four years with effect from the 27th February, 2017 or four years from the date of commencement of mining operations, as the case may be, or

(b) at least three-star rating has not been maintained on year-on-year basis, or

(c) where the lessee has failed to submit the star rating template,

after giving a show cause notice of forty-five days to qualify for star rating or submit star rating template, as the case may be.

(4B) In case of non-filing of template as stated in sub-rule (2), the holder of mining lease shall be liable to pay an amount of ten thousand rupees per day for such delay to the authorised officer of the Indian Bureau of Mines.";

(iii) in sub-rule (5), for the words, brackets and figures "sub-rules (3), (4) and (5)", the words, brackets and figures "sub-rules (3), (4), (4A), (4B) and (5)" shall be substituted.

20. In the principal rules, in rule 45,—

(i) in sub-rules (1), (2) and (4), for the words "mining lease", wherever they occur, the words "mineral concession" shall be substituted;

(ii) in sub-rules (1), (2), (4), (6), (7), (9), (11) and (12), for the word "export", wherever they occur, the words "export or import" shall be substituted;

(iii) in sub-rule (1), the words "mines in the country" shall be omitted;

(iv) in sub-rule (2), for the words and figure "registration of the lease deed", the words "grant or registration of the permit, licence or lease deed, as the case may be," shall be substituted;

(v) in sub-rule (5),—

(a) for the word "Regional Controller or any other authorised official", the words "Regional Controller and the authorised officer" shall be substituted;

(b) clause (a) shall be omitted;

(vi) in sub-rule (7),—

(a) the words "daily or" shall be omitted;

(b) in clause (a), for the words "may advise the State Government to" the words "or the authorised officer of the State Government may" shall be substituted; and after the words "all mining operations", the words "and dispatches" shall be inserted;

(c) in clause (c), the proviso shall be omitted;

(vii) after sub-rule (7), the following sub-rule shall be inserted, namely:—

"(7A) (i) Before taking any action specified under sub-rule (7), the relevant authority shall issue a show cause notice to the holder of a mining lease or the person or company, as the case may be, informing about the violation made under sub-rule (7) and asking reasons as to why action under sub-rule (7) shall not be taken against such holder, person or company and shall give thirty days time for reply and rectification of the violation stated in such notice;

(ii) if such holder, person or company,—

(a) rectifies the violation stated in the show cause notice and deposit within the said period of thirty days, such amount as specified in Schedule II for the period from due date of submission of return till the date of rectification of violation, no further action shall be taken;

(b) does not provide satisfactory reply or rectify the violation within the said period of thirty days, the mining operations and dispatches may be suspended and any action under sub-rule (7) may be initiated;

(iii) the suspension of mining operations may be revoked only after the rectification of violation as indicated in the violation-cum-show cause notice and after deposition of such amount as specified

in Schedule II for the period from due date of submission of return till the date of rectification of violation.".

21. In the principal rules, for rule 49, the following rule shall be substituted, namely:—

"**49. Change in name of mine to be intimated.**— The State Government may, on its own or on receipt of an application from the lessee, change the name of a mine and upon such change it shall intimate the same to the lessee and Regional Controller within thirty days of such change.".

22. In the principal rules, in rule 55,—

(i) in sub-rule (1),—

(a) for clause 3, the following clause shall be substituted, namely: —

"3. every holder of a mining lease shall employ, in case of—

(i) category 'A' mines having leased area equal to or above twenty-five hectares, a whole-time mining engineer and a geologist;

(ii) category 'A' mines having lease area below twenty-five hectares and category 'B' mines, a part-time mining engineer and a part-time geologist:

Provided that in the case of fully mechanised category 'A' mines, the mining engineers and geologist shall have minimum five years of professional experience of working in a supervisory capacity in the field of mining.";

(b) after clause 3, the following clause shall be inserted, namely: —

"4. Notice of such appointment or termination shall be intimated in the monthly and annual return to be submitted under rule 45.";

(ii) in sub-rule (6),—

(a) for the paragraph opening with the words "Mining Engineer: A degree in Mining" and ending with the words "or any equivalent qualification.", the following paragraphs shall be substituted, namely:—

"Full time Mining Engineer:	A degree in Mining Engineering granted by a University established or incorporated by or under a Central Act, a Provincial Act or a State Act, including any institution recognised by the University Grants Commission established under section 4 of the University Grants Commission Act, 1956 (3 of 1956) or any equivalent qualification or diploma in mining and mine surveying granted by a duly recognised institute along with a second class certificate of competency issued by the Director General of Mines Safety.
Part time Mining Engineer:	A degree in Mining Engineering granted by a University established or incorporated by or under a Central Act, a Provincial Act or a State Act, including any institution recognised by the University Grants Commission established under section 4 of the University Grants Commission Act, 1956 (3 of 1956) or any equivalent qualification or diploma in mining and mine surveying granted by a duly recognised institute along with a second class certificate of competency or a foreman certificate of competency issued by the Director General of Mines Safety.".

23. In the principal rules, for rule 62, the following rule shall be substituted, namely:—

"**62. Penalty.**— (1) Any contravention of rules 4 to 9, sub-rule (1), (2) and (3) of rule 11, 13 to 17, 21, 24, 26, 27, 30, 32 to 42, 44, 45, 47, 48, 50, 52 to 54, 58, 60, 63, 67 and 72 shall be punishable with imprisonment for a term which may extend to two years or with fine which may extend to rupees five lakhs, or with both, and in the case of a continuing contravention, with

additional fine which may extend to rupees fifty thousand for every day during which such contravention continues after conviction for the first such contravention.

