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CONTENTS

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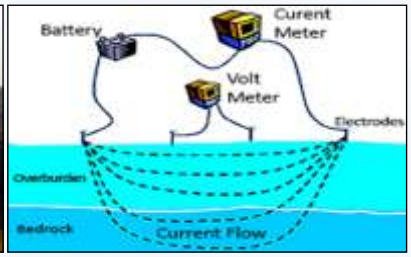
EDITORIAL



Coal remains a crucial global energy resource, accounting for over one-third of global electricity generation despite changes in energy structures in many countries. However, coal mining activities have detrimental effects on the environment, particularly on aquifers, which are crucial for maintaining water balance, supporting ecosystems, and meeting water demands for local communities. Pollutant-laden mine water poses a significant threat to aquifers and surface water sources, while coal mining activities can cause land subsidence, affecting aquifer permeability and storage capacity.

To address the complex challenges associated to mining and aquifers, the integration of geophysical survey data with geophysical survey methodologies delivers invaluable insights.

These techniques involve scientific measurements and statistical analyses, which are used to map aquifer characteristics, detect subsurface water flows, assess mining impacts on aquifers, identify aquifer boundaries, evaluate aquifer properties, and quantify groundwater impacts by coal mining operations. This review provides the application of advanced techniques such as Electrical Resistivity Tomography (ERT), Magnetotelluric (MT) method, Transient Electromagnetic (TEM) method, and Remote Sensing (RS) coupled with Geographic Information System (GIS), which offers a deeper understanding of the intricate dynamics between mining operations and aquifers.

Moreover, this review also recommends that 3D and 4D geophysical imaging techniques can be valuable tools for investigating, monitoring, and managing aquifers. By adopting a multi disciplinary approach that combines geophysics, hydrogeology, and environmental sciences, stakeholders can contribute to sustainable development and effectively manage the interaction between mining activities and aquifers, ensuring the sustainable utilization of water resources in coal mining areas. Furthermore, this paper underscores the importance of sustainable water resource management and its alignment with India's commitment to achieving multiple SDGs and the National Action Plan on Climate Change of 2008. Responsible management of aquifers can support communities during water scarcity and safeguard resources for future generations. However, continued research and innovation in geophysics are essential to further refine these techniques and address the evolving challenges in water resource management associated with coal mining. By safeguarding aquifers and promoting careful water resource management, stakeholders can align their efforts with India's commitment to sustainable development goals and climate change action, ensuring a more resilient and sustainable future for the nation.

The current issue of the IIT(ISM) EIACP Newsletter features gazette notifications (MOEFCC, MOC & MOM), news of the mining environment, important parliament questions (MOC, MOM & MOEFCC) and a glimpses of few events conducted during July to September, 2023.

Editor

Geophysical Survey of Aquifers in Coal Mining Areas – An Overview

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1. INTRODUCTION

Despite dynamic changes in the energy structure of many countries, coal remains one of the most important energy resources in the world, accounting for more than one-third of global electricity generation (IEA, 2023). However, coal mining activities have detrimental effects on the environment, particularly on aquifers, which are crucial for maintaining water balance, supporting ecosystems, and meeting water demands for local communities (Mukhopadhyay et al. 2016, Kumari et al. 2013, Lei et al. 2009). For instance, the groundwater table depletion (Fan et al. 2016), water quality degradation, decreased surface water and wetland (Ma et al. 2015), arable lands, forests, and grasslands destroyed by a large number of surface cracks (Bi et al. 2014), collapsed landslide and mining-induced seismicity (Ji et al. 2015) were observed. The discharge of mine water containing pollutants poses a substantial threat to aquifers and surface water sources (Tomiyama et al. 2022). Additionally, coal mining activities can induce land subsidence, which affects the permeability and storage capacity of aquifers (Liu, 2022).

Integrating geophysical survey data with geophysical survey techniques offers valuable insights to address the complex challenges associated with mining and aquifers (Huang et al. 2023). These techniques involve scientific measurements and statistical analyses to map aquifer characteristics, detect subsurface water flows, and assess the impacts of mining activities on aquifers robust statistical analyses, using which researchers can identify aquifer boundaries, evaluate aquifer properties, and quantify the extent of groundwater impacts caused by coal mining operations (Hasan et al. 2019). This review will explore the conflicts between mining operations and aquifers, focusing on water scarcity, contamination risks, and land subsidence. It will also discuss the geophysical survey techniques employed to mitigate these conflicts, such as Electrical Resistivity Tomography (ERT), Magneto-telluric (MT) method, Transient Electromagnetic (TEM) method, and Remote Sensing (RS) coupled with Geographic Information System (GIS). These techniques provide valuable information for understanding aquifer dynamics, identifying potential risks, and developing targeted mitigation strategies. By utilizing these methods, stakeholders can effectively manage the interaction between mining activities and aquifers, ensuring the sustainable utilization of water resources in coal mining areas.

2. CONFLICT BETWEEN MINING OPERATIONS AND AQUIFERS

2.1 Water scarcity in coal mining areas

Coal mining operations require significant amounts of water for various purposes, including dust suppression, equipment cooling, ore processing, and coal washing (Global Energy Monitor, 2021*)*. The extraction and consumption of large volumes of water can exert pressure on local water resources, particularly in regions with limited freshwater supplies. A total of 2591.92L cum/yr groundwater is pumped out for mining operations to produce about 80% of coal in India in FY 2021-22 (CIL, 2022). From 2004 to 2015, the groundwater level of the Luohe Formation in the Tingnan Coal Mine decreased from 3.16 to 194.87 m, with an average decline of 52.50 m. (Sun et al. 2021). Due to coal mine drainage, the water level in the Tangshan area has decreased from +5m to -57.98m now, the water level dropped by 62.98m (Zhang et al. 1996). Reduced water availability may necessitate the implementation of water rationing measures or the need to transport water from alternative sources, which can be logistically challenging and financially burdensome for communities.

2.2 Water contamination risks

Coal mining activities can introduce contaminants into aquifers, posing significant risks to water quality and the overall health of aquifer systems. These impacts can result in water contamination, including the generation of Acid Mine Drainage (AMD) which continues to be a concern in coal mining because it reduces surface water and groundwater quality (Verburg et al. 2009). Coal mining operations can leach heavy metals, such as arsenic, lead, mercury, cadmium, and selenium into aquifers (Zhou et al. 2014, Finkelman et al. 2018). These metals are naturally occurring in coal seams and can be released into the surrounding groundwater through various processes, including oxidation, combustion, and leaching (Finkelman et al. 2018). Mohanty et al. (2001) studied the sequential leaching of trace elements in coal from Talcher coalfields from Seam I of Deulbeda colliery and Seam II of Jagannath colliery and concluded that the trace elements are mostly bonded to soluble oxides and sulfide minerals present in the coal. Fang et al. (2003) have shown how trace element from coal mining activities contaminates the ecosystem of the Badao Bone coal mine in China.

2.3 Land subsidence and aquifer disruption

Coal mining activities can lead to land subsidence, which refers to the sinking or settling of the Earth's surface (NOAA, 2023). Subsidence can occur as a result of underground mining operations, particularly in areas with extensive longwall mining or room and pillar mining (Altun et al. 2010). Land subsidence can have detrimental effects on aquifers and disrupt the hydrogeological balance.

Compaction of soils in some aquifer systems can accompany excessive groundwater pumping and it is by far the single largest cause of subsidence. Pumping large amounts of water causes subsoil compaction, reducing both the size and number of open pore spaces in the soil. This results in a permanent reduction in the total water storage capacity of the aquifer system (USGS, 2008). A survey (Karanam, 2020) shows an average subsidence rate in Jharia coal mines of approximately 4 cm/yr. Among the 23 underground mines in Jharia, 6 mines are subsiding at the maximum rate of 12 cm/yr. Tiwari (2018) estimated the southern part of Bhurkunda coal mines in Jharkhand underwent displacement ranging from 0.019 m to 1.813 m and landslide in Rudraprayag, Uttarakhand ranging from 0.008 to 0.115 per year.

3. GEOPHYSICAL SURVEY TECHNIQUES

Geophysical survey techniques play a pivotal role in the comprehensive assessment of aquifers in coal mining areas. Different geophysical methods (electrical, remote sensing, and magnetic methods), have been applied in the exploration of groundwater, the principle of most of these methods can be found in general books (Telford et al. 1990; Kearey et al. 2002). During the past two decades, geophysical methods, especially the electrical resistivity approach have gained wide acceptance since soil electrical properties such as resistivity and conductivity are good indicators of an increase in water content and concentration of dissolved salts in the subsurface medium. Among them, Electrical Resistivity Tomography (ERT), and Transient Electromagnetic (TEM) surveys have been extensively used for

groundwater studies, especially in deducing aquifer geometry, electrical conductivity of the subsurface, mapping of the intrusive bodies, groundwater quality, etc (Rai et al. 2013).

3.1 Electrical resistivity tomography

Electrical Resistivity Tomography (ERT) is based on the measurement of electrical resistivity, which represents the ability of subsurface materials to resist the flow of electric current (Telford et al. 1990). The resistivity of the subsurface depends basically on water saturation, porosity, clay, mineral, and ion content (Panthulu et al. 2001). ERT is carried out using a multi-electrode resistivity imaging system and effective data processing software based on inversion techniques. For ERT, multi-core cables with many electrode takeouts are connected to form a multi-electrode set-up, where a selection of any four (two for current injection and two for potential measurement) of those electrodes is possible. The number of electrodes differs from system to system. Some systems carry 64 electrodes, some carry 72 electrodes, and so on. ERT equipment has been developed by several international companies. In the present studies, the ABEM-made Terrameter LUND Imaging System, SAS 4000 resistivity meter is being used (Rai et al. 2013). The next step is to convert the measured apparent resistivity values to a 2D subsurface true resistivity model which can be used for geological interpretation to identify water-bearing geological formations and structures such as weathered subsurface, fractures, faults, joints, etc. This task is accomplished using inverse modelling. Inverse modelling of the measured apparent resistivity data can be carried out using the RES2DINV program to create a subsurface resistivity model (Loke et al. 1997). Rajwardhan et al. (2021) used ERT for detailed high-resolution mapping of concealed seepage paths and water-saturated fractured zones in the Jharia Coal field, Dhanbad, India (Fig. 1). Field survey using electrical Resistivity Tomography (ERT) setup shown in (Fig. 2).

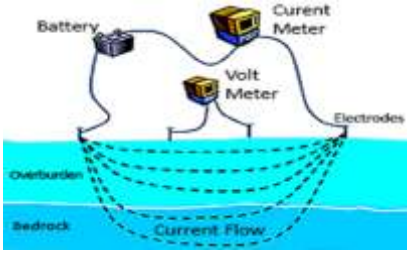

Fig. 1: Setup for ERT measurement

Fig.2: Field survey using Electrical Resistivity Tomography (ERT) setup

3.2 Magneto-telluric method

The MT method is a geophysical detection method that uses natural electromagnetic fields as the field source to study the electrical and distribution characteristics of underground strata, with strong penetration and resolution, a short detection period, little influence of external conditions on measuring points, simple field operation and high efficiency (Bai et al. 2019). When an electromagnetic wave propagates underground, the electromagnetic field values observed on the surface contain electrical information of underground media. Affected by the skin effect, the high-frequency electromagnetic wave attenuates quickly, and vice versa. In this way, the apparent resistivity (AR) characteristics from different depths can be obtained by studying the electromagnetic field responses of different frequencies on the surface. There are many factors affecting the AR of strata, which are mainly related to overburden structure and water content. Combined with hydrogeological data such as the borehole column of the working face, the mining influence on the aquifer of the thick coal seam can be judged (Bai et al. 2019). Yang et al. (2013) applied the magneto-telluric (MT) method to detect the water-rich properties of collapse columns in a coal mine and constructed boreholes on the ground surface for data validation. The detection results were in good agreement with the drilling data. Asaue et al. (2013) used the MT method to clarify the deep geological structure in a coal-mining area in Kushiro, southeastern Hokkaido, Japan. Li et al. (2017) used integrated MT and nuclear methods to delineate groundwater-bearing zones in a granite terrain in the Boshan region, Shandong Province, China and the result shows that it can help to identify two disconnected groundwater systems, offering an alternative freshwater source for the region if shallow groundwater or surface water is polluted.

