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CPSI JOURNAL

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Number - 35

CPSI extends its heartiest greetings to all on India's 74th Independence Day

India has vowed to be self-reliant amid Covid-19 and to achieve this, 'Vocal for Local' should be our key slogan.

— Narendra Modi
Hon'ble Prime Minister of India

Coal Preparation Society of India (CPSI) offers its heartiest compliments to India's coal, power, iron & steel, cement and their allied industries that kept their wheels running in this difficult time of Covid-19.

CPSI JOURNAL

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From the President

With the issue of MoEFCC notification dated 21st May 2020, the coal companies have been given freedom to supply unwashed coal of any ash content without any upper limit, to power plants, irrespective of their distance from the coal supplying mines. We had raised our strong objections to this notification - a highly retrograde step, issued without wide consultations with the stakeholders and subject experts.

The regrettable aspect of the notification was that it was based on inaccurate and unscientific representations made by ministries of coal, power and NITI Aayog to the Ministry of Environment, Forest and Climate Change. The arguments put forth by these ministries were duly contested by CPSI in its petition to MoECC giving various quantifiable technoeconomic benefits that accrue to the power stations by using washed coal of ash content below 34% as was mandated in January 2014 notification of MoEFCC.

It is very obvious that if coal with higher ash content is supplied to a power station, besides various other negatives, it is bound to result in creation of excessive fly ash at the power plants and lead to the problems associated with its handing and management. The result was immediately visible with the National Green Tribunal (NGT) seeking an action taken report (ATR), including restoration plan and compensation assessment, for the damage caused to the environment due to the unscientific management of fly ash by Talwandi Sabo Power Limited (TSPL) in Punjab. Not very long ago, in April 2020, a breach in the fly ash dyke of Reliance Power-owned Sasan plant in the Singrauli region of Madhya Pradesh had led to fly ash slurry entering nearby farms and villages, resulting in the death of six people.

In order the deal with issue in a logical and scientific, CPSI had set up a multi-disciplinary Expert Group to study all related aspects of washing of domestic coal of high ash content including the technical, economic and environmental benefits that accrue to the coal-production-supply chain. Expert Group's report titled 'Washing of Thermal Coal is Vital for India' brings out in very clear and quantitative terms the benefits and costs of using washed coal in power plants. We have submitted this report to the Hon'ble Prime Minister of India (and other concerned ministries and NITI Aayog) with the request to have this important issue deliberated among all stakeholders and subject experts and based on the inputs received a fresh notification be issued. Government's response is awaited.

Prime Minister Narendra Modi on 18th June launched the auction process for 41 coal blocks for commercial mining, a move that opens India's coal sector for private players, and termed it a major step in the direction of India achieving Atam Nirbharta or self-reliance. While launching the auctions, Hon'ble Prime Minister also mentioned that besides reducing dependence on imports, we should look forward to exporting coal. These objectives can only be realised if domestic coal is washed to reduce its ash content. Therefore, recent notification of MoEFCC doing away with the requirement of washing, will act as a major roadblock in achieving Atam Nirbharta in coal.

CPSI welcomes this long-awaited policy reform - a positive step towards ushering in of market driven development of coal sector in the country. The success of initiative would largely depend on how seriously government adopts handholding approach towards the winners of coal blocks in these auctions and extends assistance in their getting statutory clearances for early operationalisation of the allotted blocks.

Jai Hind,

R K Sachdev

CPSI Journal welcomes readers' comments, letters to the editors, and articles on the topical issues. Interesting events, photographs and news are also welcome. Please post your comments at E-mail : cpsidelhi.india@gmail.com

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Chairman's Note

The Ministry of Environment, Forest and Climate Change (MoEFCC) brought out an order on 21st May 2020 under the Pollution Control Act nullifying its earlier notification by which they had mandated that all coal transported to any power plant located in an environmentally sensitive area or is more than 500 Kms away from the coal mine would mandatorily have ash less than 34%. The recent order contains the reasons given for this fundamentally inappropriate action from the environment preservation angle. While the reasons for washing and reducing ash in domestic coal both from the environment point of view and economic benefits which accrue to the power plants in terms of lesser transport cost, reduced maintenance cost and even reduced supplementary fuel oil costs are well documented and known, the government in its wisdom has decided to take a U-turn. The major arguments put forth by the Ministry of Power, Ministry of Coal and Niti Aayog are based on a perception that the power plants in India are capable of using all grades of coal and that technologies are available to handle any kind of pollution problems at the power plant. It goes on to say that ash generated can be utilized for various other manufacturing activities and that excess ash can also be dumped back in the coal mine voids. It further says that washeries, per se, are polluting and consume excessive amount of water. It also mandates that all washery reject must compulsorily be used as feed for FBC boiler based power generation plants. Further, there is a perception embodied in the notification that washing increases the cost of power as additional expenses are incurred in multiple transhipments of coal.

