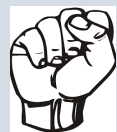


Environment and Social Sustainability in Coal Mining



Dr. Ashok Kumar Jain
Advisor (Plantation & Clearances)
NHAI, New Delhi
(Formerly Advisor, NITI Aayog)
8th March, 2022
email: jainifs@rediffmail.com

Five Pillars of Azadi ka Amrit Mahotsav



**FREEDOM
STRUGGLE**



**IDEAS
@75**



**ACHIEVE-
MENTS
@75**



**ACTIONS
@75**



**RESOLVE
@75**

Certain Key Information about Coal Mines

- Approx. 2550 sq. km area is under different coal mines in India.
- Coal dominates India's energy consumption matrix accounting for 56 % of primary energy consumption
- About 75% electricity generation from coal in India.
- About 4,85,000 persons employed in coal mines in India.
- Current production of coal in the country is about 700 MT.
- Power generation remains the key consumer of coal in India.
- Coal will remain the bed rock of the energy supply for the country till 2030 as per a study by Ministry of Coal.
- About 600-700 Ha. of land is required every year for construction of external dumps for the waste rock.
- Working of coal mines for production of coal generates lot of environmental pollution.

SDGs V/S Coal Mines

- India has committed along with 193 countries to achieve the Sustainable Development Goals (SDGs) by 2030 in United Nations summit in September, 2015.
- 17 Goals & 169 Targets.
- Coal mines are directly related to :

- i. SDG 1 (No Poverty);
- ii. SDG 3 (Good Health & Wellbeing);
- iii. SDG 6 (Clean Water & Sanitation);
- iv. SDG 13 (Climate Action); and
- v. SDG 15 (Life on Land).

SUSTAINABLE DEVELOPMENT GOALS



Nationally Determined Contributions



- In 2015 under Paris Agreement, India has committed the following Nationally Determined Contributions (NDCs) voluntarily:
 - i. Reduce the emission intensity of GDP by 33 to 35% by 2030 from 2005 level.
 - ii. Create additional carbon sink of 2.5 to 3 billion tons of Co₂ equivalent through additional forest and tree cover by 2030.
 - iii. Achieve about 40% cumulative power installed capacity from non-fossil fuel.
 - iv. Develop robust adaptation strategies for agriculture, water and health sectors.

PANCHAMRIT Commitment



- The “PANCHAMRIT” gift extended by the Hon’ble Prime Minister of India to the Global community at COP-26 of United Nations Framework Convention of Climate Change (UNFCCC) at Glasgow, Scotland in November, 2021 to fight climate change:
 - i. India’s non-fossil energy capacity to reach 500 GW by 2030;
 - ii. India will meet 50% of its energy requirements with renewable energy by 2030;
 - iii. India will reduce its total projected carbon emissions by one billion tonnes from now to 2030;
 - iv. By 2030, India will reduce the carbon intensity of its economy to less than 45% ; and
 - v. By 2070, India will become carbon neutral and achieve the target of net zero emission.

Impact of Climate Change



- Nearly 6.65% of total global carbon emission in India – ranked 4th next to China (26.8%), US (14.36%) and EU (9.66%).
- Climate change might also change the ecological balance e.g. Natural disasters being seen nowadays frequently, particularly in the hills like bursting of glacial lakes, landslides (recent cases in H.P. & Uttarakhand), rise of sea levels in coastal areas etc.
- Report of United Nations Intergovernmental Panel on Climate Change (IPCC) highlighted in all the leading newspapers on 10th August 2021 predicts -
 - i. Increase in frequency and severity of hot extremes;
 - ii. Incidents of forest fires may go up;
 - iii. Increase in rainfall will be more severe over the southern parts of India;
 - iv. Glacial lake out bursts, floods and landslides;
 - v. Snowline elevations will rise and glacial volumes will decline; and
 - vi. Regional mean sea level in south Asia will continue to rise above pre-industrial level (1850-1900).

Contd.

- **UN Secretary General urged Governments for immediate action to deal with the crisis.**
- Keeping the above important issues in view, coal companies/coal mines have an important role to play to achieve the above and take the country forward by involving the people in the Towns and villages in and around the coal mines besides creating the livelihood opportunities for them.

RENEWABLE ENERGY

- Special thrust on Renewable sources of Energy from 30 GW in 2016-17 to 175 GW by 2021-22.
- India has anchored the International Solar Alliance to develop technology and finance for solar energy.
 - ❑ Solar - 100 GW (48.55 GW achievement);
 - ❑ Wind - 60 GW (40 GW achievement);
 - ❑ Small Hydro - 5 GW (4.83 GW achievement); and
 - ❑ Biomass based power projects - 10 GW (10.62 GW achievement)
- Now India has put a target of 500 GW renewable energy by 2030.

What the Coal Mines /Coal Companies can do



Plantations

- Massive plantations can be taken up to create green belt with a thick canopy of the tree cover around the mining areas
- Plantations on the external over burden dump areas, internal over burden dump areas and back filled areas.
- Creation of Green belts with plantations in the townships/villages located near the coal mines.

It will definitely help in reducing the air and noise pollution besides improving the air quality.

(Coal India Limited has planted more than 99.6 million trees in an area of about 40,000 ha and Singreni Collieries has planted about 53 million trees in more than 12,000 ha area)

Water Conservation

- Water conservation activities in the abandoned mines by filling it with the excess water from nearby sources during the monsoon season (Recharging the dug wells in Tamil Nadu through NABARD funds)
- Mine water is generally good and it can be conserved and reused.
- Surplus water may be provided to the nearby community for irrigation and domestic use.
- Recharge of surrounding water regime. It will help in maintaining the underground water levels.

Other Sustainable Practices



- As per some reports, over burden generally yields 60-65% sand, 25-30% clay and 5% pebbles.
- Processed sand could be a good alternative for river sand which will help in conserving the river sand and thus retaining water for River Rejuvenation for water security.
- Coal companies may explore the use of overburden in construction of roads like National Highways like use of fly ash from Thermal Power Plants in road construction.
- Coal mines provide the employment to about 4,85,000 coal miners which is definitely a big source of livelihood to them.
- However, dust suppression measures in the coal mines need considerable improvement to prevent the air pollution and lung diseases.

SKILL TRAINING



- Extremely important to provide the skill training to the affected people to generate the additional income from the alternate sources.
- Providing vocational trainings to the affected people and tie up with the various Govt. Institutions and Financial Institutions . Coal companies should help them in this regard.
- Local People to be involved in plantation, water conservation and water recharge activities.
- Forming the women SHGs to take up various activities for improving the family income. It will provide better security to women and children including their health and education.

Other Initiatives

- MoC has already created a Sustainable Development Cell to advise, mentor, plan and monitor about maximizing the utilization of available resources in a sustainable way and minimizing the adverse impact of mining and mitigating it for better environment to the people.
- Strong need of documentation and wide publicity of important activities taken up by coal companies like
 - Plantations
 - Ecological Restoration
 - Development of Eco-parks including Mine Tourism
 - Promoting Renewable Energy including Solar Energy
 - Mine Water Management
 - Rainwater harvesting
 - Sand from over burden etc.

Contd.

- Coal mines are making annual contribution towards escrow fund as collateral for carrying out mine closure. More than Rs.10,000 crores are deposited in the Escrow fund for mine closure.
- A decision may be taken at ministry level to use part of this money to fund the above activities particularly for providing the skills to the local people for their better livelihoods.

All the above suggested measures will definitely go a long way in the history of coal mines for Environment and Social Sustainability.

THANK YOU