3.3 Transient electromagnetic method (TEM)

Due to its higher resolution, smaller volume effect, lesser influence of host rock, faster measurement ability, and strong portability; the Transient electromagnetic method (TEM) has gradually become the favourite for coal mine geophysical prospecting (Wang et. al. 2017). The TEM uses the ungrounded loop arranged on the surface to transmit a pulsed magnetic field to the underground space with a pulsed current to stimulate the secondary current induced by the underground conductive medium and to collect the response of the secondary pulsed magnetic field during the pulse interval and by analysing the attenuation characteristics of the secondary field, the subsurface electrical resistivity can be inferred (Zhang et al. 2022). The transient electromagnetic method (TEM) was used to detect the water-conducted channel in Liuhuanggou Coal Mine, China and the results of the TEM survey were consistent with the measured results by more than 75 %, with the accuracy of plane positioning as high as 80 % (Hai et al. 2022).

3.4 Remote sensing and GIS

Remote Sensing (RS) and geographic information system (GIS) have become one of the most prominent tools in the field of hydrological science that help to plan for the convention of water resources in any area (Tiwari et al. 2016). These techniques utilize satellite imagery acquired from sensors like Landsat, Sentinel, and MODIS, which offer comprehensive coverage and high-resolution data acquisition over large areas. Software packages such as ENVI, Erdas Imagine, and QGIS are commonly employed for the processing and analysis of satellite imagery, facilitating the extraction of relevant information specific to coal mining areas. Moreover, Synthetic Aperture Radar (SAR) data acquired by sensors like Sentinel-1 provide valuable information for landslide detection in coal mining areas (Yao, 2021). SAR data can penetrate through clouds and vegetation, allowing for the detection of surface deformation associated with landslides. DInSAR and PSInSAR techniques are used to monitor the land

subsidence in the Jharia Coalfield, Jharkhand, India using ALOS PALSAR data (Chatterjee et al. 2015). Integrated DInSAR and GPS are used to monitor the mining subsidence in Yulin City, China (Huang et al. 2016).

4. PLAUSIBLE MITIGATION STRATEGIES

To address the conflicts between mining activities and aquifers in coal mining areas, geophysical techniques can be employed as effective mitigation strategies. These techniques allow for the characterization and monitoring of aquifer systems, facilitating the implementation of measures to minimize the impacts of mining on groundwater resources.

4.1 Groundwater monitoring program

As per Nielsen (2006), a successful monitoring program incorporates a suitable number of wells strategically placed at specific locations and depths. The program should be able to gather enough groundwater samples from the aquifer that accurately reflect the quality of unaffected up-gradient groundwater and the quality of groundwater downstream from the facility. To achieve a comprehensive and representative monitoring program, certain stages must be followed (Fig. 3).

Fig. 3: Groundwater monitoring program stages

4.2 Geodetic monitoring

Geodetic monitoring techniques, such as GPS (Global Positioning System) or InSAR (Interferometric Synthetic Aperture Radar), can be employed to monitor ground surface deformations associated with mining activities. By tracking subsidence or uplift patterns, the potential impacts on aquifer systems, such as changes in hydraulic connectivity or aquifer compaction, can be assessed. In recent years, the use of GPS technology has enhanced ground survey techniques allowing quicker and cheaper surveys relative to traditional pegged lines measured with theodolites. As new satellites are launched and new processing techniques become available, the use of satellite radar technology is likely to become more cost-effective and popular for monitoring mine subsidence. Tiwari (2018) has successfully used GNSS geodetic network to estimate land sliding in the Bhurkunda coal mines in Jharkhand, and the Sirobagarh landslide in Rudraprayag, Uttarakhand.

4.3 Detailed site investigation

Regular site investigation using geophysical survey methods should be incorporated. The selection of a particular technique depends on the hydrogeologic settings. In coal mining areas the Electric resistivity tomography (ERT) or Transient electromagnetic method (TEM) can be employed to map the water table. Similarly, a seismic survey may be designed to produce a detailed map of the bedrock contact. Other electrical resistivity methods can be used to predict aquifer permeability and transmissivity values. These aquifer parameters may serve as the input to the analytical groundwater modelling routine.

5. CONCLUSION

The utilization of advanced methodologies such as Electrical Resistivity Tomography (ERT), Magnetotelluric (MT) method, Transient Electromagnetic (TEM) method, and Remote Sensing (RS) coupled with Geographic Information System (GIS) has provided researchers and practitioners with a deeper understanding of the intricate dynamics between mining operations and aquifers. These geophysical survey techniques have proven instrumental in assessing aquifer characteristics, delineating water flow patterns, and evaluating the potential impacts of mining activities on aquifer systems. Furthermore, this paper underscores the utmost significance of sustainable water resource management and its alignment with India's commitment to achieving multiple Sustainable Development Goals (SDGs) and the National Action Plan on Climate Change (NAPCC) of 2008. By adopting a multidisciplinary approach that combines geophysics, hydrogeology, and environmental sciences, stakeholders can contribute to sustainable development and responsible resource extraction in the coal mining industry. Additionally, if groundwater is managed carefully, it can not only provide a much-needed buffer when the monsoons fail but also help mitigate the far-reaching impacts of climate change on India's most vulnerable people (Roome, 2022). Responsible management of aquifers can play a vital role in supporting communities during water scarcity and safeguarding water resources for the benefit of present and future generations. It is now a challenge in the following years for geophysicists to convince geologists and engineers that the 3D and 4D geophysical imaging techniques can be valuable tools for investigating and monitoring aquifers, thereby protecting them. Continued research and innovation in the field of geophysics are essential to further refine these techniques and address the evolving challenges in water resource management associated with coal mining. By safeguarding aquifers and promoting careful water resource management, stakeholders can align their efforts with India's commitment to sustainable development goals and climate change action, ensuring a more resilient and sustainable future for the nation.

REFERENCES

1. Mukhopadhyay, S., George, J., and Masto, R. E. (2017) Changes in Polycyclic Aromatic Hydrocarbons (PAHs) and Soil Biological Parameters in a Revegetated Coal Mine Spoil. *Land Degrad. Develop.*, 28: 1047– 1055. doi 10.1002/ldr.2593.
2. Kumari N, Anshumali GS. Impact of Coal Mining on Ponds of Jharia Town, Dhanbad, Jharkhand. *First International Conference on MSECCMI, New Delhi, India, 2007.*
3. Karanam, V. K. R., Motagh, M., and Jain, K.: Land Subsidence In Jharia Coalfields, Jharkhand, India – Detection, Estimation, And Analysis Using Persistent Scatterer Interferometry, EGU General Assembly 2020, Online, 4–8 May 2020, EGU2020-21118, https://doi.org/10.5194/egusphere-egu2020-21118, 2020.
4. Coal India Limited Business Responsibility and Sustainability Report - FY 2021-22.
5. Sun, Kui, et al. "Impact of coal mining on groundwater of Luohe Formation in Binchang mining area." *International Journal of Coal Science & Technology* 8 (2021):88-102.
6. Mohanty, J.K., Mishra, S.K. And Nayak, B.B.,2001, Sequential leaching of trace elements in coal: A case study from Talcher coalfield, Orissa, Jour. Geol. Soc. India, v.58(5), pp.441-447.
7. FANG, W.X., HUANG, Z.Y. and WU, P.W.,2003, Contamination of the environmental ecosystems by trace element from mining activities of Badao Bone Col mine in China. Environ. Geol., v.44, pp.373-378.
8. United States Geological Survey,2008, https://www.usgs.gov/special-topics/water-science-school/science/land-subsidence.
9. Ashutosh Tiwari, Avadh Bihari Narayan, Ramji Dwivedi, Ashutosh Swadeshi, Sumanta Pasari & Onkar Dikshit (2020) Geodetic investigation of landslides and land subsidence: case study of the Bhurkunda coal mines and the Sirobagarh landslide, Survey Review, 52:371, 134-149, DOI: 10.1080/00396265.2018. 1531654.
10. Rai, S. N., Thiagarajan, S., Kumar, D., Dubey, K. M., Rai, P. K., Ramachandran, A., &Nithya, B. (2013). Electrical resistivity tomography for groundwater exploration in a granitic terrain on NGRI campus. *Current Science*, 1410-1418.
11. Panthulu TV, Krishnaiah C, Shirke JM (2001) Detection of seepage paths in earth dams using self-potential and electrical resistivity methods. EngGeol 59:281–295
12. Loke, M. H. (1997). Software: RES 2D INV. 2D interpretation for DC resistivity and IP for Windows 95. *Copyright by MH Loke*, *5*.

13. Kumar, R., Pal, S. K., & Gupta, P. K. (2021). Water seepage mapping in an underground coal-mine barrier using self-potential and electrical resistivity tomography. *Mine Water and the Environment*, *40*(3), 622-638.
14. Bai, E., Guo, W., Zhang, D., Tan, Y., Guo, M., & Zhao, G. (2019). Using the magnetotelluric method for detecting aquifer failure characteristics under high-intensity mining of thick coal seams. *Energies*, *12*(22), 4397.
15. Wu-Yang, Y. A. N. G. (2013). Integrated geophysical prospecting principle and method of exploring the water enrichment of coal mine collapse column. *Journal of Mining and Safety Engineering*, *30*(1), 45.
16. Asaue, H., Sasahara, M., Yoshinaga, T., Obara, Y., Uchida, K., & Matsumoto, H. (2013). Clarifying geological structure for coal and marsh gas development using magnetotelluric method. *ActaGeodyn. Geomater*, *10*, 155-162.
17. Li, J., Pang, Z., Kong, Y., Lin, F., Wang, Y., Wang, G., &Lv, L. (2017). An integrated magnetotelluric and gamma exploration of groundwater in fractured granite for small-scale freshwater supply: a case study from the Boshan region, Shandong Province, China. *Environmental Earth Sciences*, *76*, 1-12.
18. Zhang, Y., Wu, Y., Zheng, H., Xu, Y., & Cheng, X. (2022). Application of TEM and HDRM in hydro geophysical surveys in Meisibulake coal mine. *Scientific Reports*, *12*(1), 21368.
19. Hai, W., & Meiling, T. (2022). Water resources protection of mining area in Toutun river basin of Tianshan Mountains: a case study of Liuhuanggou Coal Mine. *Environmental Earth Sciences*, *81*(14), 372.
20. Tiwari, A. K., Singh, P. K., & De Maio, M. (2016). Evaluation of aquifer vulnerability in a coal mining of India by using GIS-based DRASTIC model. *Arabian Journal of Geosciences*, *9*, 1-15.
21. Ashutosh Tiwari, Avadh Bihari Narayan, Ramji Dwivedi, Ashutosh Swadeshi, Sumanta Pasari & Onkar Dikshit (2020) Geodetic investigation of landslides and land subsidence: case study of the Bhurkunda coal mines and the Sirobagarh landslide, Survey Review, 52:371, 134-149, DOI: 10.1080/00396265.2018.1531654.
22. *https://www.aksgeoscience.com/images/resource/resistivity-diagram.png.*
23. Zhang, Y., Wu, Y., Zheng, H., Xu, Y., & Cheng, X. (2022). Application of TEM and HDRM in hydro geophysical surveys in Meisibulake coal mine. *Scientific Reports*, *12*(1), 21368.
24. Zhang Fawang, Li Duo, Zhao Hua (1996) "The destruction of groundwater resources and its control under the circumstances of coal mining [J]", Journal of Hebei Geological College, 19(2).
25. Fan L, Xiang M, Peng J (2016) Groundwater response to intensive mining in the ecologically fragile area. J China Coal Soc 11:2672–2678.
26. Ma X, Fan L, Zhang X, et al (2015) Driving force analysis for water and wetlands evolution at Yushenfu mining area. J China Coal Soc 5:1126–1133.
27. Bi Y, Zou H, Zhu C (2014) Dynamic monitoring of soil bulk density and infiltration rate during coal mining in sandy land with different vegetation. Int J Coal SciTechnol 2:198–206.
28. Ji R, Peng S, Fan L, Zhao Y, Li C (2015) Effect of coal exploitation on groundwater circulation in the Shen-Fu mine area: an example from the middle and lower reaches of the Kuye river basin. J China Coal Soc 4:938–943.
29. Wu Q, Shen J, Wang Y (2017) Mining techniques and engineering application for "Coal-Water" dual-resources mine. J China Coal Soc 1:8–16.
30. International Energy Agency, 2023https://www.iea.org/energy-system/fossil-fuels/coal.
31. Lei Meng, Qi-yan Feng, Lai Zhou, Ping Lu, Qing-junMeng, (2009) Environmental cumulative effects of coal underground mining, Procedia Earth and Planetary Science.
32. Tomiyama, S., & Igarashi, T. (2022). The potential threat of mine drainage to groundwater resources. *Current Opinion in Environmental Science & Health*, *27*, 100347.
33. Liu, R., Zhao, Y., Cao, G., Wang, Q., Ma, M., Li, E., & Deng, H. (2022). The threat of land subsidence to the groundwater supply capacity of a multi-layer aquifer system. *Journal of Hydrology: Regional Studies*, *44*, 101240.
34. Huang, W., Sui, L., Wang, Y., Zhang, C., Jiang, D., Cai, X., & Yang, Z. (2023). Study of the mining and aquifer interactions in complex geological conditions and their management. *Scientific Reports*, *13*(1), 9462.
35. Hasan, M., Shang, Y., Jin, W., & Akhter, G. (2019). Assessment of aquifer vulnerability using the integrated geophysical approach in weathered terrains of South China. *Open Geosciences*, *11*(1), 1129-1150.
36. Water consumption from coal plants. (2021, April 30). *Global Energy Monitor.* Retrieved 07:13, July 25, 2023, from https://www.gem.wiki/w/index.php?title=Water_consumption_from_coal_plants&oldid=238834.
37. Verburg, R., Bezuidenhout, N., Chatwin, T., & Ferguson, K. (2009). The global acid rock drainage guide (GARD Guide). *Mine Water and the Environment*, *28*, 305-310.
38. Zhou C, Liu G, Fang T, Sun R, Wu D (2014) Leaching characteristic and environmental implication of rejection rocks from Huainan Coalfield, Anhui Province, China. Journal of Geochemical Exploration. 2014; 143:54-61.
39. Finkelman, R. B., Palmer, C. A., & Wang, P. (2018). Quantification of the modes of occurrence of 42 elements in coal. *International Journal of Coal Geology*, *185*, 138-160.
40. Telford, W. M., Geldart, L. P., & Sheriff, R. E. (1990). *Applied geophysics*. Cambridge university press.
41. Kearney, P., Brooks, M., & Hill, I. (2002). *An introduction to geophysical exploration* (Vol. 4). John Wiley & Sons.
42. Altun, A. O., Yilmaz, I., &Yildirim, M. (2010). A short review on the surficial impacts of underground mining. *Sci Res Essays*, *5*(21), 3206-3212.
43. Chatterjee, Rajat &Thapa, Shailaja & Singh, K &Varunakumar, G &Raju, Eli. (2015). Detecting, mapping and monitoring of land subsidence in Jharia Coalfield, Jharkhand, India by spaceborne differential interferometric SAR, GPS and precision levelling techniques. Journal of Earth System Science. 124. 1359-1376. 10.1007/s12040-015-0606-5.
44. Jilei, Huang & Deng, Kazhong & Hongdong, Fan & Yan, Shiyong. (2016). An improved pixel-tracking method for monitoring mining subsidence. Remote Sensing Letters. 7. 731-740. 10.1080/2150704X.2016.1183177.
45. NIELSEN DM (2006) *Practical Handbook of Environmental Site Characterization and Ground-Water Monitoring.* Taylor and Francis Group, Boca Raton.
46. Guide to groundwater monitoring for the coal industry - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/ figure/Groundwater-monitoring-programme-stages_fig1_262652391.
47. https://oceanservice.noaa.gov/facts/subsidence.html.
48. John Roome. (2022). India seeks to arrest alarming decline in groundwater. World bank blogs.
49. Yao, J., Yao, X., Wu, Z., & Liu, X. (2021). Research on surface deformation of ordos coal mining area by integrating multitemporal D-InSAR and offset tracking technology. *Journal of Sensors*, *2021*, 1-14.