The world over washing of coal is a part of coal production and handling at the mine and the miners do this essentially to make the mineral in saleable form. Washing improves consistency and heat value of the coal. The fact that, while MoEFCC notified the mandatory washing of coal being transported to long distances it was not clear as to who would be responsible for washing of coal. Since CIL did not take the initiative to set up washeries, the burden of getting coal washed fell on the user. This lead to creation of number of merchant washeries which were located in most cases away from the mines. In such situations there is likely to be extra expenditure in multiple transport and transhipments. Even in such cases the Nabha Power plant in Punjab has demonstrated benefits in terms reduction in power cost to the extent of 14 paise per unit of electricty. CPSI has been advocating establishment of washeries at the coal mines which would be the best practise and a win-win situation for all.

The arguments put forward by the ministries and Niti Aayog for this negative approach seems to be based either on lack of understanding of the benefits of washing, which is very unlikely, or the concerned ministries are having some other agenda. It will be a sad day for India if washing of coal is being abandoned to promote some other agenda, as this would result in increased pollution and emission of GHGs part from making power more expensive. We hope that good sense prevails and some rethinking is done.

Alok Perti

In Defence of Coal Washing

— **Alok Perti**, IAS (Retd.)*

The decision to abandon the beneficial practice of coal washing by concerned authorities in India is based on unjust perceptions and defamation that must be debunked.

The Coal Preparation Society of India is the Indian chapter of the ICPC (International Coal Preparation Congress) and is involved in promoting coal washing as an essential step to coal preparation in order to bring in internationally accepted practices to the Indian coal industry.

There are several difficulties in expanding coal washing facilities in India and therefore CPSI has made some recommendations which could facilitate the establishment of coal washing facilitates in a win-win situation for all stakeholders. These are as follows:

- Most mines should have coal handling plants which will ensure that coal movement within mines is only through conveyor belts and frequent movement of trucks within the mine is eliminated or reduced to a minimum as the maximum pilferage of coal takes place when coal is transported in trucks to railway sidings.
- The coal washing facilities need to be installed as part of the coal handling system. Auto analysers which can give quick and reliable quality checks can be conveniently installed if CHPs having conveyors are used. The entire setup for coal handling including washing should be within the leasehold area of the mine, making no additional requirement for transportation, storage or handling. This will also help counter the perception of coal washing having significant additional costs.
- As per the contract signed by CIL with washery operators the cost of washing is only about Rs 120-150 per tonne, a paltry sum for the benefits gained
- The rejects generated should be practically unusable on account of low carbonaceous content. Such rejects should be put back into the mine fills as per the global standard.

The practice of coal washing is essential for bringing up the Indian coal industry to international standards

The Ministry of Environment, Forest and Climate Change has recently decided to do away with the need to bring out a notification in this respect. Apparently, this decision has been taken on the views expressed by the Ministry of Power, Ministry of Coal and Niti Aayog. The observations of Ministry of Power alongside my own comments on the same are as follows:

- Washing of coal does not bring the ash content in the coal to zero or negligible. This is simply not a valid observation as nowhere in the world is coal washed to bring ash down to zero. This is impractical as it involves deep cleaning through chemical additives, and as such, is not preferred or required for use in power plants.
- Washing process results in the productionof coal washery rejects which find their way to the market for use in industries and create pollution. It is true that washing does create rejects but the standard practice worldwide is to bury them in mine fills. If this practice is properly enforced, then the scope for black marketing of these rejects is reduced. Washing should not be blamed for malpractices which are promoted by faulty policies.
- Washing incurs additional cost to the coal besides causing challenges in handling, storage transport and marketing. This is a persistent perception which can be changed by following the system

* Chairman, CPSI and Former-Secretary, Ministry of Coal.

which CPSI has been trying to promote and has been briefly described above.

