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IMPACT OF COAL MINING (PART 3 - ACID LEACHATE)

Leaching is the process wherein any liquid that in the course of passing through a matter, extracts soluble or suspended solids or any other components through which it passes. In effect it is the liquid that drains or leaches. Typically leachate occurs as a result of interaction of water with landfill or percolation through completed site. Leachate happens after oxidation of sulphur, which increases the acidity of the environment. Transportation of leachate depends on the porosity as well as the channels.

Leachate is characterized by high concentration of organic matter, ammonia nitrogen, heavy metals and chlorinate organic and inorganic salts. Characteristics of leachate depend on the composition of waste, amount of precipitation, site hydrology, waste compaction, cover design, sampling procedures, the interaction of leachate with the environment, landfill design and operation.



Mining waste rock dump (WRD) is a potential polluting system which can be a generator of polluting leachate and transporting of polluting waste outside WRD. Waste rock dump is heterogeneous in terms of grain size and structure. They are produced by mechanical process such as drilling, blasting, ripping etc. WRDs have the most concern because of their ubiquitous presence around the mines the sulphur and metal content of WRD are very low. The rocks extracted before excavating the ore has the large grain size generally piled up around mines. The leachate contains sulphuric acid reduces pH of the water body, under this conditions ferric sulphate oxidized to ferric ions which are capable of oxidizing other metals such as lead, zinc copper and cadmium. This leads to high concentration of dissolved toxic metals.



The **environment impacts** of mine waste depend on the type and composition of the ore, the technology which is being used to extract the ore. Generally, the impacts can be categorized as loss of productive lands, the introduction of sediments, acidity and other contaminants in surrounding surface and groundwater. Careful disposal practice should be adopted in the management of mine

waste to ensure long-term stability of the storage to prevent and minimize air, water and soil contamination. Technology advancements and changes in regulations have resulted in significant changes in waste management practices. The design of storage facility should take extreme events such as earthquake and floods into consideration. Though waste management method used at a particular mine depends mainly on an evaluation of cost, environmental performance and risk of failure. Selection of appropriate waste storage locations, a proper material characterisation with the prediction of long-term chemical behaviour ensure successful management of waste.

The impact of acid mine leachate can be countered with the help of prediction of leachate and mine design. Mining operations need not produce acid leachate as the rock may contains acid buffering minerals such as lime, calcite, carbonate or bicarbonate which neutralize acidic waters. Prediction of acid leachate needs a in-depth understanding of the physical, geological, geochemical and mineralogical characteristics of the mine site. Mines can be designed in way that excavation of sulphide minerals is kept minimum.

FOREST MINISTRY OPENS UP 92,000 HECTARE OF FORESTS

The forest ministry has been on a land diversion spree recommending a massive 91,798 hectare area (918 sqkm) to be diverted in the last eight months.

The decision was taken by the Forest Advisory Committee (FAC) of the ministry of environment, forest and climate change (MoEF & CC), raising serious concerns for the environment at a time when forested lands are being considered valuable carbon sinks.

FAC has diverted forest area towards 70 projects, which is equivalent to four times the area of Maharashtra side of Pench Tiger Reserve (257 sqkm).

A review of the FAC minutes by members of a Delhi-based facility – the Environment Impact Assessment Resource and Response Centre (ERC) – revealed that in May, 61,278

hectare (613 sq.km) was recommended in one meeting alone.

"FAC seems to be in a tearing hurry to divert forest land. This can be gauged from the fact that in August, three meetings were held to clear projects involving 15,027 hectare area.

Interestingly, the compilation of area excludes proposals up to 40 hectare which are dealt with at the regional level," said Pushp Jain of the ERC.

During the period, FAC considered 134 proposal, out of which it rejected just two. 70 projects were recommended for diversion, while the rest were deferred for want of more information.

Among the major proposals that were cleared included the controversial river linking Ken-Betwa main project which had diversion of 6,017 hectare of forest land in favour of National Water Development Agency

(NWDA), in Chhattarpur near Panna and Tikamgarh in Madhya Pradesh.

Jain said the project is going to cause irreparable damage to Panna Tiger Reserve. "The project is simply senseless as no account of alternative sites was considered and study does not recommend the project," he said.

ERC had opposed Ken-Betwa proposals as they are illegal in nature as per the section 35 (6) of the Wildlife (Protection) Act, 1972 and a great loss of forest and wildlife.

ERC's Terence Jorge said the recommended projects do not include 695.72 hectare forest land for limestone mining at Shedwai in Chandrapur district. "But this was done owing to legal complications and not considering the area which falls in the Tadoba-Kawal tiger corridor," he said.

[Times of India](#) October 9, 2017.

NGT directed CPCB to take action against 35 non-complying power plants which are failed to install online emission and effluent monitoring system.