NOTIFICATIONS

MINISTRY OF ENVIRONMENT, FOREST& CLIMATE CHANGE, GOVT. OF INDIA, NEW DELHI

S.O. 4246(E) [26.9.2023] Amendment in final notification of ESZ around Maenam Wildlife Sanctuary Sikkim was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 26th Sept., 2023.

S.O. 4245(E) [26.9.2023] Amendment in final notification of ESZ around Barsey Rhododendron Sanctuary Sikkim was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 26th Sept., 2023.

S.O. 4227(E) [26.9.2023] Draft Notification of Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary, in the Union Territory of Jammu and Kashmir as Dachigam National Park, Thajwas (Baltal) Wildlife Sanctuary and Overa-Aru Wildlife Sanctuary Eco-sensitive Zonewas published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 26th Sept., 2023.

S.O. 4217(E) [22.9.2023] Draft Notification of Declaration of Eco sensitive Zone around Phulwariki Nal Wildlife Sanctuary Rajasthan was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 22nd Sept., 2023.

S.O. 4132(E) [20.9.2023] Final Notification for declaration of ESZ around Nagzira Wildlife Sanctuary Maharashtra was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 20th Sept., 2023.

S.O. 4101(E) [18.9.2023] Corrigendum official gazette vide SO5254(E) was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 18th Sept., 2023.

S.O. 4100(E) [18.9.2023] Amendment in constituting the National Tiger Conservation Authority was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 18th Sept., 2023.

S.O. 4057(E) [13.9.2023] Reconstitution of Central Zoo Authority was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 13th Sept., 2023.

S.O. 4036(E) [11.9.2023] Notification of the area to anextent of 250 meters to 2 kilometers around the boundary of the Panna Tiger Reserve (Panna National Park and Panna (Gangau) Wildlife Sanctuary) in the State of Madhya Pradesh as the Panna Tiger Reserve, Eco-sensitive Zone was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 11th Sept., 2023.

S.O. 4037(E) [6.9.2023] Amendments Non Official Member National Biodiversity Authority (NBA) was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 6th Sept., 2023.

S.O. 3974(E) [6.9.2023] Draft Notification of anarea to an extent varying from 0.10 kms to 8.7 kilometres around the boundary of Bhitarkanika National Park, Bhitarkanika Wildlife Sanctuary and Gahirmatha (Marine) Wildlife Sanctuary, in the State of Odisha as the Bhitarkanika National Park, Bhitarkanika Wildlife Sanctuary and Gahirmatha (Marine) Wildlife Sanctuary Ecosensitive Zone was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 6th Sept., 2023.

S.O. 3946(E) [5.9.2023] Notification for constitution of Central Empowered Committee was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 5th Sept., 2023.

S.O. 3840(E) [30.8.2023] Amendment in Appendix IX of the EIA notification was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 30th Aug., 2023.

S.O. 3804(E) [25.8.2023] Reconstitutes of the State Level Environment Impact Assessment Authority for Sikkim was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 25th Aug., 2023.

S.O. 3780(E) [22.8.2023] Publication in Official Gazette in respect of Sessa Orchid Wildlife Sanctuary, Eagle Nest Wildlife Sanctuary and Pakke Tiger Reserve Eco Sensitive Zone of Arunachal Pradesh was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 22nd Aug., 2023.

S.O. 3581(E) [10.8.2023] Amendment in Reconstitution of Goa Coastal Zone Management Authority was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 10th Aug., 2023.

S.O. 3577(E) [10.8.2023] Notification for inclusion of Shri Kumud Ranjan Acharya as a member in the current SEAC was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 10th Aug., 2023.

S.O. 3565(E) [9.8.2023] Declaration of ESZ around Bhimgad Wildlife Sanctuary Karnataka was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 9thAug., 2023.

S.O. 3563(E) [8.8.2023] Notification for delegation of Powers and functions under Section 49 H, 49 I, 49 J, 49 K and 49 L of Wild Life (Protection) Act, 1972 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 8thAug., 2023.

S.O. 3558(E) [8.8.2023] Notification for delegation for powers and functions under Section 49 H, 49 I, 49 J, 49 K and 49 L of Wild Life (Protection) Act,1972 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 8th Aug., 2023.

S.O. 3548(E) [8.8.2023] Notification for designation of CITES Scientific Authorities under Section 49 of Wild Life (Protection) Act, 1972 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 8th Aug., 2023.

S.O. 3547(E) [8.8.2023] Notification for designation port of entry and exit under Section 40 H of Wild Life (Protection) Act, 1972 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 8th Aug., 2023.

S.O. 3516(E) [1.8.2023] Amendment Notification for Pangolakha Wildlife Sanctuary Sikkim was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 1st Aug., 2023.

S.O. 3515(E) [7.8.2023] Amendment Notification for Narayan Sarovar Wildlife Sanctuary Gujarat was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 7thAug., 2023.

S.O. 3514(E) [7.8.2023] Amendment Notification for Dr Salim Ali Bird Sanctuary Goa was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 7th Aug., 2023.

S.O. 3513(E) [7.8.2023] Amendment Notification for Bhagwan Mahaveer Wildlife Sanctuary Goa was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 7th Aug., 2023.

S.O. 3450(E) [1.8.2023] Amendment Notification for inclusion of Mrs. Mamta Sanjeev Dubey for post of Chairman, SEIAA, UP was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 1st Aug., 2023.

S.O. 3385(E) [28.7.2023] Amendment Bondla Wildlife Sanctuary Goa, Eco Sensitive Zone was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 28th July 2023.

S.O. 3384(E) [28.7.2023] Amendment Madei Wildlife Sanctuary Goa, Eco Sensitive Zone was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 28th July 2023.

S.O. 3379(E) [27.7.2023] Amendment Netravali Wildlife Sanctuary Goa, ESZ Notification was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 27th July 2023.

S.O. 3372(E) [26.7.2023] Extension of time period by another six months was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 26th July 2023.

S.O. 3319(E) [25.7.2023] Reconstitution of SEIAA/SEAC of UT of Puducherr was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 25th July 2023.

S.O. 3229(E) [18.7.2023] Draft Notification on GCP Implementation Rules, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 18th July 2023.

S.O. 3144(E) [14.7.2023] Amendment Eco sensitive Zone around Bir Moti Bagh Wildlife Sanctuary, Punjab was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 14th July 2023.

S.O. 3142(E) [14.7.2023] Amendment Van Vihar Wildlife Sanctuary, Rajasthan was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 14th July 2023.

S.O. 3141(E) [14.7.2023] Amendment Dalma Wildlife Sanctuary, Jharkhand was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 14th July 2023.

S.O. 2987(E) [6.7.2023] Appointment of acting Chairperson in NGT was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 6th July 2023.

S.O. 2877(E) [3.7.2023] Final Notification for Eco sensitive Zone around Nokrek National Park Meghalaya was published in the Gazette

of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 3rd July 2023.

S.O. 2903(E) [3.7.2023] Amendment in CRZ Notification 2011was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 3rd July 2023.

G.S.R. 677(E) [18.9.2023]Amendment Hazardous and Other Wastes (Management and Transboundary Movement) Second Rules, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 18th Sept., 2023.

G.S.R. 603(E) [14.8.2023]Amendment Recruitment Rules 2023 for the post of Artist Grade I in Zoological Survey of India was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 14th Aug., 2023.

G.S.R. 602(E) [14.8.2023]Amendment Recruitment rules 2023 for the post of Botanical Assistant in Botanical Survey of India was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 14th Aug., 2023.

G.S.R. 534(E) [24.7.2023]Amendment E Waste (Management) Second Rules, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 24th July, 2023.

G.S.R. 522(E) [18.7.2023] Corrigendum of Notification No. G.S.R. 499(E) regarding agro residue utilization by Thermal Power Plants Rules, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 18th July, 2023.

G.S.R. 501(E) [12.7.2023] Amendment Wild Life Disposal of Wild Animal Article Rules 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 12th July, 2023.

G.S.R. 500(E) [12.7.2023]Amendment Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 12th July, 2023.

G.S.R. 499(E) [11.7.2023] Environment (Utilisation of Crop residue by Thermal Power Plants) Rules, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 11th July, 2023.

MINISTRY OF MINES, GOVT. OF INDIA, NEW DELHI

No. M.II-4/1/2023-Mines II [20.9.2023] Amendment Publication of Combined Geo Scientist Examination Rules, 2024 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 20thSept., 2023.

S.O. 3890(E) [1.9.2023] In exercise of the powers conferred by clause (a) of sub section (1) of section 26 of the MMDR Act was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 1st Sept., 2023.

S.O. 3848(E) [31.8.2023] Nickel (Quality Control) Order, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 31st Aug., 2023.

