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Relevant Websites & Contacts

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ACCIDENTS IN POWER PLANTS AND MITIGATION MEASURES

Accidents in thermal power plants are tragic events, leading to loss of livelihoods, economic loss, and environmental damage. Accidents in power plants can bring production to a halt for several days, affecting day-to-day activities of common people. When there is loss of life or limb, the company should adequately compensate the victims. Repair and replacement of damaged sections of the plant is the other major cost incurred.

There are several causes leading to accidents in thermal power plants and the degree of damage varies from case-to-case. For example, coal conveyor belt fire and boiler explosion are two major accidents that can occur in thermal power plants. Most of the industrial accidents can be attributed to human error such as lack of attention in the work place and lack of sufficient and suitable training to handle the situation. Other causes of accidents are faulty or fragile material (sometimes combustible in nature) used in conveyor belts, which are then unable to handle pressure or heat. Making of the equipment, design quality, and installation skills are also some of the causes associated with accidents. We will explore this in the subsequent issues of *Stopppwatch*.

Coal conveyor belt fire

The conveyor is a power equipment commonly used to transport large quantity of materials such as coal and other minerals. Belt conveyors are used in various industries such as cement, mining, and thermal power plants.

Fire hazard is the most commonly seen accident in coal conveyor belts. Conveyor belts are generally made-up of non-combustible materials. Even though non-combustible materials are used, a large fire has the ability to destroy the entire structure. Various reasons associated with fire hazards are; i) friction of belts - belt may lose traction and slip from the driver roller which can cause jamming of the rollers, creating enough heat to produce a fire; ii) cutting or welding activities generate hot molten metal particles which can ignite the belt; and iii) over-heated material from oven or kiln that has not been cooled before being transported via the belt.



Early detection of fire is an essential part in its prevention. As the fire caused by transportation of coal, if unnoticed, may lead to a big accident damaging conveyor units and nearby structures. Fire in the conveyor system can be detected by fire sensors. Functioning of fire sensors is based on the activation temperature; when unusually high temperature is detected, the alarm goes off and it activates the sprinklers. Activation temperature is defined as the temperature at which the sensor is activated. Activation temperature should be set perfectly so that the fire can be extinguished before it spreads to a larger area and damages the entire system. The delay in detecting the fire in the conveyor makes manual fire fighting difficult. For example, conveyor belt fire accidents in Mettur, which brought down four operating units of 210MW, were caused by either friction or electric short circuit. In the case of the Tuticorin plant, fire broke out in a conveyor between primary and secondary crusher. This not only destroyed the conveyor, but also destroyed a crusher unit. The fire was believed to be caused by exposed steel reinforcement coming in contact with the roller to produce enough heat.

Mitigation measures for suppressing the fire include water sprinkler system in which proper sprinkler type and amount of water discharged are key factors in extinguishing the fire. Companies should invest in averting/preventing fires and strengthening fire detection mechanisms as fires can impact the power production in states like Tamil Nadu where the power demand is higher. **(to be contd...)**

MOST POLLUTING INDUSTRIES FAIL TO GET POLLUTION MONITORING DEVICES ON TIME IN DELHI

The Central Pollution Control Board (CPCB) has pushed back its deadline for red-category air polluting industries in Delhi-NCR districts to instal online pollution tracking devices to June 30, almost two months after the original March 31 deadline.

In a letter issued to state pollution control boards of Delhi, Haryana, Rajasthan and Uttar Pradesh, the national pollution watchdog stated that it had extended the deadline after the industries association said that it had been issued directions on the issue only in March.

If the industries fail to comply with these directions, CPCB will take action against under non-compliant industries under the Environment Protection Act, 1986. It has also sought action taken reports from state boards. Senior CPCB officials did not respond to calls or messages.

Red-category industries are the most polluting ones, categorised so on the basis of their emissions gauged over a period of time.

Delhi has faced a crisis of toxic air quality over the past three years and industries surrounding Delhi, such as thermal power plants, have been one of the big pollution contributors.

Last year, state pollution control boards were asked to constitute a committee headed by the member secretary and comprising two senior engineers and scientists to categorise any new or left-over industrial sector which doesn't fall under any of the four categories of red, orange, green and white, and also to resolve issues related to categorisation.

Later, in December 2017, CPCB had asked state boards of Delhi, Haryana, Uttar Pradesh and Rajasthan to direct all red-category air

polluting industries located in 23 districts to install online continuous stack emission monitoring systems by March 31, 2018. These monitoring devices had to be also connected to the server of CPCB and state boards.

The pollution watchdog has steadily moved towards pushing widespread installation of online monitoring devices across industries to directly access pollution levels on their servers and minimize physical inspection of industries.