- Washing process consumes resources such as land, freshwater and energy. It is also pollution-intensive in terms of air and water pollution alongside soil degradation, requiring advanced mitigation technologies. A washery should be an integrated part of a coal handling plant in any modern mine and therefore, does not require much additional land. The land that is required is largely for storage purposes. Similarly, water requirements for this process are also minimal given that any washery that obtains environmental clearance has a closed water circuit. With regards to pollution, environment ministries world over are yet to close down a washery for this infraction. The question of soil degradation is also not applicable as standard practice for rejects is to bury them in mine fills. Given all this, the so-called need for 'advance mitigation technologies' is pure fiction.

- Due to the increased cost of washing, thermal power plants located along the coast are opting for imported coal. This observation is not only incorrect but also misleading. First, TPPs (Thermal power plants) near the cost are designed for imported coal, with only a portion of their requirement being met domestically. Second, it is the cost of transportation from distant mines that makes imported coal more viable.

- With the advancement in pollution control technologies, TPPs are equipped to capture almost all pollutants including fly-ash. The arguments that such technologies make coal washing redundant are misconceived. There are several other advantages which have been ignored while making such a declaration. This clearly indicates that the interest of the power producer and particular NTPC is not in looking at cheap and effective solutions

- Over a period of time, many uses have been found for fly-ash. This idea is used as a basis for proclaiming coal washing as unnecessary and can be deemed wholly self-defeating. If fly-ash is of such great demand, then why have a strict law for the use of flyash? It is obvious that the generation of fly-ash is not to be encouraged and if it is produced, it must be used in a regulated manner.

- Unutilised fly-ash can be transported and filled in closed or abandoned mines. Transporting fly ash to mine fills is certainly a more costly affair compared to putting washery waste (rejects) into mine fills. In fact, in power stations located far from mines, this is an impractical solution.

As mentioned above, the Ministry of Coal also presented its viewpoints on coal washing. The observations of the Ministry of Coal alongside my comments on the same are as follows:

- The quality of coal supplied by CIL has improved without washing. This is untrue. There have certainly been some improvements in giving sized coal but most TPPs located at a distance from mines receive coal as big boulders and chunks rather than as sized and washed portions. Ideally, CIL should make arrangements for in-pit crushing which don't exist. If uncrushed coal is supplied then it damages the crushing and grinding systems at the power stations. More importantly, this wear and tear is largely affected by the quantity of flyash in the coal provided. No power producer is likely to complain, however, as they fear a stoppage of supply from the monopoly holding CIL.

- Based on the present pricing structure of washed coal, improvement in the raw coal quality and size and scope of ash utilisation at the load centre, it is beneficial to use raw instead of washed coal. The pricing of CIL coal has always been a critical issue as it based on no professional or scientific basis. Being a monopoly it conveniently adopted a cost-plus approach in pricing which impacts quality. Despite having an irrational pricing system which does not adequately take into account quality considerations and energy content of the fuel it is still cheaper for the power plant to use washed coal with higher GCV and better consistency.

- With the use of supercritical technology in power plants and technological improvement to arrest emissions, unwashed coal can be used more efficiently. This argument is totally misplaced as the technology deployed in supercritical boilers is based on superheating of steam under pressure and this is more efficiently done when better coal is used. The intention of such technology is not to use unwashed coal but rather increased thermal efficiency.

- Power plants are designed for coal with a wide variety of ash content. Use of unwashed coal will not have any effect unless the quality goes beyond the design parameters of the boiler. The original designs of power plants were done in European nations where coal quality was very much superior. In order to use inferior Indian coal, modifications were carried out which pushed up the cost of the plants by 5-7 per cent. It is, however, an indisputable fact that even such modified boilers function with better efficiency when better (washed) coal is used.
- Washing of domestic coal localises pollution around coal mines which otherwise would have been distributed over large areas. The view that coal washing is localising pollution and that it is more advisable to spread out this pollution is somewhat absurd. Controlling pollution in one area is certainly more sensible than spreading it out.

Niti Aayog had also made some observations supporting the stand taken by the Ministry of Power and the Ministry of Coal. They are largely repetitive. Two very sweeping statements have been made by Niti Aayog are: Washing process increases the cost of power generation and; no clear scientific evidence is available for showing environmental gain due to washing.