S.O. 3847(E) [31.8.2023] Copper (Quality Control) Order, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 31st Aug., 2023.

S.O. 3846(E) [31.8.2023] Aluminium and Aluminium Alloys (Quality Control) Order, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 31st Aug., 2023.

F. No. M. I-4/1/2021-Mines I [18.8.2023] Reconstitution of the Central Geological Programming Board (CGPB) was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 18thAug., 2023.

S.O. 3685(E) [17.8.2023] Amendment Act, 2023 Offshore Areas Mineral (Development and Regulation) was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 17thAug., 2023.

S.O. 3684(E) [17.8.2023] Amendment Act, 2023 Mines and Mineral (Development and Regulation) was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 17th Aug., 2023.

G.S.R. 682(E) [22.9.2023]Amendment Atomic Minerals Concession Rules, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 22nd Sept., 2023.

G.S.R. 669(E) [14.9.2023]Notification of M/s Kartikay Exploration and Mining Services Pvt. Ltd under' Category A Exploration Agencies' as specified in the guidelines for notification of accredited private exploration agencies issued by the Government of India in the Ministry of Mines was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 14th Sept., 2023.

G.S.R. 648(E) [1.9.2023]Amendment Mineral (Auction) Rules, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 1stSept., 2023.

G.S.R. 642(E) [31.8.2023] Notification of M/s Engeotech Consultant under 'Category A Exploration Agencies' as per the 'Guidelines for notification of accredited private exploration agencies' issued by the Government of India in the Ministry of Mines was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 31st Aug., 2023.

G.S.R. 563(E) [28.7.2023] Publication of Notification of the Ministry of Mines Indian Bureau of Mine Assistant Research Officer Group B Post Recruitment Rules 2023 reg. was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (i) on 28th July, 2023.

MINISTRY OF COAL, GOVT. OF INDIA, NEW DELHI

S.O. 4120(E) [19.9.2023] Coal Bearing Areas (Acquisition and Development) Act, 1957: Schedule Kolgaon Expansion Opencast Mine, Wani Area, District Yavatmal (Maharashtra) [Plan bearing number C-I(E)/III/JJR/0723/1001, dated the 13th July, 2023] was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 19th Sept., 2023.

S.O. 4119(E) [19.9.2023] Coal Bearing Areas (Acquisition and Development) Act, 1957: Schedule Makardhokra-I Expansion Opencast Mine, Umrer Area, District Nagpur (Maharashtra) [Plan bearing number: C-I(E)/III/FUR/0723/1000, dated the 7th July, 2023]was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 19th Sept., 2023.

S.O. 4070(E) [14.9.2023] Coal Bearing Areas (Acquisition and Development) Act, 1957: Schedule Ballarpur North-West Opencast Mine, Ballarpur Area, District Chandrapur (Maharashtra) [plan bearing number C-I(E)/III/JJJR/0623/999, dated the 8th June, 2023] was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 14th Sept., 2023.

S.O. 4067(E) [13.9.2023] Reconstitution to the Board of Trustees for a period of three years from the date of publication of this notification in the Official Gazette was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 13th Sept., 2023.

S.O. 3116(E) [12.7.2023] Coal Bearing Areas (Acquisition and Development) Act, 1957: Schedule Balabhadra opencast project, Balabhadra coal block, Balabhadra north extension coal block, Balabhadra west extension coal block, District Angul, State Odisha. [plan bearing number MCL/GM(HA)/L&R-I/2023/105, dated the 2nd

March, 2023]was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 12th July 2023.

S.O. 3115(E) [12.7.2023] Coal Bearing Areas (Acquisition and Development) Act, 1957: Schedule Gokul Extension Opencast Mine, Umrer Area, District Nagpur (Maharashtra), [Planbearing number C-I (E)/III/JJJR/0423/998, dated the 21st April, 2023] was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 12th July 2023.

S.O. 2935(E) [4.7.2023] Amendments to the notification of the Government of India, Ministry of Coal, vide number S.O. 1398(E), dated the 23rd March, 2023, published in the Gazette of India, Part II, Section 3, Sub- section (ii), dated the 23rd March, 2023 was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 4th July 2023.

S.O. 2876(E) [3.7.2023] Coal Bearing Areas (Acquisition and Development) Act, 1957 Schedule: Pelma Opencast Project (15 Million Tonne Per Year), Raigarh Area, South Eastern Coalfields Limited, District-Raigarh, Chhattisgarh. [Plan bearing number SECL/ BSP/GM(L and R)/LAND/ 03,dated the 4th April, 2023] was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 3rd July 2023.

S.O. 2875(E) [3.7.2023] Coal Bearing Areas (Acquisition and Development) Act,1957: Schedule Ananta Opencast Expansion Phase-IV Project, Parts of Subhadra West Coal Block, (District-Angul, State- Odisha) [plan bearing number MCL/GM(BA)/Subhadra West/2023/L&R/01, dated the 21st April, 2023] was published in the Gazette of India, Registered. NO. D. L.-33004/99 Part - II, Section - 3, Sub - Section (ii) on 3rd July 2023.

CURRENT NEWS

Akshay Kumar interacts with IIT-ISM students on 'Mission Raniganj'

PTI, Sept 30, 2023: Actor Akshay Kumar has held a virtual interaction with students and faculty members of IIT-Indian School of Mines in Dhanbad on his upcoming movie 'Mission Raniganj The Great Bharat Rescue'. The movie is based on the heroic act of mining engineer Jaswant Singh Gill, an alumnus of the institution, who had saved 64 miners trapped in an inundated underground mine in West Bengal's Raniganj under the jurisdiction of Eastern Coalfields Limited in 1989. The actor discussed Gill's heroic act and other issues during the interaction held at Penman auditorium of the institution from 6.30 pm to 7.30 pm on Friday. Gill, a 1965-batch mining engineer from the then Indian School of Mines (ISM), was honoured with the Sarvottam Jeevan Raksha Padak by the then President Ramaswamy Venkataraman in 1991 for his daredevil act. IIT-ISM Director Professor J K Pattanayak, who was present during the virtual interaction, said, "Students asked him several questions on different issues including his upcoming film. The Bollywood star replied to all the queries. He also expressed his desire to visit the institute."

(Source: https://timesofindia.indiatimes.com/)

Centre's action plan to check air pollution in Delhi comes into force from Sunday

NEW DELHI, Sept. 30, 2023: The Graded Response Action Plan (GRAP), a set of anti-air pollution measures implemented in the Delhi-NCR region during the winter season, is set to be activated starting Sunday. The Commission for Air Quality Management, an autonomous body tasked with improving air quality in Delhi and its neighboring areas, made significant changes to the GRAP last year and again in July this year. The updated changes include stringent restrictions on the operation of old vehicles and a complete ban on the use of coal and firewood in eateries, restaurants, and hotels when the air quality index (AQI) surpasses the 200 mark. Furthermore, if the Air Quality Index (AQI) exceeds 400, BS III petrol and BS IV diesel four-wheelers will be immediately banned in Delhi and nearby areas, including Gurugram, Faridabad, Ghaziabad, and GautamBuddh Nagar.

(Source: https://timesofindia.indiatimes.com/)

Coal Ministry Seals Deals with bidders of Six Coal Mines for Commercial Mining

NEW DELHI, Sept. 29, 2023: The Ministry of Coal has executed agreements with six successful bidders of coal mines under Commercial Mining in 7th round of auctions here today. The momentous event marked the successful auction of 91 coal mines ever since the inception of Commercial Coal Mining in the country by Prime Minister Shri Narendra Modi in 2020. Out of these six coal mines, four mines have undergone partial exploration and the other two are fully explored. The mines for which these agreements have been executed are Meenakshi West, North Dhadu (Eastern Part), North Dhadu (Western Part), PathoraEast, Pathora West and Sherband. The Successful Bidders encompasses notable entities such Hindalco Industries Limited, NTPC Mining Limited, NLC India Limited, Shri Bajrang Power &Ispat Limited and Nilkanth Mining Limited.

(Source: https://www.psuconnect.in/)

Make action plan for environment-friendly use of abandoned mines: Jharkhand governor

RANCHI, Sept. 26, 2023: Jharkhand governor CP Radhakrishnan on Friday stressed the need for proper and environment-friendly use of abandoned mines. Addressing the second Jharkhand Mining Summit here, he said that once mining is over, an action plan should be in place for maintenance of the mines by making them environment-friendly. Radhakrishnan said, "Many countries of the world are cultivating the deserts by making them fertile with new technologies. Why can't we make proper use of the closed unused mines?" The Governor said that Jharkhand occupies an important place from the point of view of its mineral reserves. "The state also plays an important role in the industrial development of the country, but there has not been expected progress in the lives of people here," he said.

(Source: https://timesofindia.indiatimes.com/)

Sustainable utilisation of coal mine water resources by PSUs results in benefit for around 17.7 lakh people

NEW DELHI, Sept. 27, 2023: The sustainable utilization of mine water resources by public sector companies under the coal ministry has benefited over 17 lakh people in nine states. The stored mine water is used for various purposes such as domestic and drinking water supply, irrigation, groundwater replenishment, dust suppression, and machinery washing. Around 46% of the discharged mine water is allocated for community uses, 49% for domestic and industrial needs, and 6% for groundwater recharge initiatives.

(Source: https://economictimes.indiatimes.com/)

Remarkable Achievement of SECL CMD Dr. PremSagar Mishra in Coal Mining

NEW DELHI, Sept. 23, 2023: SECL CMD Dr. PremSagar Mishra has been awarded the prestigious "MGMI Award for Excellence in Coal Mining" for his outstanding contribution in the field of coal mining. The said award was presented by Shri B. Veera Reddy, Director (Technical), Coal India, at the National Seminar on Green Mining and Net Zero organized by the Mining, Geological and Metallurgical Institute of India (MGMI) in Kolkata. On this occasion, in a Nobel gesture the Dr. Mishra donated the cash prize received to the MGMI library.

(Source: https://www.psuconnect.in/)

2 workers die in illegal coal mine

TNN, Sept. 21, 2023: Two coal miners died in an illegal rat-hole mine

in the Margherita Ledo tea belt area of Assam's Tinsukia on Tuesday. Police said inhalation of poisonous gas is suspected to have caused the deaths. The deceased were identified as RajuRabha of Meghalaya and Dhireswar Kachari of Assam's Goalpara. Another worker was rescued from the mine and hospitalised. Rat hole mining, despite being illegal, is rampant.

(Source: https://timesofindia.indiatimes.com/)

G20 countries must fast forward their net zero plans by 10 years: Climate transparency alliance

BATHINDA, Sept. 20, 2023: The G20 countries are clinging to old, polluting energy while renewables are proving to be cost-competitive, saving money for consumers, finds the new analysis by the Climate Transparency Alliance. The 'Acceleration Call' scorecard outlines ways in which the world's top polluters can fast track their energy transition ahead of the UN Climate Ambition Summit during UNGA78. Climate Transparency is a global partnership in climate action in G20 members.

(Source: https://timesofindia.indiatimes.com/)

Three women buried alive in Dhanbad mine subsidence

DHANBAD, Sept. 19, 2023: The Bharat Coking Coal Limited (BCCL) management managed to dig out two badly mutilated bodies on Monday from a crater formed due to sudden a land subsidence on Sunday noon near the outsourcing patch of Gondudih colliery under Kusunda area of the CIL subsidiary under the Kenduwadi police station. The Dhanbad district administration also sought the help of the NDRF, which has sent a team from Ranchi and joined the operations. While there is no official communique about the incident from the coking coal major, all senior executives of the company, including CMD S Dutta, director (technical) U A Kanwle and area GM V K Goyel remained unresponsive despite repeated calls.

(Source: https://timesofindia.indiatimes.com/)

CMPDI Forays into Non-Coal Exploration, Submits Geological Report of Bauxite Exploration

NEW DELHI, Sept. 19, 2023: Central Mine Planning and Design Institute, A Mini Ratna Company and a Subsidiary of Coal India Limited forays in to Non-Coal Exploration and successfully submitted Geological Report of Bauxite Exploration for the project "Preliminary Exploration (G3) of Bauxite in Madua Pat I Bauxite Block, Lohardaga District, Jharkhand" to National Mineral Exploration Trust (NMET). This project was fully funded by National Mineral Exploration Trust (NMET), Ministry of Mines, Govt. of India.