(2) Any contravention of sub-rule (4) of rule 11, rules 12, 18, 19, 20, 23, 28, 29, 46, 51 and 55 shall be punishable with fine for an amount as specified in Schedule III.

(3) Any offence punishable under these rules may either before or after the institution of the prosecution, be compounded by the person authorised under section 22 of the Act to make a complaint to the court with respect to that offence, on payment to that person, for credit to the Government, of such sum specified in this regard by the Controller General or the Director, Atomic Minerals Directorate for Exploration and Research, in respect of minerals specified in Part B of the First Schedule to the Act where the grade of such atomic minerals is equal to or above the threshold value limits declared under Schedule-A of the Atomic Minerals Concession Rules, 2016, as the case may be:

Provided that in case of an offence punishable with fine only, such sum shall not exceed the maximum amount of fine which may be imposed for that offence:

Provided further that where an offence is compounded under these rules, no proceeding or further proceeding, as the case may be, shall be made against the offender in respect of the offence so compounded, and the offender, if in custody, shall be released forthwith.".

24. In the principal rules, for rule 71,the following rule shall be substituted, namely:—

"71. **Review of format, templates and manuals**.— The Indian Bureau of Mines or the Director, Atomic Minerals Directorate for Exploration and Research, as the case may be, may revise or update, at such interval as considered appropriate, after consultation with stakeholders, the formats of the scheme of reconnaissance, scheme of prospecting, mining plan, mine closure plan and the templates for Star Rating of mines provided by it.".

25. In the principal rules, after rule 71, the following rule shall be inserted, namely:—

"71A. **Day of completion of any requirement**.— When the day of completion of any requirement under these rules is falling due on a public holiday, the day of completion shall be deemed to be due on the next working day.

Explanation.— For the purposes of these rules, the expression "public holiday" includes Saturday, Sunday and any other day declared to be a public holiday by the Central Government or the State Government, as the case may be.".

26. In the principal rules, the Schedule shall be numbered as Schedule-I and after Schedule-I as so numbered, —

(i) in Form K, for the word, "export", wherever it occurs, the words "export or import" shall be substituted;

(ii) after Schedule-I, the following Schedules shall be inserted, namely: —

"SCHEDULE-II

[*see* rule 45(7A)]

AMOUNT TO BE PAID IN CASE OF VIOLATION UNDER RULE 45

Item	Amount (in Rs.)	Explanation
(1)	(2)	(3)
Non-submission or incomplete/ wrong/ false information in monthly returns in Form F1, F2, F3; by the due date	Rs 10,000/- per day after due date of submission of return as specified in the Rule till rectification of violation	In case of referred back returns by Indian Bureau of Mines for incorporating necessary corrections, to be undertaken by the lease holder, and if corrected within the allotted time limit and accepted thereafter by the
Non-submission or incomplete/ wrong/ false information in annual returns in Form G1, G2, G3; by the due date	Rs 10,000/- per day after due date of submission of return as specified in the Rule till rectification of violation	

Non-submission or incomplete/ wrong/ false information in monthly returns in Form L; by the due date	Rs 5,000/- per day after due date of submission of return as prescribed in the Rule till rectification of violation	Indian Bureau of Mines, no amount will be payable for the intervening period for such corrections.
Non-submission or incomplete/ wrong/ false information in annual returns in Form M; by the due date	Rs 5,000/- per day after due date of submission of return as prescribed in the Rule till rectification of violation	Failure to rectify in such cases will attract the payment as specified.

Schedule III

[see rule 62(2)]

Rules whose contravention shall be punishable with fine

Rule No.	Marginal heading of the Rule	Amount of Fine (in Rs.)
(1)	(2)	(3)
Sub-rule (4) of rule 11	Mining operations under mining lease	2,000/- per day, subject to maximum 5,00,000/-
12	Prospecting and mining operations	5,00,000/-
18	Beneficiation studies to be carried out	5,00,000/-
19	Machinery and plant	5,00,000/-
20	Notice for opening of mine	5,00,000/-
23	Submission of progressive mine closure plan	5,00,000/-
28	Notice of temporary discontinuance of work in mines and obligations of lease holders.	5,00,000/-
29	Intimation of reopening of a mine	5,00,000/-
46	Notice of certain appointments	2,000/- per day, subject to maximum 1,00,000/-
51	Notice of amalgamation of mining lease	Rs 2,000/- per day after due date as prescribed in the Rule, subject to maximum 1,00,000/-
55	Employment of geologists and mining engineers	5,00,000/- ".

[F. No. M.VI-8/1/2021-Mines VI]

Dr. VEENA KUMARI DERMAL, Jt. Secy.

Note : The principal rules were published in the Gazette of India, Part II, Section 3, Sub-section (i), *vide* number G.S.R. 169(E), dated the 27th February, 2017 and lastly amended *vide* number G.S.R. 570(E), dated 13th August, 2019.

Uploaded by Dte. of Printing at Government of India Press, Ring Road, Mayapuri, New Delhi-110064
and Published by the Controller of Publications, Delhi-110054.