In fact, studies carried out by BSES for their Dhahnu plant show significant saving in per unit generation cost for washed coal. There is also a huge benefit in terms of transport cost, ash disposal and maintenance of the plant. As far as the cost of fuel is concerned, it would see a very marginal increase mainly because of an absurd and irrational pricing structure of coal in India. If there was parity with international prices, the situation would have been different.

It is also a fact that when low-grade coal is burnt in the boiler, then excess energy is dissipated in heating ash and as a result plant efficiency is reduced and emissions also increase. To say that washing has no environmental benefits is incorrect.

In conclusion, a decision bereft of scientific prudence and logic will only harm the country. It would have been more appropriate to have a wider consultation with all stakeholders before making such observations in haste.

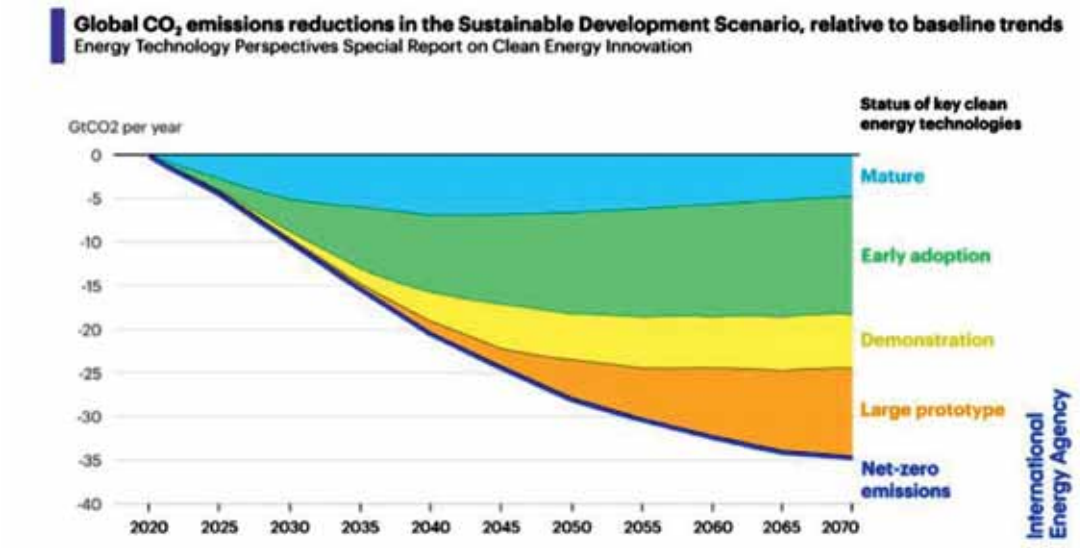
— *Views expressed are strictly personal.*

Source : *Millenniumpost - New Delhi, Dated 19 May, 2020.*

IEA special report on clean energy innovation is out!

It shows the stark disconnect between aims for deep cuts in emissions & the current state of energy technologies.

Achieving global energy & climate goals requires a big acceleration in innovation



Sustainable Development in India – A Perspective

— **A K Saxena,** *FIE C Engg (India)*

1. Introduction

Sustainable Development is a very commonly used phrase in the political agenda of all countries and in the business agenda of many corporations. Sustainable Development is not a luxury anymore; it has become a necessity for our planet to keep its existence as we know it. It is necessary to apply various policy decision tools in order to reach the required objectives on all the three pillars of sustainable development, i.e. environment, economy, society.

Environmental consciousness is a phenomenon that gained momentum only in the last five decades or so. But it is implicit in worldviews, traditions, culture, religion, and folklore. Ecology is a subject that seeks to understand the relationship between living organisms and their environment. Human ecology visualizes human beings and their environment as constituting an integrated whole.

In present context Sustainable Development got prominence after the Report titled "Our Common Future" prepared by a committee chaired by Gro Harlem Brundtland who was the then Prime Minister of Norway, in October 1987.

Two important events took place much before UN commissioned preparation of the Report titled "Our Common Future".

1. The Western tendency to compartmentalize everything into different categories does not agree with the ecological perspective. Ms Rachael Carson in her book Silent Springs has highlighted the interrelationship between various facets of Environment. Her findings and the book raised a public outcry/movement and led to acknowledging the same through establishment of Earth Day which is held each year since 1970 on 22nd April.
2. The United Nations, aware that the protection and improvement of the human environment is a major issue, which affects the well-being of peoples and economic development throughout the world, designated 5 June as World Environment Day. The celebration of this day provides us with an opportunity to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in preserving and enhancing the environment. It began in 1974 and has grown to become a global platform for public outreach that is widely celebrated in more than 100 countries.