(Source: https://www.psuconnect.in/)

Coal India organizes seminar on Emerging Trends in Drilling and Blasting

KOLKATA, Sept. 19, 2023: A seminar on "Emerging trends in drilling and blasting with credible solution to challenges" was organized at Coal India HQ. in Kolkata. Shri P.M. Prasad, Chairman, Coal India Ltd. (CIL), while inaugurating the seminar, emphasized on importance of the topic for the advancement and safety of the mining industry. He stated that drilling & blasting constitute significant unit operations in large opencast mines and underscored the need for the adoption of recent global trends for this critical operation. Dr. B. Veera Reddy, Director (Technical), CIL highlighted how technological advancements have ushered in a revolution in the drilling and blasting industry.

(Source: https://www.psuconnect.in/)

J'khand to restrict setting up of new coke units in Dhanbad to combat air pollution

PTI, Sept. 17, 2023: In a bid to improve the air quality of Jharkhand's Dhanbad district, no new hard or soft coke units will be allowed there from October 1, a state pollution board official said on Sunday. The Jharkhand State Pollution Control Board (JSPCB) issued an order in this regard early this week. "This is a temporary restriction, which will remain in force till the Air Quality Index (AQI) falls within the permission limit prescribed by the Central Pollution Control Board in Dhanbad district," JSPCB member secretary Y K Das told PTI.

(Source: https://economictimes.indiatimes.com/)

BCCL to make construction sand from mining residue

RANCHI, Sept. 8, 2023: Coal India Limited's Dhanbad-based subsidiary Bharat Coking Coal Limited (BCCL) has rolled out a project which aims to segregate sand from the overburden (OB) from its open cast coal mines for commercial use. In coal mining parlance, OB is referred to the topsoil, rock, stone, and layers of earth which is removed by miners to get to the coal seam (coal deposits within layers of rock). Overburden is usually considered a spoil or waste.

(Source: https://timesofindia.indiatimes.com/)

Coal India's Endeavour to Enhance Green Cover

NEW DELHI, Sept. 6, 2023: Coal India Limited (CIL), the state-owned coal mining company of India, has been making efforts to enhance the country's green cover. In accordance with the ACA (Additional Compensatory Afforestation) standards, CIL has identified about 2900 hectares of afforested non-forest de-coaled land for compensatory afforestation. ACA is a method of proactive afforestation that is grown in advance on non-forest land. This method helps to ensure that there is no net loss of forest cover when coal mining takes place. ACA has been shown to be an effective way to restore degraded land and improve biodiversity. The compensatory afforestation project by CIL is expected to help expand the country's green cover by over 2900 hectares. This will not only improve the environment but also help to mitigate the impact of climate change.

(Source: https://www.psuconnect.in/)

Govt to start critical mineral blocks auction process this year Bloomberg

NEW DELHI, Aug. 30, 2023: India is preparing to start the auction process for some 100 critical mineral blocks in the next four months, as part of plans to secure domestic supplies of the raw materials needed to fuel the green energy transition. The blocks are for minerals including nickel, lithium, cobalt and platinum, along with rare earths, Mines Secretary VivekBharadwaj said in an interview in New Delhi.

(Source: https://timesofindia.indiatimes.com/)

Coal transition won't lead to job losses if system aptly executed: ISA DG

PTI, Aug. 29, 2023: The transition will have the highest impact on the people in Jharkhand, Chhattisgarh, Odisha, West Bengal, Madhya Pradesh, and Telangana, the study by think tank National Foundation for India said. India won't experience any job losses in coal-dependent regions as it transitions towards renewable energy, provided the country designs its systems correctly, says Ajay Mathur, Director-General of the International Solar Alliance (ISA). In an interview with PTI, Mathur also said energy security remains a driving force, especially in view of the Russia-Ukraine war impacting traditional energy sources.

(Source: https://www.business-standard.com/)

Secretary, Ministry of Mines inaugurated workshop on critical Minerals

NEW DELHI, Aug. 28, 2023: Shri Vivek Bhardwaj, Secretary, Ministry of Mines, Government of India inaugurated a workshop on critical Minerals organised by Indian National Committee World Mining Congress at New Delhi on August 28, 2023. Shri M. Nagaraju, Additional Secretary, Ministry of Coal, gave the Opening Remarks while Dr B. Veera Reddy, CMD, CCL delivered the Welcome Address on the occasion.

(Source: https://www.psuconnect.in/)

Pelma to become SECL's first opencast mine to produce coal under MDO mode

NEW DELHI, Aug. 24, 2023: SECL's Pelma mine will become the first opencast mine in Chhattisgarh under MDO (Mine Developer and Operator) mode. South Eastern Coalfields Limited (SECL) has signed an agreement with Pelma Collieries to operate Pelma opencast mine located in Raigarh area. According to the agreement, Pelma Collieries will operate the mine for the next 20 years, under which Pelma Collieries will be responsible for all activities related to designing, financing, procurement, construction, operation, and maintenance of the project.

(Source: https://www.psuconnect.in/)

Chandrayaan-3 landing: Technical institutes, schools in Jharkhand to organise live streaming to motivate students

PTI, Aug. 23, 2023: Jharkhand's top technical institutions and several schools are all geared up to organise live streaming of the soft landing of ISRO's Moon mission Chandrayaan3 on Wednesday, seeking to ignite a passion for space exploration among budding scientists. Indian Institute of Technology (IIT-ISM), Dhanbad, Birla Institute of Technology (BIT), Mesra, National Institute of Advanced Manufacturing Technology (NIAMT) and others have made arrangements for the live streaming, officials said.

(Source: https://economictimes.indiatimes.com/)

Coal India's push for Thermal and Solar Power projects

NEW DELHI, Aug. 19, 2023: Shri P. M. Prasad, Chairman, Coal India Ltd. (CIL) met Shri U. K. Bhattacharya, Director (Projects), NTPC at CIL's corporate office in Kolkata. The discussions were held on opportunities for CIL & NTPC to collaborate on solar and thermal power projects. Shri Debasish Nanda, Director (Business Development), CIL, Shri O. P. Singh, CMD MCL, and other senior officials of CIL, MCL, and NTPC were present on the occasion.

(Source: https://www.psuconnect.in/)

Coal Ministry Undertakes Railway Projects Costing Rs. 26000 Cr

NEW DELHI, Aug. 14, 2023: To strengthen India's energy security and realize the vision of Atmanirbhar Bharat by reducing the reliance on imported coal, the Ministry of Coal is actively working on the development of the National Coal Logistic Plan, which includes First Mile Connectivity (FMC) through railway siding near coal mines. The Ministry of Coal has prepared plan to improve the mechanized coal transportation and loading system under FMC projects. In an ongoing pursuit of sustainable development and environmental conservation, the concept of First Mile Connectivity has emerged as a game-changer. This groundbreaking approach is revolutionizing coal transportation creating a positive and lasting impact on the environment.

(Source: https://www.psuconnect.in/)

WCL concludes Annual Mine Safety Fortnight 2022

NEW DELHI, Aug. 12, 2023: The closing and prize distribution ceremony of the annual Mines Safety Fortnight 2022 was organized on August 11, 2023, under the joint aegis of the Directorate General of Mines Safety and Western Coalfields Limited. Honorable Shri Prabhat Kumar, Director General of Mines Safety, DirectorateGeneral of Mines Safety, Dhanbad was present as the Chief Guest at the function held at Kavivarya Suresh Bhat Auditorium, Nagpur. The program was presided over by Shri Manoj Kumar, CMD, WCL.

(Source: https://www.psuconnect.in/)

MCL revives pre-independence Talcher UG coal mine in Odisha

SAMBALPUR, July 11, 2023: Enabled by the amendment in the New Coal Distribution Policy (NCDP) by the Ministry of Coal, Government of India, Mahanadi Coalfields Limited (MCL) is geared up to resume coal production from its 1928-born Talcher colliery in Angul district of Odisha. The company has issued a letter of acceptance (LOA) under Mine Developer cum Operator (MDO) Mode to M/s TMC Mineral Resources Private Limited which will revive coal mining at the Talcher underground mine, which has an estimated reserves of 11 million tonne. This 95-year-old underground mine, developed using the Bord& Pillar method, traces its roots back to 1928 when it was started by the Madras and Southern Mahratta Railway (MSM Railway). After being under different owners, in 1992, the Talcher UG was finally transferred to MCL, which is now the largest coal producing subsidiary of Coal India.

(Source: https://www.psuconnect.in/)

Govt Sets 2025 Deadline to Control Surface Fires at 27 Jharia Coal Mines

NEW DELHI, July 10, 2023: The Leading government on Wednesday in the parliament mentioned that they are majorly focusing to control surface fire. The Jharia coalfield in Jharkhand, India, has long been plagued by underground coal fires, resulting in significant environmental damage. Union Coal Minister Pralhad Joshi said in a written reply that, some coal mines of Jharia in Jharkhand have been burning for many years due to unscientific mining prior to the nationalisation of coal mines. In an effort to address this issue, the government has undertaken a commendable initiative to control surface fires at 27 locations of 19 coal mines in Jharia by the end of 2025.

(Source: https://www.psuconnect.in/)

Vigil in G'chiroli after 3 deaths in accidentat Surjagarh mine

NAGPUR, Aug 8, 2023: Gadchiroli police prevented any flare up in Aheri, Etapalli and Alapalli after death of three persons from the mechanical team in an accident at the Surjagarh mining site on Sunday. On Monday, police arrested operator of the tipper, which had overturned on a camper carrying five members of a mechanical crew, on being discharged from hospital after treatment. The accident had occurred on Sunday evening when the tipper laden with iron ore was descending down the haul road in the open cast mine. The driver claimed there was a brake failure, said sources in police.

(Source: https://timesofindia.indiatimes.com/)

Over 3cr allotted for fish farming in four abandoned CCL mine pits

RAMGARH, Aug 7, 2023: Ramgarh deputy commissioner (DC) Chandan Kumar has sanctioned Rs 3.86 crore for starting fish farming in four abandoned coal mines of Central Coalfields Limited (CCL) in Mandu and Patratu blocks of Ramgarh district. A number of closed coal mines have now turned water reservoirs which could be used in fish farming to offer employment to local village youths. Fish farming will be started by village youths cooperative societies which have been promoted and supported by the district fishery department and the district administration. The district fishery department has identified four abandoned mines which include —Ara coal pit no. 8 and 14 under Kuju area of CCL in Mandu block and Sayal coal pit and Saunda-D coal pit under Barka-Sayal area of CCL under Patratu block, an official of district fishery department said.

(Source: https://timesofindia.indiatimes.com/)

92 Coal Mines successfully auctioned so far under Commercial Auction

Aug. 4, 2023: The Ministry of Coal has successfully completed the auction of coal mines for Commercial Mining under 7th round and second attempt of 6th round. After assessment of bids, the forward e-auctions for six mines had commenced from August 1, 2023 culminating in the successful auction of all six mines on 3rd August, 2023. The details of the coal mines auctioned are as under: -

Among the mines auctioned, two coal mines are fully explored while

four are partially explored. The total geological reserve for these six coal mines is at 2,105.74 Million Tonnes. The cumulative Peak Rated Capacity (PRC) for these coal mines is 7 MTPA, (excluding the partially explored coal mines). The average revenue share has shown an upward trend, increasing from 22.12% in the previous tranche to 23.71%.This higher revenue share indicates a strong and continued interest from industry players and investors in the commercial coal mining sector and stable future of coal mining in India.

(Source: https://www.psuconnect.in/)

Coal India Clocks Impressive Growth in July 2023

NEW DELHI, Aug. 2, 2023: The Ministry of Coal has achieved a substantial surge in overall coal production during the month of July 23, reaching 68.75 Million tonnes (MT), surpassing the figures of 60.25 MT of the month July 22, representing an increase of 14.11%. The production of Coal India Limited (CIL) has increased to 53.63 MT in the month of July 23 as compared to 47.29 MT in July 22 with a growth of 13.41%. The cumulative coal production (up to July 23) has seen a quantum jump of 292.12 MT (Provisional) in FY 23-24 as compared to 265.94 MT during the same period in FY 22-23 with a growth of 9.84%. Additionally, Coal dispatch witnessed a significant boost in July '23, reaching an impressive 74.33 MT, showcasing notable progress compared to the 67.46 MT recorded in July 22, with a growth rate of 10.19%.