CPCB and pollution control divisions in the environment ministry receive live data of noise, water and air pollution and state pollution control boards are directed to send messages to errant industries before they take action under the Environment Protection Act. Environment Protection Act.

[DNA India](#), May 21, 2018

Bottom ash :

The heavier portion of coal ash that settles on the ground in the boiler

COAL SHORTAGE MAY HIT GENERATION IN THERMAL POWER PLANTS IN TN

NAMAKKAL: At a time when Tamil Nadu's electricity demand has crossed 15,000 mega watts per day, three major thermal power stations in the State, which collectively produce 4,320 MW on a daily basis, are facing shortage of coal.

The Corporation runs three thermal plants in Thoothukudi, Mettur and North Chennai producing 4,320 MW altogether for which about 50,000 tonnes of coal is used daily. TANGEDCO, which procures coal from Coal India, is now running short of it. With power consumption having gone up in summer touching a new high of 15,440 MW early this month, TANGEDCO had asked the thermal stations

to ensure that the coal lasted for at least 10 to 15 days. But now that they are running low, officials are worried and working on strategies to tackle the imminent crisis.

He further said 3.4 lakh tonnes of coal is kept ready at Paradip port in Odisha, Haldia port in West Bengal and Vishakhapatnam port in Andhra Pradesh for dispatch to Tamil Nadu. TANGEDCO wants the central government to intervene and arrange for shipping facilities to ensure distribution of coal, failing which the state would have to face power crisis. An official in Mettur thermal power plant said, "As the wind season has started early this

month and as we undertake annual maintenance work in summer, we are managing the coal shortage. Chairman Vikram Kapur.

All-time high consumption: With consumption have touched a high of 15,440 MW early this month, TANGEDCO had asked the thermal stations to ensure that the coal lasted for at least 10 to 15 days. But now that they are running low, officials are worried and working on strategies to tackle the imminent crisis.

[New Indian Express](#), May 16, 2018

‘THE RIVER IS DEAD’: IS A MINE POLLUTING THE WATER OF BRAZIL’S XIKRIN TRIBE?

The Xikrin, who have lived alongside the Cateté river in the Amazon rainforest in northern [Brazil](#) for centuries, have a mantra: “The river is our life.” Surrounded by an abundance of plant species, they swim and bathe here.

To fish, the tribe use *timbó*, a toxic vine that reduces the concentration of oxygen in the water, forcing the fish to come to the surface, where they are shot with arrows. “If we use hooks to fish, only one of our families will eat fish,” explains former tribal chief Onkray Xikrin. “But with *timbó* the whole village can eat.”

But the River Cateté is dying, and with it the way of life of the Xikrin. In 2010 Mineração Onça Puma, a company owned by the mining company Vale, began extracting nickel in the nearby hills, which have tributaries flowing into the Cateté. Vale is one of the world’s largest producers of nickel.

Around this time, the Xikrin who were diving into the river say they began suffering itchy skin and burning eyes. The tribe also noticed a decline in the quantity and diversity of fish. In 2015, tests by a professor at the Federal University of Pará [found traces of nickel](#) in the sediment of the river at almost double the safe level downstream from the mines, but no trace upstream.

Now federal prosecutors are battling to have the operations of Mineração Onça Puma – which processes the ore at a plant less than four miles from the territory of the Xikrin – shut down. They are also seeking 50 million Brazilian reais (£10.4m) in compensation for each of the seven affected villages.

The Xikrin fought for 14 years for the demarcation of their territory, a Brazilian constitutional right

that protects their land from exploitation. Miners were also active, with high-quality iron to be found to the east, the largest copper reserves in Brazil to the north, and exceptional nickel to the west. Nearby, in 1985, Vale established what is now [S11D](#), the [largest iron ore mine](#) in the world.

Much of this took place on land that had been originally claimed by the Xikrin. But when the demarcation was ratified, 13,000 of those hectares (321,23 acres) were not included. The nickel mines in the Onça mountain range are permitted as they are not officially in the indigenous territory. But the area is home to the Xikrin cemetery, a place where the dead meet to sing and dance for eternity, according to their culture.

Anthropologist Lux Vidal, emeritus professor at the University of São Paulo and a pioneer in Xikrin studies, says it was known at that time that nickel might be extracted there. “Geologists, especially Canadian geologists I met, told me: ‘This area to the west is an area designed for nickel. Nickel is the worst of things that can happen.’”

In those mountains, two streams begin that flow into the River Cateté. When it rains heavily during the Amazonian winter – between October and April – the water brings sediment and mud from the hillside, turning its waters an earthy red. One stream flows into the Cateté just 500m from the indigenous territory.