We in India have the satisfaction that our constitution is one of the longest and written constitutions of the world, having sufficient backing to the principles of environment protection and sustainable development. Articles 14, 19(1) (g), 21, 26, 32, 47, 48-A, 51 (A) (g), 226, 253, Seventh Schedule and Eleventh Schedule of Indian Constitution has relevance with the environment protection and sustainable development. When the people of India express their will for India to be an advanced nation, they primarily intend worthier provision of basic needs such as pure water, air, health and clean environment. To fulfill that desire, Government of India at different times has always endeavored to achieve the object.

Indian philosophy encompasses the phrase Vasudhaiva Kutumbakam which consists of several words: "vasudh?", the earth;[3] "ēva" = indeed; and "kutumbakam", family. It is considered the most important moral value in the Indian society. This verse of Maha Upanishad is engraved in the entrance hall of the parliament of India reads as follows:

The world is a family

One is a relative, the other stranger,
say the small minded.
The entire world is a family,
live the magnanimous.
Be detached,
be magnanimous,
lift up your mind, enjoy
the fruit of Brahmanic freedom.

Maha Upanishad 6.71-75[7][4]

2. Sustainable Development in Ancient India

In parts of present day Afghanistan, Pakistan and India, lay the remains of The Indus valley civilization. At its height, the Indus Valley Civilisation spanned much of what is now Pakistan and North India, extending westwards to the Iranian border, south to Gujarat in India and northwards to an outpost in Bactria, with major urban centres at Harappa, Mohenjo-daro, Lothal, Kalibangan, Dholavira and Rakhigarhi.

Thought to be one of the most advanced of its time, the Indus Valley Civilization comprised a population of over five million spread across cities which were considered to be the first urban centers in the region. Flourishing trade with Central Asia, investment in the arts, advanced infrastructure and an egalitarian social structure with a relatively low wealth concentration impressed historians and scholars. Urban planning in that era was more visionary than that of the modern day country equivalents, with orange baked brick houses equipped with internal plumbing, a complex drainage and sewerage system, a functioning water supply system and well defined neighborhoods. The excavation of Mohenjo-Daro and Harappa sites of the Indus valley civilisation have revealed advanced town planning principles and engineering expertise which was much ahead of its time.

Vastu Shastra, which translates the 'science of architecture' are ancient building guidelines in India, believed to have been developed between 6000 and 3000 BC, that describe principles for layout and spatial geometry for buildings and cities. Presented in the form of a metaphysical plan called *Vastu Purusha Mandala*, the system emphasises that the built structure is a physical being which must be in harmony with nature.

The archaeological excavations suggest that Mohenjo-daro was the most advanced city of its time, and for some time to come, with remarkably sophisticated civil engineering and urban planning. The 5,000 year old city shows the earliest manifestation of urbanisation in South Asia. It's urban planning surpasses that of many other sites of oriental civilizations that were to follow.

Mohenjodaro comprises two sectors: a stupa mound that rises in the western sector and, to the east, the lower city ruins spread out along the banks of the Indus. The acropolis, set on high embankments, the ramparts, and the lower town, which is laid out according to strict rules, provide evidence of an early system of town planning.

The stupa mound, built on a massive platform of mud brick, is composed of the ruins of several major structures - Great Bath, Great Granary, College Square and Pillared Hall - as well as a number of private homes. The extensive lower city is a complex of private and public houses, wells, shops and commercial buildings. These buildings are laid out along streets intersecting each other at right angles, in a highly orderly form of city planning that also incorporated important systems of sanitation and drainage.' (UNESCO, 2014)

However, things started to go downhill in 1700 BCE, and by 1900 BCE a majority of cities in the Indus Valley civilization were abandoned. Historians believe there are a number of reasons,

Climate change and the ecological pillar: Changes in the river courses on account of geological changes and lifting of Himalayas along which cities were located. Flooding of Indus and movement of Rivers Sutlej and Yamunaand. Also weakening of the monsoons, led to aridification and drought impacting agriculture and the water supply within the cities.

Outmigration, fragmentation of the population and the social pillar: Aridification and water scarcity led to many communities scattering across the region looking for more optimal areas where they could cultivate their crops. They established smaller farms whose surplus could not meet the needs of the larger cities.