(Source: https://www.psuconnect.in/)

Environmental guidelines for stone crushing units

July 31, 2023: Stone crushing sector is an important industrial sector engaged in producing crushed stone of various sizes depending upon the requirement which acts as raw material for various construction activities. Stone crushing operation releases a substantial amount of fugitive dust, which not only pollute the environment, but also pose a health hazards to the workers and the surrounding population. The growth in infrastructure leads to increase in demand of raw materials, thereby resulting in the need to set up new stone crushing units or increase production from existing units. This poses a challenge to maintain the ambient air quality, which is possible if environmental guidelines predetermined by the industry concerned are followed.

(Source: http://www.indiaenvironmentportal.org.in/)

Increase Washery Capacity, and use cutting-edge technologies: Secretary, Coal

NEW DELHI, July 29, 2023: Shri AmritLalMeena, Secretary, Ministry of Coal, in his keynote address at the "National Seminar 2023 on Washing of Coal - Challenges & Opportunities" stressed reducing coal imports, increasing washery capacity for coking and non-coking coal, and using cutting-edge technologies to boost coal production. The seminar was organized by the Indian National Committee (IMC) of the World Mining Congress (WMC) at New Delhi.

(Source: https://www.psuconnect.in/)

Ex-MP, son get 4-year term in Chhattisgarh coal allocation scam case

NEW DELHI, July 27, 2023: A Delhi court on Wednesday sentenced former Rajya Sabha Member of Parliament (MP) Vijay Darda, his son Devender Darda and director of JLD Yavatmal Energy Pvt Ltd Manoj Kumar Jayaswal to four years' imprisonment in a case relating to irregularities in the allocation of a coal block in Chhattisgarh. All three convicts were taken into the custody after the court order. However, these three convicts were granted bail on a personal bond by the court to enable them to challenge their conviction and punishment in the high court. The court also sentenced former coal secretary HC Gupta and IAS officers KS Kropha and KC Samria to undergo three years of imprisonment.

(Source: https://timesofindia.indiatimes.com/)

Beyond Mohali's most luxurious resort, mining pit becomes pond

MOHALI, July 24, 2023: "The only sukh (peace and prosperity) here is for those who visit the five-star resort in Pallanpur," said 20-year-old Ranjit Singh, as he stopped next to a pond that had been formed by rainwater next to his home in Mianpur village of Majri, Mohali. "It is just water gathered in a mining pit. It may look beautiful, but is far more dangerous," he added. There was not much news from Mohali district's eco-sensitive Majri block, notorious for illegal mining and violation of environment and land preservation laws, when heavy rain lashed Punjab last week, but the bad weather rained considerable damage to the remote area which happens be home to the state's most luxurious hotel, but even lacks fiber internet.

(Source: https://timesofindia.indiatimes.com/)

Green energy: BCCL, CCL eye 400 MW solar power by 2025

RANCHI, July 20, 2023: The Bharat Coking Coal Limited (BCCL) and Central Coalfields Limited (CCL), the two Jharkhand based subsidiaries of coal PSU Coal India Limited (CIL) are planning to switch to clean energy by 2025 for meeting the daily power needs of its office premises and residential areas in future. Dhanbad-based BCCL is eyeing to install solar power generation units across its command areas in a bid to produce nearly 100 MW solar power. Likewise, Ranchi-based CCL is eyeing to augment its solar power generation capacity to 300 MW. Meanwhile, CCL has zeroed in its Ashoka coal project in Piparwar area for installing a ground-mounted solar plant of 20 MW capacity. Another site has been identified in Giridih for commissioning a 15 MW capacity plant. Scouting for land is going in its Bermo coalfields in Bokaro as well, CCL officials said.

(Source: https://timesofindia.indiatimes.com/)

Coal Ministry Extends Registration Date for Star Rating of Coal and Lignite Mines

NEW DELHI, July 19, 2023: In an effort to facilitate greater participation and ensure accurate self-evaluation, the Ministry of Coal has extended the last date for registration and self–evaluation for Star Rating of Coal and Lignite Mines from 15th July to 25th July 2023. On May 30, 2023, a notification was issued for the registration of all Coal and Lignite Mines for the Star Rating of the financial year 2022-23. Following this, the Star Rating portal became accessible for registration from June 1, 2023 and the response has been encouraging. 377 mines already have registered on the portal as on 14th July 2023.

(Source: https://www.psuconnect.in/)

Overall coal stock position in India grows 34 per cent to 103 MT: Coal ministry

July 18, 2023: The overall coal stock position in the country rose 34 per cent to 103 million tonnes (MT) on July 16, an official statement said on Tuesday. As on July 16, 2023, thermal power plant coal stock stands at 33.46 MT, which is 28 per cent higher compared to the corresponding period of last financial year, the coal ministry said in a statement. "Coal availability at all locations including pithead coal stock at mine end, stock in transit and TPPs is 103 MT as against 76.85 MT last year, which is 34 per cent higher year-on-year. The ministry is also closely coordinating with all central gencos (generation companies) and state gencos and there is absolutely no shortage of coal for the power sector," it said.

(Source: https://timesofindia.indiatimes.com/)

SECL mine in Surajpur district under consideration for coal gasification project

July 15, 2023: The possibility of making natural gas, methanol, ammonia and other essential products from coal is being explored in the mines of SECL. If implemented, this will be the first such project in the state of Chhattisgarh. Coal gasification is the cleanest and most

eco-friendly way to convert coal components into electricity, hydrogen, clean fuel and valuable chemicals as opposed to combustion. The possibility of coal gasification project is being explored in Mahamaya opencast mine of Bhatgaon operational area of SECL located in Surajpur district of Chhattisgarh. A plan is being considered to make 'ammonia' as a suitable downstream product here through coal gasification project.

(Source: https://www.psuconnect.in/)

Amid oppn, public hearing for Adani coal mine at Gondkhairi disrupted

NAGPUR, July 14, 2023: Amid high drama owing to stiff opposition by local people, the public hearing called to seek environment clearance for Adani Power Maharashtra Limited's (APML) underground coal mine at Gondkhairi was called off midway by MPCB on Thursday. APML needs 862 hectare of which 87.35 hectare is forest land. The company plans to extract 2 to 3 million tonne per annum coal for its power plant at Tiroda and will also sell coal to other units here. The project cost is Rs1,303 crore and the life of the mine is 30 years. The hearing started at 11am near the proposed mine near Karli Lake. Even as a presentation was being given by APML consultant Anacon, Congress MLA from Saoner Sunil Kedar, in whose constituency the project falls, and several gram panchayat members and sarpanches among others took objection to the hearing.

(Source: https://timesofindia.indiatimes.com/)

Coal Minister Pralhad Joshi visits BCCL

JHARKHAND, July 13, 2023: Shri Pralhad Joshi, Hon'ble Union Minister of Coal, Mines and Parliamentary Affairs, visited BCCL and chaired a review meeting of BCCL and ECL at BCCL's headquarters in Dhanbad, Jharkhand. During his visit, Shri Joshi inaugurated a cafeteria-waiting room, "Vishrantika", and a renovated foyer at BCCL Hq., flagged off a fog cannon, and virtually inaugurated the Govardhan Eco-park, Bera, at Bastacolla Area.

Later, he visited the TEXMiN Innovation Hub at IIT (ISM), Dhanbad. Shri Joshi also visited the subsidence site at Bansjora and inspected the Ena Colliery in Kusunda Area. He was accompanied by Shri P.M. Prasad, Chairman, CIL, Shri Samiran Dutta, CMD, BCCL, Shri A.P. Panda, CMD, ECL, and senior management of BCCL and ECL during the visit.

(Source: https://www.psuconnect.in/)

Road to our temple not allowed. How can forest dept grant mining nod at Guguldoh, ask tribal women

Nagpur, July 11, 2023: Tribals and local leaders on Monday opposed the proposed manganese ore mine at Guguldoh in Ramtek. During a public hearing at the foothills of Guguldoh, all present were united in not allowing mining. They did not allow the mining company Shanti Ispat officials to speak, and disrupted the hearing in the end. The hearing had been called by Maharashtra Pollution Control Board (MPCB) to seek environmental clearance (EC) for the project by Shanti GD Ispat& Power Limited, Raipur. Of the 105 hectares mining area, 100 hectares is rich forest. The locals and leaders were angry with company officials for presenting a hyped and flawed report.

(Source: https://timesofindia.indiatimes.com/)

First Female Coal Mining Engineer at NCL

July 10, 2023: Northern Coalfields Limited, an arm of Coal India got its first Female Mining Engineer. Miss Pramila has become the first woman mining engineer to work in opencast mines at NCL. She has been posted at one of the Mega Projects of NCL Jayant, Singrauli. She stated that working in Coal India Limited, the biggest Coal Producer Company in the world gives her immense pride as she is directly contributing to the energy security of the Nation. Sharing her experience in NCL Miss Pramila said that she is completely satisfied with the amenities provided by the Management and the supportive attitude of her seniors and the harmonious workplace environment of the company motivates her to perform best.

(Source: https://www.psuconnect.in/)

ManikpurPokhri mine to be developed into an eco-tourism spot soon...

July 8, 2023: SECL has decided to develop ManikpurPokhari in Korba district as an eco-tourism destination. This will be the second such eco-tourism site in the state of Chhattisgarh. Earlier, the closed mine at Kenapara in Surajpur district has also been developed by SECL as an eco-tourism site where today tourists come from far and wide come to enjoy boating and other activities. Honourable Prime Minister Shri Narendra Modi himself has praised this tourist destination through a tweet. Under this project, SECL along with Municipal Corporation Korba will spend more than 11 crores to develop ManikpurPokhari located in the district as an eco-tourism destination.

(Source: https://www.psuconnect.in/)

Drone cameras soon to keep check over illegal mining in Ropar

ROPAR, July 7, 2023: In a first of its kind, soon the drone with cameras would be used to assist mining officials in keeping a check over the illegal mining activities in Ropar district, especially in the Anandpur Sahib area of the district. The mining department has decided to purchase drones for which the tenders were being issued. Each drone may cost between Rs one to two lakh. Besides, the mining department would also hire employees to operate these drone-cameras at the illegal mining sites. The department has also got a green signal to purchase some vehicles including jeeps to visit the deep and interior illegal mining sites as the roads to such sites are rugged and steep.

(Source: https://timesofindia.indiatimes.com/)

Order of the National Green Tribunal regarding illegal coal mines in Alakdiha, district Dhanbad, Jharkhand

July 4, 2023: The matter is related to illegal coal mines in Alakdiha, district Dhanbad, Jharkhand which belong to Bharat Coking Coal Limited (BCCL), Lodna area under Coal India Limited. The applicant, Ajay Rajak said that in November 2022, about 20-25 people have lost their lives due to illegal mining in the Central Surunga Paharigora. It is also alleged that the said mines fall in the forest area and due to the mining operations, a part of a temple has also sunk into the ground. It is alleged that about 1500-2000 people including women and children are engaged in illegal coal mining in tunnels which can any day result in a major tragedy.

(Source: http://www.indiaenvironmentportal.org.in/)

IMPORTANT PARLIAMENTARY QUESTIONS

LOK SABHA UNSTARRED QUESTION

Question No. 3281 answered on 9.8.2023

Burning of Coal Mines

3281. SHRI SHANKAR LALWANI:

DR. ARVIND KUMAR SHARMA:

DR. BHARATIBEN DHIRUBHAI SHIYAL:

Will the Minister of **Coal** be pleased to state:

(a) whether it is a fact that the coal mines in Jharkhand have been burning for many years and are yet to be controlled;

(b) if so, the details of the amount of coal estimated to be destroyed by the said fire;

(c) the time by which the said fire is likely to be controlled along with the details of the measures taken in this regard; and

(d) the number of mines which have been burning at present?

ANSWER: MINISTER OF PARLIAMENTARY AFFAIRS, COAL AND MINES (SHRI PRALHAD JOSHI)

(a) & (b): Some coal mines of Jharia in Jharkhand have been burning for many years due to unscientific mining prior to nationalisation of coal mines and it was estimated that about 37 MT of good quality prime coking coal has been destroyed due to fire, as per Jharia Master Plan approved in 2009.

(c) & (d): BCCL is periodically conducting survey by National remote Sensing Center (NRSC) Hyderabad for delineation of surface fire. As per the latest survey report done in year 2020-21, the surface fire area has been reduced to 1.8 sq km spread over 27 locations. Out of these 27 locations, fire at 16 locations is being dealt by operating fire dealing projects through excavation and balance locations are being dealt by blanketing. Surface fire at these locations are likely to be controlled by December 2025. These 27 locations fall under 19 coal mines.