RESENTMENT MOUNTS AGAINST PANCHESHWAR PROJECT

Even as efforts are on to speedily move towards construction of proposed Indo - Nepal joint venture Pancheshwar Multipurpose Project—resentment against the project continues to grow on ground in Uttarakhand.

While both the Centre and Uttarakhand governments are keenly pursuing the Pancheshwar project, those opposing the project in Uttarakhand argue that there was no point in uprooting people in mass scale when the villagers affected by the construction of hydro power projects at Tehri, Vishnugad Pipalkoti, Asi Ganga and Vishnuprayag, were still struggling to get land-based rehabilitation and agitating for basic facilities.

Anti-dam crusader Vimal Bhai, who has been frequently voicing the concerns of power project affected inhabitants of

Uttarakhand argues that the Pancheshwar project will again prove catastrophic for the affected as both the state and central governments are busy more with paper works than working on ground when it comes to addressing the grievances of those directly affected due to the project.

Vimal Bhai questions credibility of the Environment Impact Assessment Committee meeting on the Pancheshwar project held recently asserting that it was for the first time people had to stage a mass agitation at the venue of the meeting for a river valley project.

"It is equally strange that the EIA Committee meeting completed the assessment of the pancheshwar project within less than an hour. When the project that costs Rs 40,000 crore will lead to submergence of 12,000 hectare land in three districts of

Uttarkhand affecting about 40,000 families", he observed.

Harshit Nautiyal from the Uttarakhand Ekta Manch said these rampant hydro projects had only come as a curse for Uttarakhand and only added to the woes of its inhabitants rather than adding any improvement to their living. The anti-Pancheshwar dam protesters have already held series of protests in Kumaon hills where the dam is proposed on the Indian side and also in Delhi. It is noteworthy that the 5040 mega watt Pancheshwar project is a joint venture of India and Nepal and is proposed on Mahakali river that forms the international boundary between the two countries. Uttarakhand's Pithoragarh, Champawat and Almora are the three districts to be affected on Indian side.

[Tribune india](#) October 26, 2017

ONE IN SEVEN COAL POWER PLANT OWNERS ARE HEADING FOR THE EXIT

One in seven coal plant owners worldwide fully or partially phased out their coal fleets between 2010 and 2017.

The first ever global survey of coal phase out plans, released on Wednesday by data trackers Coal Swarm, revealed two different trajectories as the industry collapses in the west but marches on in Asia.

Out of 994 companies with coal plants, 139 closed at least 20% of their capacity, predominantly in north America and western Europe, with 71 retiring their coal fleets completely.

A parallel report by Greenpeace identified 23 cities, regions and countries implicitly or explicitly phasing out coal burning for power.

Together, they show a rapid shift in the politics and economics of coal, researchers say. "Five years ago, nobody was forecasting this," Greenpeace analyst Lauri Myllyvirta told Climate Home News, "so in that sense, things are moving incredibly fast".

At the same time, the data shows 303 first-time coal plant developers are actively pursuing projects, with Asian companies dominating. Interest persists despite a recent clampdown on excess capacity in the two biggest markets: China and India.

In the US, where president Donald Trump is promising to put coal miners back to work, several prominent utilities are steering in the opposite direction.

AES, Berkshire Hathaway, Duke, NextEra Energy, NRG Energy and PSEG have retired 12-77% of their coal capacity in the last eight years, the report shows. Of these, only AES has plans to build a new plant – in the Philippines.

California went coal-free in 2014 and five states are expected to follow by 2025, regardless

of Trump's planned rollback of curbs on coal burning.

Some European majors have changed their names or structures to signify a break from the fossil-dominated past. E.on split its declining thermal power business Uniper off from its renewables business while Dong (an acronym referring to its origins in oil and gas) this month rebranded as Ørsted. Iberdrola retired 82% of its coal fleet.

Eight EU countries including the UK and France have declared plans to quit coal by 2030 or sooner. Last week, the Netherlands' newly formed coalition government confirmed it would close three brand new coal plants early to meet climate targets. The UK and Canada last week announced they would form an alliance of nations who have committed to phasing out coal power.

"In Europe, US, Canada, you can really see companies running away from coal," said Carlos Fernandez-Alvarez, senior energy analyst at the International Energy Agency, commenting on the trends.

The outlook for Asia, which is critical to meeting international climate goals, is more complex.

Coal Swarm highlights that of the 681 first-time coal developers it studied, 56% shelved or cancelled their projects. This is presented as evidence that appetite for the sector is dwindling.

Fernandez-Alvarez said a 56% project drop-out rate was not unusual for large scale energy infrastructure. After a decade of surging coal development in Asia, it was "a big change" to see the trajectory flattening out. But "this is very far from the end of coal,"

he added.

The IEA has revised down its growth forecasts for coal in recent years, "but not that dramatically", said Fernandez-Alvarez. Its central scenario still predicts a slight increase in coal demand over the coming decades.

China slashed the number of construction permits issued to coal power projects 85% between 2015 and 2016, Greenpeace notes.