When the Xikrin began to suffer headaches, skin irritations and food poisoning in 2013, it was a doctor from the university of São Paulo who told them to avoid the river.

Dr João Paulo Botelho Vieira Filho first met the tribe when he went to vaccinate them to prevent their possible extinction: at that time, only 93 tribe members remained after the population had been decimated by epidemics contracted from outsiders.

The doctor believed the heavy metals had caused many health problems for the Xikrin, including an unprecedented wave of births defects. “The river is dead. If nothing is done, we are on the verge of a chemical ethnocide,” he says. But many of the Xikrin continue to bathe in the river – abandoning it would mean severing ties with their history and culture.

Now the fate of the mines is in the hands of Brazil’s notoriously bureaucratic court system. Federal courts have [ordered the mine to cease activities](#) on three occasions, but the enterprise continues to function after Vale obtained injunctions. The last time it was shut was in 2017, with Vale – for now – allowed to continue operating only the beneficiation part of the extraction process, which improves the economic value of the ore.

Vale does not dispute that pollution exists but says it might be from farming pesticides or illegal miners nearby. In a report for investors to Brazil’s Securities and Exchange Commission, the firm admitted that losing the case could mean facing “a considerable financial impact” and “the cessation of operations at the Onça Puma mine”.

[The Guardian](#), May 15, 2018

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Desalination plant uses reverse osmosis (membrane based) desalination technology to turn seawater into freshwater.

Citizen consumer and civic
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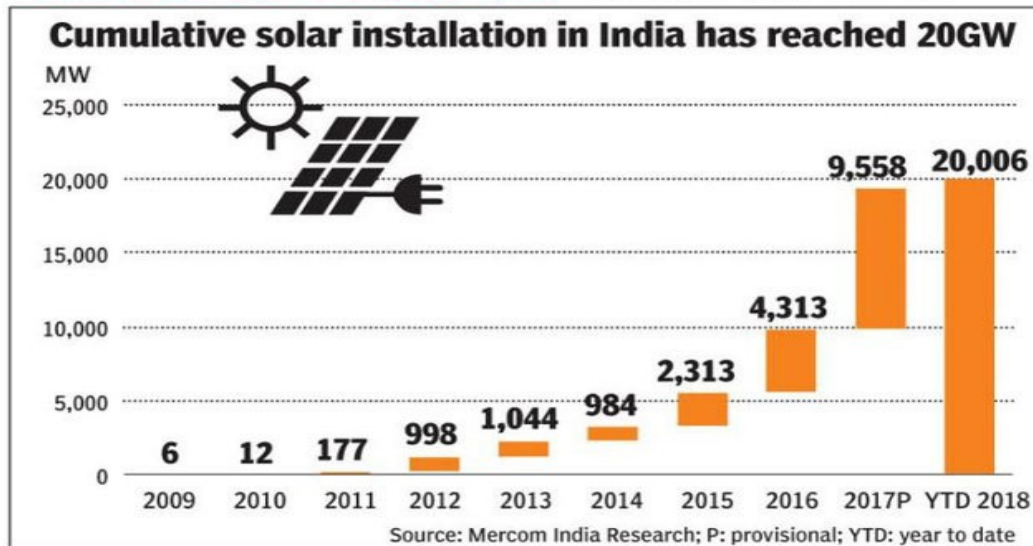
CAG

Citizen consumer and civic Action Group

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.

INDIA HITS 20GW SOLAR CAPACITY MILESTONE - ECONOMIC TIMES

CAPACITY STOOD AT 6MW IN 2009



REGULATIONS AND CASES

- Ashwani Kumar Dubey Vs Union of India & Ors, "Monitoring of potential hazards of industrial development in Singruli area" *Original Application No 164 of 2018* 16 May 2018 [Click here](#)
- *Environment (Protection) Amendment Rules 2018 in the notification number G. S. R. 46E*, For Sale and use of pet coke in cement plant in NCR states . Available at: [Click here](#)

PUBLICATIONS

- Bo Zhao, Guangcai Wen et.al. (2018) Similarity criteria and coal-like material in coal and gas outburst physical simulation. *International Journal of Coal Science and Technology*, [online] Available at : [Click here](#) [Accessed 28 May 2018]
- John Allison et.al. (2018) Assessing domestic heat storage requirements for energy flexibility over varying timescales [online] Volume 136,P 602-616 Available at : [Click here](#) [Accessed 25 May 2018]

MISCELLANEOUS

- The Economy, sustainable development and energy international conference (ESDEIC) will be held on 25th June to 27th June at Queen Margaret University, UK [Click here](#)
- International Conference on Nanotechnology, Renewable Materials Engineering & Environmental Engineering will be held on 24th June at Ooty, India [Click here](#)