Trade decline and the economic pillar: A disruption to agricultural production resulting from climate change also weakened trade and the ability for cities to sustain their population. This was exacerbated by political upheaval interrupted trade in Mesopotamia, their primary trade partner.

Overcrowding and carrying capacity: Cities and villages became over crowded as the population grew.

Coupled climate change, which contributed to food insecurity and water scarcity, the cities could no longer support their population.

3. Sustainable Development thoughts in Pre Independence India

Two of the greatest sons of India, Nobel Laurite Rabindranath Tagore and Mahatma Gandhi both have enshrined sustainability in their works. Tagore was the first to refer to Gandhi as the "Mahatma" or "Great Soul". Gandhi hailed Tagore as "Gurudev" or "Revered Teacher". Pandit Nehru the first Prime Minister of India wrote

> *"Gandhi and Tagore, two types entirely different from each other and yet both of them typical of India, both in the long line of India's great men … I have felt for long that they were the outstanding examples in the world today. There are many of course who may be abler than them or greater geniuses in their own line. It is not so much because of any single virtue but because of the tout ensemble, that I felt that among the world's great men today Gandhi and Tagore were supreme as human beings."* - Jawaharlal Nehru, in his jail diary, 1941.

Rabindranath Tagore while on way to Japan in 1916 saw an oil spill in sea and was aghast with the failing respect of Nature by man. His thoughts one century ago hold relevance even today. His philosophy is closely related to Rural Development which is closely interwoven between nature and human being. His concept of Sustainable Development was to have a rural based industry, with increase in agriculture produce and community development. On these premises he started a School in 1901 at Shantiniketan. This School has grown into a Central University - Vishwa Bharti which continues to carry forward the cause of internationalism, peace, universal brotherhood, cultural co-operation and scientific excellence while drawing inspiration from the ancient gurukul system of education. A few years later Gurudev established Sriniketan with an objective for rural regeneration and empowerment. The primary purpose of the project was to assist the rural folk to evolve their own solutions, leading to rural reconstruction. The University continues to follow the principles of Sustainability and encompasses several Sustainable Development Goals identified by United Nations in 2015. The School song conveys his concern for environment.

'Amader Santiniketan' (our Own Santiniketan)

She is our own, the darling of our hearts, Santineketan.
Our dreams are rocked in her arms.
He face is a fresh wonder of love every time we see her,
for she is our own, the darling of our hearts.
In the shadows of her trees we meet,
in the freedom of her open sky.
Her mornings come and her evenings
bringing down heavens' kisses,
making us feel anew that she is our own, the darling of our hearts.
The stillness of her shades is stirred by the woodland whisper;
her amlaki groves are aquver with the rapture of leaves.
She dwells in us and around us, however far we may wander.
She weave our hearts in a song, making us one in music,
tuning our string of love with her own fingers;
and we ever remember that she is our own,
the darling of our hearts.

It is at Shantiniketan that Gurudev started Van Mahotsava in 1928. The name Van Mahotsava means 'the festival of trees' and is celebrated as a festival of life. Much later in July 1947 Van Mahotsav was taken up as a crusade to save mother earth. It began on a large scale after a flourishing tree planting drive was undertaken in Delhi, in which national leaders like Dr Rajendra Prasad and Pandit Jawaharlal Nehru participated. The festival was simultaneously celebrated in a number of States in India. In 1950 Van Mahotsav was started by Shri K. M. Munshi, the then Union Minister for Agriculture and Food with an objective to create awareness in the mind of the people for the conservation of forests and planting of new trees. Van Mahotsava is observed every year from 1st to 7th July. Van Mahotsava has become an annual tree planting festival wherein thousand of trees are planted all over India. In his tribute to Mahatama, Gurudev penned a poem which also highlights issues related to sustainability

'Gandhi Maharaj - Er Sishya' (We who follow Mahatma Gandhi)

We who follow Gandhi Maharaja's lead
have one thing in common among us:
we never fill our purses with spoils from the poor
nor bend our knees to the rich
When they come bullying us
with raised fist and menacing stick,
we smile to them, and say:
your reddening eye may startle babies out of
but how frighten those who refuse to fear ?
Our speeches are straight and simple,
no diplomatic turns to twist their meaning;
confounding penal code
they guide with perfect ease the pilgrims
to the border of jail.
And when these crowd the path to the priso……
their age-long shackle drop to the dust,
and on their forehead are stamped
Gandhiji's blessings