India is seeing a finance squeeze for coal, as cheap solar power shakes up the market. Its Central Electricity Authority estimates plants currently under construction will be sufficient to meet demand until 2027.

"The markets that have been driving growth have been overbuilt and are really not seeing demand for coal-fired power growing anywhere near as fast as planners imagined," said Myllyvirta.

"If you look at how competitive renewables are already now in India – both wind and solar are able to bid lower [prices] than new coal plants... a rebound [for coal] in ten years is not really a worry."

Still, China's five year plan aims to cap coal power capacity at 1,100GW in 2020, allowing for a 150GW increase from today's level. For comparison the US, with the world's second biggest coal fleet, has less than 300GW.

Of the ten biggest developers of plants in pre-construction planning globally, six are Chinese, two Indian, one Indonesian and one Thai.

[Climate change news](#) October 18, 2017

Asiatic cheetah which is critically endangered found only in Iran. Hunting is one of the major cause for reduction of their population.

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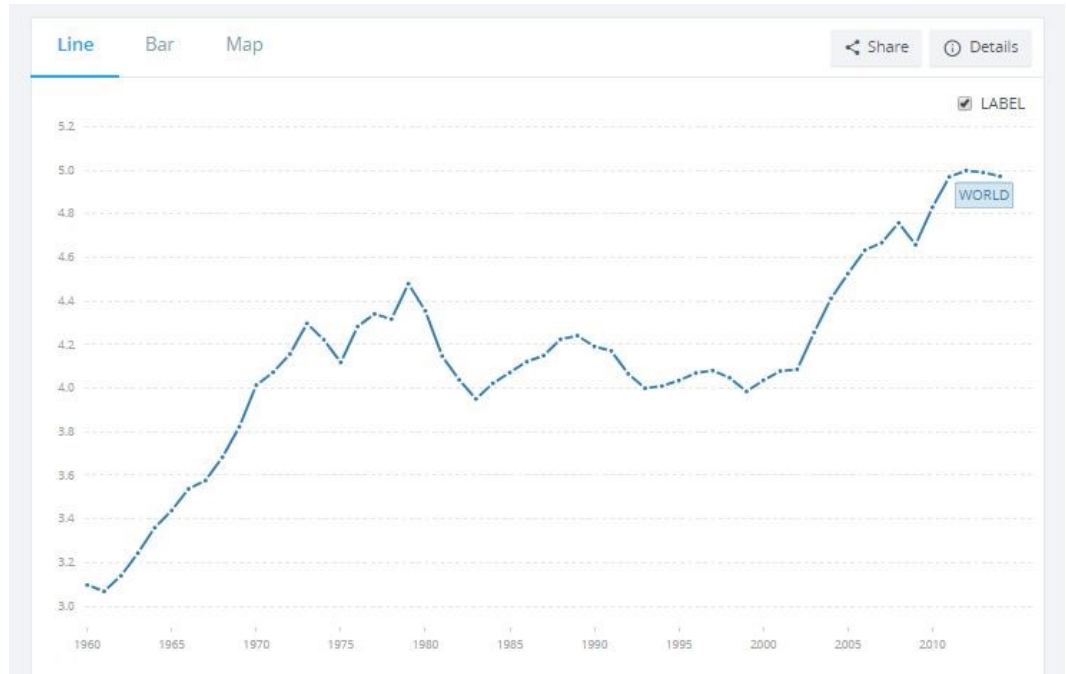
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Citizen consumer and civic Action Group (CAG) is a non-profit, non-political and professional organization that works towards protecting citizens' rights in consumer and environmental issues and promoting good governance processes including transparency, accountability and participatory decision making.

PER CAPITA CARBON EMISSIONS IN THE WORLD BY WORLD BANK



REGULATIONS AND CASES

- S M Govindasamy Vs The State of Tamil Nadu “ Environmental and health concerns due to pollution by processing industries”, 8th October 2017, [Click here](#)
- M.Gobineelan Vs Tamil Nadu Pollution Control Board “Removal of garbage and restoration of land”, 30th October 2017, [Click here](#)

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- Ministry of Environment Forest and Climate Change (2017), “Procedure for measurement of lead contents in household and decorative paints” New Delhi [online], (Accessed on 14th October 2017) [Click here](#)
- Fediuk, R S. et al (2017). Using thermal power plants waste for building materials. *IOP Conf. Ser.: Earth Environ. Sci.* [online] Volume 87(092010), (Accessed on 14th October 2017) [Click here](#)

MISCELLANEOUS

- 5th International Conference on Environment Pollution and Prevention (ICEPP 2017), Singapore, 14-16 December, 2017 [Click here](#)
- Draft model agreement between power utility and municipal corporation for the mandatory use of treated sewage water in thermal power plants from sewage treatment plant as per Tariff policy, 2016, 17th October 2017 [Click here](#)