Question No. 2885 answered on 7.8.2023

Management of Hazardous Waste

2885. SHRI MARGANI BHARAT:

DR. SANJEEV KUMAR SINGARI:

DR. TALARI RANGAIAH:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

(a) whether the Government has set any guidelines for management of hazardous waste, if so, the details thereof;

(b) the number of defaulters penalised/punished till now for not complying with such guidelines;

(c) the number of hazardous/contaminant sites present in the country; and

(d) the action taken/being taken by the Government to decontaminate the said sites?

ANSWER: MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (SHRI ASHWINI KUMAR CHOUBEY)

(a) & (b) Government of India has notified the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 in supersession of the Hazardous Wastes(Management, Handling and Transboundary Movement) Rules, 2008, under the Environment (Protection) Act, 1986 to ensure safe storage, treatment and disposal of hazardous wastes in an environmentally sound manner without causing adverse effect to environment and human health. Central Pollution Control Board (CPCB) has published 16 technical guidelines for effective management of hazardous waste in the country. These guidelines are available on CPCB website at https://cpcb.nic.in/technical-guidelines/. Further, for utilization of hazardous and other wastes as a resource, CPCB has prepared 90 Standard Operating Procedures (SOPs) for 63 different categories of hazardous waste. These SOPs are available on CPCB website at http://cpc b.nic.in/sop-for-hw-specific/.

During the last three years, CPCB has taken action against the defaulting units as per the Rule 23.(2) of the Hazardous and Other Wastes (Management and Transboundary Movement)Rules, 2016. The State/UT wise details are as below:

State/UT	No of defaulting units against which action taken
Chhattisgarh	06
Gujarat	17
Haryana	02
Karnataka	04
Maharashtra	238
Tamil Nadu	02
Total	269

(c) & (d) As per the CPCB, there are 127 contaminated sites in the country. Ministry of Environment, Forest and Climate Change (MoEFCC) has provided funds for preparation of Detailed Project Reports (DPRs) for remediation of 20 contaminated sites. A guidance document for 'Assessment and remediation of contaminated sites in India' has been issued by MoEFCC. CPCB has issued a reference document on 'Identification, Inspection and Assessment of Contaminated Sites'. Further, State Governments have initiated remediation of 12 contaminated sites.

Question No. 1722 answered on 31.7.2023

Green India Mission

1722. DR. G. RANJITH REDDY:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

(a) whether target was set to achieve 10 million hectares on forest and non-forest lands for forest/tree cover and improve the quality of existing forest cover under Green India Mission (GIM);

(b) the details of States that have been identified to achieve the above target;

(c) whether Telangana has not been identified under GIM and not allocated funds between 2017- 18 and 2021-22;

(d) whether NITI Aayog has recommended for extending GIM beyond 2021-22; and

(e) if so, whether the Government will consider to include Telangana also under this Mission so that forest cover can further be increased in the State?

ANSWER: MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (SHRI ASHWINI KUMAR CHOUBEY)

(a) & (b) National Mission for a Green India (GIM) is one of the eight Missions under the National Action Plan on Climate Change. The target under the Mission is10 m ha on forest and non-forest lands for increasing the forest/tree cover and to improve the quality of existing forest. Based on the perspective plans submitted by the States and as per the availability of funds, so far seventeen States namely Andhra Pradesh, Arunachal Pradesh, Chhattisgarh, Haryana, Himachal Pradesh, Karnataka Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Odisha, Punjab, Sikkim, Uttarakhand, West Bengal, Uttar Pradesh and one union territory Jammu & Kashmir have been taken up under GIM.

(c) to (e) The States are considered for funding under GIM after evaluation of their perspective plan and Annual plan of operations prepared in accordance with the guidelines of GIM. The state of Telangana has not submitted their Perspective Plan and Annual Plan of Operations under GIM so far and therefore no fundshave been allocated to the State under GIM. The Development Monitoring and Evaluation Office (DMEO), NITI Aayog, Government of India, has conducted the Evaluation of National Mission for a Green India in 2020-21 on aspects such as Relevance, Effectiveness, Efficiency, Sustainability, Impacts and Equity within the scheme and has further recommended the continuation of scheme.

Question No. 682 answered on 24.7.2023

e-waste

682. SHRI BALAK NATH:

SHRI FEROZE VARUN GANDHI:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

(a) whether there is any estimate of e-waste generated in the country and if so, the details thereof;

(b) the details of the action taken by the Government against the violators of the provisions of the e-waste (Management and Handling) Rules, 2011;

(c) the measures taken by the Government to reduce the number of the persons engaged in recycling/dismantling of e-waste in the country drastically specially in Rajasthan during the last three years;

(d) whether as per the e-waste management law, the Central Pollution Control Board and State Pollution Control Board have to conduct random checks on the registered companies on e-waste collection/ recycling targets; and

(e) if so, the details thereof the random checks that have been conducted by the Government so far in this regard?

ANSWER: MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (SHRI ASHWINI KUMAR CHOUBEY)

(a) The Central Pollution Control Board (CPCB) estimates the e-waste generation at national level based on the countrywide sales data provided by producers, and average life of notified electrical and electronic equipment (EEE), as mandated under the E-waste Management Rules, 2016. As per the CPCB, e-waste generated in the country from twenty-one (21) types of EEE notified under the E-Waste (Management) Rules, 2016 in the financial year (FY)2020-21 and 2021-22 was estimated as 13,46,496.31 Tonnes and 16,01,155.36 tonnes respectively.

(b) & (c) Based on the inspections carried out by CPCB and State Pollution Control Boards(SPCBs)/Pollution Control Committees (PCCs), violation of E-Waste (Management) Rules, 2016 was reported in case of ten (10) Extended Producer Responsibility (EPR) Authorised Producers. Accordingly, in April 2019, their EPR Authorisation were suspended. SPCBs verified more than 400 collection centers of these ten (10) producers submitted its verification reports to CPCB. Suspension of EPR authorisation was later revoked in case of eight (08) producers on the basis of corrective measures taken by them and their verification. Further, CPCB in January 2020 carried out inspection of three authorized dismantlers and recyclers in the State of Uttar Pradesh and they were found to be violating E-Waste(Management) Rules, 2016 and Implementation Guidelines for E-Waste (Management)Rules, 2016. Accordingly, CPCB issued direction under section 18(1)(b) of the Water(Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act 1981 to Uttar Pradesh Pollution Control Board in May, 2020 for taking action against them. In September 2022 CPCB issued directions under Section 18(1) (b) of the Water (Prevention and Control of Pollution) Act 1974, and Air (Prevention and Control of Pollution) Act 1981 for checking Informal E-Waste activities, verification of authorized dismantlers/recyclers of E-waste and drives for mass awareness to all SPCBs/PCCs. The Government has not taken any step to reduce the number of the persons engaged in recycling/dismantling of e-waste in the country rather proposes to promote recycling sector.

(d) & (e) Ministry has comprehensively revised the previous set of Rules and notified theE-Waste (Management) Rules, 2022 in November, 2022 and the same is enforce since 1st April, 2023. As per the provision of these rules, CPCB has to conduct random check for ascertaining compliance of the e-waste rules and may take help of Customs/ State Government or any other agency (ies) and SPCBs/PCCs have to conduct random inspection of recycler and refurbisher and monitor recycling capacity utilization. Following inspections/ verifications have been carried out in recent years by CPCB/SPCBs/PCCs:

The Regional Directorate Bhopal, Bengaluru, Kolkata, Vadodara and Lucknow of CPCB carried inspections/ verifications of 33 dismantlers and recyclers during March to May 2019.

In the year 2019, based on the directions of CPCB for compliance verification of dismantler/ Recyclers, 17 SPCBs/PCCs inspected around two hundred and sixty three (263) dismantling and recycling facilities.

In the Year 2018, CPCB directed all SPCBs/PCCs to carry out verification of dismantlers/ Recyclers. Based on the reports submitted, 09 SPCBs/PCCs have inspected around 167 dismantlers & recycler.

An Action Plan for enforcement of E-Waste (Management) Rules, across the country is in place and is being implemented by all the SPCBs)/PCCs. The Action Plan contains action points on inspections of dismantlers/ recycler, verification of facilities of producers and also checking informal e-waste units. During financial year (FY) 2019-20, total 22 SPCBs/PCCs have carried out inspection of 227 dismantlers/ recyclers and 608 E-Waste Collection centers to verify compliance of the rules.

RAJYA SABHA UNSTARRED QUESTION

Question No. 2047 answered on 7.8.2023

Mining Affected Areas

2047# SHRI AJAY PRATAP SINGH:

Will the Minister of MINES be pleased to state:

(a) the agency or Department primarily responsible for identifying mining affected areas and whether such mine-affected families/ persons, villages and Tehsils have been identified;

(b) if so, the details of such families and villages in Sidhi and Singrauli districts of Madhya Pradesh; and

(c) the details of the work done so far for the benefit of mining affected families/persons and villages falling under Sidhi and Singrauli districts from the District Mineral Foundation fund?

ANSWER: THE MINISTER OF MINES, COAL AND PARLIAMENTARY AFFAIRS (SHRI PRALHAD JOSHI)

(a) to (c): Ministry of Mines circulated guidelines for Pradhan Mantri Khanij Kshetra Kalyan Yojna (PMKKKY) vide order dated 16.09.2015 under which instructions have been issued to the District Mineral Foundations (DMFs) for identification of affected areas and people to be covered under the PMKKKY scheme.

In exercise of the powers conferred by Section 9B, Section 15(4) and Section 15A of the MMDR Act, 1957, Government of Madhya Pradesh has notified DMF Rule 2016, which, *inter-alia*, prescribes the composition and function of DMF, manner in which DMF shall work and procedure of utilization of funds under DMFs.

The State Government has informed that as per rule 12 (1)(iv) of Madhya Pradesh District Mineral Foundation Rule 2016, the entire area of Madhya Pradesh is mining effected area. Details of work done in Sidhi and Singrauli districts from DMF is stated below -

Name of District	Collection in Rs. Cr. (as on May 2023)	No. of Projects Sanctioned	Amount Sanctioned (in Rs. Cr.)	Amount Spent (in Rs. Cr.)
Sidhi	34.10	50	10.87	8.13
Singrauli	3898.48	968	1061.17	878.68

Question No. 1662 answered on 3.8.2023

Impact of making Gumla as an Eco-Sensitive Zone

1662. SHRI DHIRAJ PRASAD SAHU:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

(a) whether the Ministry has made an assessment regarding the impact of making Gumlain Jharkhand as an eco-sensitive zone and its impact on industrial loss and livelihood, if so, the details thereof; and

(b) whether Government has prepared some plan to provide relief to the tribals whose earnings, business and livelihood are affected due to this decision?

ANSWER: MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (SHRI ASHWINI KUMAR CHOUBEY)

(a) & (b) The process of declaration of an Eco-sensitive Zone around a Protected Area is carried out by the Central Government in consultation with the respective State Government and on the basis for proposals received from the respective State Government. The declaration of Eco-sensitive Zone around Palkot Wildlife Sanctuary in Jharkhand, wherein, the territorial area of Gumla Forest Division falls, was published by the Ministry in 2019, on the basis of proposal furnished by the State Government of Jharkhand. The list of activities prohibited or to be regulated within Eco-sensitive Zone has been specified in the notification. As per the information received from the State Government of Jharkhand, no separate assessment has been undertaken regarding impact of making part area as Eco-sensitive Zone on industrial loss and livelihood.

It has also has been informed that within Gumla Forest Division various activities such as Refuse-Derived fuel, Soil Moisture Conservation, Silvi cultural, etc. are promoted by the State Government and through these activities 2,58,515 man days of work has been generated in the Financial Year 2022-23, thus catering to enhancement of livelihood needs of people with interritorial jurisdiction of Gumla Forest Division. Apart from these, various livelihood generation activities like promotion of Lac cultivation, Bamboo cultivation, etc. are also being undertaken by the local communities with support by the State Forest Department.

Question No. 1162 answered on 31.7.2023

Impact of commercial coal mining on the environment

1162. SHRI TIRUCHI SIVA:

Will the Minister of ***COAL*** be pleased to state:

(a) the details of coal mines offered through auction by Government for commercial mining, State/UT-wise;

(b) the details of the Environmental Impact Assessments that were undertaken for each coal mine, State/UT-wise;

(c) the details of the forest cover lost due to commercial mining in these coal mines, State/UT-wise; and

(d) the details of the impact of commercial mining in these coal mines on flora, fauna, soil, and ecosystem of the region, State/UT-wise?