The major aspiration of the 2030 SDG Agenda is captured by the tagline "Leave No One Behind." Gandhiji viewed that, "Progress of a society should be determined by the state of the most vulnerable and the weakest ones." People, who are furthest from the frontiers of development, are to be brought up to the level of the others for "real development." He spoke about "the weakest and the most vulnerable"-not only about the most income-poor people. This essentially echoes the concept of "multidimensional poverty," which stems from not only low-income, but also from life cycle issues, social stigma, locational disadvantages, gender disparity and other similar sources of risks.

The new global agenda has identified the fight against poverty as numero uno of the SDGs. One of Gandhiji's powerful statements reflects a similar thought where he says, "Poverty is the worst form of violence." What an extraordinary perspective on poverty which surpasses time for its unique observation.

In Mahatma Gandhi's opinion, in any scheme of development, man should be at the centre. A long term view of development has to be taken, for we owe our debt to prosperity as well. Man has to make a judicious use of natural resources. The ecological balance should not be disturbed. The objective should not be to build the islands of prosperity in the ocean of poverty; but to raise the level of standard of life and to combat poverty.

Gandhiji's ideas are also reflected in the total value shift in production, consumption, habits and political systems. It places more emphasis on moral responsibility of the individual at the personal, social, national and universal level. Gandhi believed in Sarvodaya and therefore the welfare of all was the basis of his thinking; hence his community centered approach towards sustainability emphasized on 'betterment of human life' and 'ensuring fulfillment of basic needs of all human needs'. Welfare of the human beings being the ultimate goal by avoiding all sorts of exploitations, Gandhi felt that human dignity needs to be established.

His sustainable development is based on a holistic paradigm which lays stress on all round development of individual and society in relation with nature. This entire thinking was based upon the ethical vision in which the individual is at a central position. If inward change is achieved, outward change takes care of itself. A judicial shift from the consumer society to the Conserver Society seems to be the demand of modern age.

In Hind Swaraj 1909, he talked about the dangers of unplanned and reckless industrialization; the growth oriented theory must be replaced by theories of sustainable development that will not damage but will guarantee harmonious co-existence of man and the ecosystem. For eight years (1906-1914) it became a movement against the exploitations of the modern western civilization. In a much broader sense, it had the challenging and compassionate vision of saving the planet earth.

In 1911, Gandhi used the phrase, 'Economy of Nature' which brings out the sensitivity and deeper understanding of human actions vis-a-vis ecology. In 1928, he wrote, "God forbid that India should even take to industrialization after the manner of the west. If the entire nation of 300 million took to similar economic

exploitation, it would strip the world bare like locusts." This statement appears contemporary for a world struggling to survive against the unprecedented global warming and climate change.

4. Sustainable Development - Post Independence India

Post Independence, food security, industrialization and development activities such as irrigation projects and large hydroelectric power projects were some of the important issues which took immediate attention.

The history of environmental governance in post-independent India started 25 years after Independence when the then Prime Minister, Indira Gandhi, returned from the United Nations (UN) Conference on Human, Environment and Development in Stockholm in 1972.

A National Environmental Planning and Co-Ordination Committee was formed by the Prime Minister, the Central Pollution Control Board was set up followed by the state boards. The department of environment came into existence on November 1, 1980 followed by state departments. Environmental laws on water (1974), air (1981) and forest conservation (1981) were passed, as also the umbrella act of Environment Protection (1986). An Environment Policy and Strategy Statement were issued in the year of the UN Conference on Environment and Development in 1992. Environment Impact Assessment for 32 sectors became compulsory by a notification passed in 1992. Environment approval committees were formed for each sectoral assessment and all power was vested with the Centre. In 1996, India became a nation to follow the environmental governance system with a series of further controlling notification on coastal zone management, hill development, disposal of wastes (biomedical, plastic, hazardous). This was further elaborated and a new EIA Notification was issued in 2006. Also in 2006 National Environmental Policy was issued. Public Interest Litigation provided justice through the Supreme Court and high courts. The National Green Tribunal has been established on 18.10.2010 under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto. Several Laws have been enacted and Notifications and Office orders have been issued to take care of the developments.