ANSWER: MINISTER OF COAL, MINES & PARLIAMENTARY AFFAIRS (SHRI PRALHAD JOSHI)

(a) Detail of coal mines offered in commercial rounds of auction till date, Tranche-wise and State-wise may be found in the **Annexure-1** enclosed.

(b) to (d) After allocation of coal mine, allocattee is required to take all requisite clearances including Environment and Forest Clearance from Ministry of Environment, Forest and Climate Change [MoEFCC] before start of coal production. Environment impact, Conservation of flora & fauna, forests and wildlife, prevention & control of pollution, afforestation and regeneration of degraded areas, protection of the environment and ensuring the welfare of animals are main objective considered for granting Environment and Forest Clearances. Out of the 86 successfully auctioned coal mines for commercial mining, only 5 coal mines have become operational so far and the details of forest land in these mines is enclosed as **Annexure 2**. *Referred Annexure 1 & 2 in* https://sansad.in/rs/questions/questions-and-answers.

Question No. 1152 answered on 31.7.2023

Mining operations of NLC India

1158 Dr. Anbumani Ramadoss:

Will the Minister of ***Coal*** be pleased to state:

(a) whether Government has given permission to start mining operations of NLC India at Mines- III in Cuddalore District of Tamil Nadu;

(b) if so, the details thereof;

(c) whether Government has received any request from the State Government of Tamil Nadu to withdraw the permission to start mining operations of NLC India at Mines- III in Cuddalore District of Tamil Nadu; and

(d) if so, the details thereof?

ANSWER: MINISTER OF PARLIAMENTARY AFFAIRS, COAL AND MINES (SHRI PRALHAD JOSHI)

(a) to (b): NLCIL has obtained its mining lease from Government of Tamil Nadu for an area of 25900 Ha on 29.08.1963. The lease is periodically renewed. At present, the lease is renewed up to 05.12.2036. Mine III project is part of the lease. No application for the permission to open Mine III of M/s NLCIL has been received by Coal Controller.

(c) to (d): So far, no such request has been received from the State Government of Tamil Nadu.

Question No. 840 answered on 27.7.2023

Construction in Eco-Sensitive Zone of Joshimath

840. SMT. PRIYANKA CHATURVEDI:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

(a) the steps taken by Government in response to the recommendations of the Mishra Committee in reference to the Joshimath crisis;

(b) the number of projects sanctioned in the region in the last decade;

(c) whether any impact assessment was conducted before sanctioning such projects; and

(d) if so, the details thereof?

ANSWER: MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (SHRI ASHWINI KUMAR CHOUBEY)

(a) to (d) Action on the recommendation of the Mishra Committee are required to be taken up by the Government of Uttarakhand. As per National Policy on Disaster Management, the primary responsibility of disaster management including disbursal of relief and there habilitation of the people affected due to disaster also rests with the State Government. The Central Government provides necessary financial and logistics support as per established procedure.

Pursuant to the land subsidence incident reported recently in Joshimath, Chamoli District, all construction activities have been stayed by the State Government in the entire Joshimath area, including Tapovan-Vishnugad power project and Helong Marwari By-Pass Road. The situation is being continuously monitored at various levels in the State and Central Government. Further, the Central Government and State Government are working in close coordination with all the agencies concerned for mitigating the effect of land subsidence in Joshimath area. The Central Government has also framed a detailed procedure for assessment of environmental and social impacts for developmental projects and is prescribed in the Environment Impact Assessment Notification, 2006, as amended from time to time. The notification inter-alia provides for four stages of consideration process i.e., Screening, Scoping, Public Consultation and Appraisal by the Expert Appraisal Committee (EAC). Environmental clearances are issued only after detailed study and analysis of developmental projects listed in the Schedule to the notification and subject to compliance of necessary environmental safeguards. Project specific conditions related to safety measures like installation of Early Warning Telemetric system, implementation of Emergency Preparedness Plan, Disaster Management Plan, Dam Break Analysis, Catchment Area Treatment plan, stabilization of muck disposal sites, rim plantation, pasture development, nursery development, etc. are also prescribed in the Environmental Clearances to Hydroelectric projects. As per the records, in the last decade, the Ministry has granted environmental clearances to Vishnugad Pipalkote Hydroelectric Project (444 MW installed capacity), Aerial Passenger Ropeway from Ghangaria to Hemkund Sahib (Phase-l) and Sanitary Landfill at Joshimath tehsil in Chamoli District, Uttarakhand by following due procedures and incorporating requisite environmental safeguards.

Environmental Clearance accorded to Mining Projects

Project Details	Date of EC Submission	Date of EC Granted
State: Assam (Category: Non-Coal Mining)		
Project No: J-11011/388/2016-IA II (I), Project Name: Onshore Oil & Gas development drilling of 73 Nos drilling wells in Tinsukia and Dibrugarh districts under Hugrijan, Naharkatiya & Naharkatiya Extn, Sapkaint and few parts of Dumduma (Block A & B), Borha, District: Tinsukia, Tehsil: Tinsukia, Company: M/s. OIL INDIA LIMITED, Type of project: Expansion.	2.2.2022	31.7.2023
State: Jharkhand (Category: Coal Mining)		
Project No: IA-J-11011/18/2019-IA-II(I), Project Name: KOTRE BASANTPUR PACHMO, District: Bokaro, Tehsil: Gumia, Company: M/s. Central Coalfields Limited, Type of project: New.	11.3.2022	18.9.2023
State: Karnataka (Category: Non Coal Mining)		
Project No: J-11015/13/2021-IA.II(M), Project Name: Kumaraswamy Iron Ore Mine (M.L.No.1111, working Area 477.49Ha. out of 639.80 Ha. of ML area of M/s.NMDC Limited from existing Total Excavation of 8.6 MTPA (RoM iron ore: 7.0 MTPA & Waste excavation:1, District: Bellary, Tehsil: Sandur, Company: M/s. NMDC LIMITED DONIMALAI, Type of project: Expansion.	23.5.2022	10.7.2023
State: Madhya Pradesh (Category: Coal Mining)		
Project No: IA-J-11015/163/2018-IA-II(M), Project Name: TAWA-III UG, District: Betul, Tehsil: Ghoradongari, Company: M/s. Western Coalfields Limited, Type of project: New.	16.5.2023	11.9.2023
State: Madhya Pradesh (Category: Non-Coal Mining)		
Project No: J-11011/700/2008-IA.II (I), Project Name: Proposed expansion of limestone mine from 3.5 MTPA to 5.0 MTPA within existing mining lease area (363.440 ha) [Forest area – 66.359 ha, revenue area – 297.08 ha] top soil/alluvium: 0.039 MTPA, Overbur, District: Satna, Tehsil: Maihar, Company: M/s. RCCPL PRIVATE LIMITED, Type of project: Expansion.	26.2.2023	18.9.2023
Project No: J-11015/29/2020-IA.II(M), Project Name: Amanganj Limestone Mine (ML Area: 1793.59 ha) with Proposed Limestone: 3.75 Million TPA, Top Soil: 0.40 Million TPA & OB/IB: 9.60 Million TPA (Total Excavation: 13.75 Million TPA) along with installation of 1600 TPH Capacity of Crusher at Villages: Beli, Baraha Kala, Hinouti, Tehsil: Gunour and Villages: Chikalhai, Daharra, Gaura, Hinouta Mishra, Kanti, Mahewa, Patelpura, Pawaiya, Tehsil: Amanganj, District: Panna, State: Madhya Pradesh, District: Panna, Tehsil: Gunnor, Company: M/s. ECO CEMENTS LIMITED, Type of project: New.	10.8.2022	4.8.2023
State: Maharashtra (Category: Non-Coal Mining)		
Project No: IA-J-11011/168/2019-IA.II(I), Project Name: Manufacturing of 2400 TPA of Manganese Oxide by roasting and 2400 TPA of Medium Carbon Ferro-Manganese & Low Carbon Ferro-Manganese OR, 80 TPA of Ferro Molybdenum OR, 80 TPA of Ferro Vanadium OR, District: Nagpur, Tehsil: Nagpur (Rural), Company: M/s. VIBHUTI ALLOYS, Type of project: Expansion.	13.4.2023	19.7.2023
State: Orissa (Category: Non-coal Mining)		
Project No: J-11015/1155/2007-IA.II(M), Project Name: Guali Iron Ore Mining Project, District: Kendujhar, Tehsil: Barbil, Company: M/s. ODISHA MINING CORPORATION LIMITED, Type of project: Expansion.	9.2.2022	17.7.2023
State: Rajasthan (Category: Non-Coal Mining)		
Project No: J-11015/182/2013-IA.II (M), Project Name: Bajri Minor Mineral, District: Tonk, Tehsil: Peeplu, Company: M/s. SHRI SOMPRAKASH SETHI, Type of project: New.	25.2.2015	10.7.2023

EIACP Query Form

1. Name : **2. Designation :**

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I would like to search your database in the following areas: (tick appropriate subjects)

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3. Ecorestoration	9. Policy and Planning	15. Air Pollution	21. Health and Toxicology
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5. Land Subsidence	11. Hydrogeology	17. Environmental Management	23. Remote Sensing and GIS
6. Noise and Vibration	12. Acid Mine Drainage	18. Socio Economic Environment	

Please mail to the attention of **Prof. Anshumali**, Coordinator & **Dr. Vittal H.**, Co-coordinator
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Various Activities of IIT(ISM) EIACP Programme Centre, Dept. of ESE

Lamp Lighting by **Prof. Anshumali,** HOD/ESE and **Prof. B.K Mishra**, IIT(ISM) Dhanbad on the occasion of Teacher's Day on 05.09.2023.

Prof. Anshumali, HOD/ESE address the event with well wishes, and vote-of-thanks on the occasion of Teacher's Day on 05.09.2023.

Faculties, students and staff showing Mission LiFE awareness creatives and took Mission LiFE pledge on 05.09.2023.

Prof. Anshumali, HOD/ESE IIT(ISM) Dhanbad delivered a Keynote lecture during the Workshop on "Bund Stability and Solid Waste Management" organized by JSW Steel on 09.09.2023.

Group Photo : Workshop on "Bund Stability and Solid Waste Management" on 09.09.2023.

Glimpses of World Ozone Day Celebration on 16.09.2023

Chief Guest **Prof. Dheeraj Kumar**, Deputy Director, IIT(ISM) Dhanbad delivered Inaugural Address on the occasion of "World Ozone Day" on 16.09.2023.

Keynote Lecture delivered by **Prof. Anshumali**, HOD/ESE IIT(ISM) Dhanbad on 16.09.2023.

Keynote lecture by **Dr. Parul Maurya**, Programme Officer, EIACP (PC-RP), IIT(ISM) Dhanbad on 16.09.2023.

School and College students participated in the Quiz Competition on the World Ozone Day on 16.09.2023

Prof. J. K. Pattanayak, Director, IIT(ISM) Dhanbad, **Mr. Prabodh Pandey**, Registrar, IIT(ISM) Dhanbad and **Prof. Anshumali**, HOD/ESE, IIT(ISM) Dhanbad along with school/college students, research scholars, faculty members and staff on the occasion of World Ozone Day 2023 celebration.

Glimpses of Drawing Competition on World Ozone Day on 16.09.2023.

Inauguration of Mission LiFE Selfie Stand on 16.09.2023.

Group Photo.

Glimpses of EIACP Regional Evaluation Workshop Meet for East Zone at Raipur, Chhattisgarh

Lightning of lamp ceremony on 21.09.2023.

Inauguration of the Special Edition of Monograph on Mission LiFE: Sustainable Lifestyle Approaches Towards Environment and Climate Change (Vol. 21, 2023) on 21.09.2023.

Prof. Anshumali, HOD/ESE, IIT(ISM) Dhanbad, delivered presentation during the Evaluation Workshop on 21-09-2023.

Mr. Bishwajit Das, Information Officer, IIT(ISM) EIACP (PC-RP), delivered presentation during the Evaluation Workshop on 21.09.2023.

GROUP PHOTO OF EIACP REGIONAL EVALUATION WORKSHOP MEET FOR EAST ZONE AT RAIPUR, CHHATTISGARH

STUDENTS TOOK PHOTOS AT MISSION LiFE SELFIE POINT ON 16-09-2023.

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