5. Sustainable Development - Current Scenario

The Johannesburg Declaration on Sustainable Development and the Plan of Implementation, adopted at the World Summit on Sustainable Development in South Africa in 2002, reaffirmed the global community's commitments to poverty eradication and the environment, and built on Agenda 21 and the Millennium Declaration by including more emphasis on multilateral partnerships.

Dr. Manmohan Singh, the then Prime Minister, in his address at the 12th Delhi Sustainable Development Summit on 2nd February 2012 had said.

The idea of sustainability began as a developmental ideal. Over time, it has become an important focus of policy, particularly in developing countries as we struggle to reconcile our effort to develop with the compelling need to protect our environment. Air pollution, industrial pollution, increasing quantum of waste and pollution of our rivers are problems we all face.

There is also growing realization that sustainable development is not something that can be achieved by countries acting individually. The threat of climate change caused by greenhouse gas emissions has brought the world to a critical point where the actions of each and every country affect the planet as a whole. Sustainable development in this environment therefore, calls for cooperation of all countries both industrialized and developing. That cooperation must be based on the foundation of the right to development and the need for an equitable distribution of burden.

In January 2015, the General Assembly began the negotiation process on the post-2015 development agenda. The process culminated in the subsequent adoption of the 2030 Agenda for Sustainable Development, with 17 SDGs at its core, at the UN

Sustainable Development Summit in September 2015.

Prime Minister Narendra Modi in his address at UN Summit For The Adoption Of Post-2015 Development Agenda stated

"Since Independence, we have pursued the dream of eliminating poverty from India. We have chosen the path of removing poverty by empowering the poor. We have placed priority on education and skill development.

Our attack on poverty today includes expanded conventional schemes of development, but we have also launched a new era of inclusion and empowerment, turning distant dreams into immediate possibilities: new bank accounts for 180 million; direct transfer of benefits; funds to the unbanked insurance within the reach of all; and, pension for everyone's sunset years.

The world speaks of private sector and public sector. In India, we have defined a new personal sector of individual enterprise, micro enterprises and micro finance, drawing also on the strength of digital and mobile applications.

We are focusing on the basics: housing, power, water and sanitation for all - important not just for welfare, but also human dignity. These are goals with a definite date, not just a mirage of hope. Our development is intrinsically linked to empowerment of women and it begins with a massive programme on educating the girl child that has become every family's mission.

We are making our farms more productive and better connected to markets; and, farmers less vulnerable to the whims of nature.

We are reviving our manufacturing, improving our services sector, investing on an unprecedented scale in infrastructure; and, making our cities smart, sustainable and engines of progress.

We are committed to a sustainable path to prosperity. It comes from the natural instinct of our tradition and culture. But, it is also rooted firmly in our commitment to the future.

We represent a culture that calls our planet Mother Earth.

As our ancient text say:- "Keep pure! For the Earth is our mother! And we are her children!"

> "*Just as our vision behind Agenda 2030 is lofty, our goals are comprehensive. It gives priority to the problems that have endured through the past decades. And, it reflects our evolving understanding of the social, economic and environmental linkages that define our lives… The sustainable development of one-sixth of humanity will be of great consequence to the world and our beautiful planet.*" – Narendra Modi, Prime Minister of India

The Sustainable Development Goals (SDGs) were adopted in September 2015 as a part of the resolution, 'Transforming our world: the 2030 Agenda for Sustainable Development'. India is committed to achieve the 17 SDGs and the 169 associated targets, which comprehensively cover social, economic and environmental dimensions of development and focus on ending poverty in all its forms and dimensions. At the Central Government level, NITI Aayog has been assigned the role of overseeing the implementation of SDGs in the country. The Indian Government is already using SDGs as a roadmap for formulating national policies and regulations. Several Schemes like Swach Bharat, Ayush Mission, Jal Jeevan Mission, Sarva Shiksha Mission, Beti Bachao Beti Padhao Atal Pension, etc. It is incumbent upon corporations to complement these actions. While countries around the world have been considering how to implement and measure success against the Goals, NITI Aayog has taken the lead by bringing out the SDG India Index Reports annually and showing how SDGs will be measured in India. The Baseline Report of the Sustainable Development Goals (SDG) India Index comprehensively documents the progress made by India's States and Union Territories towards implementing the 2030 SDG targets.

The SDG India Index developed in 2018 is intended to provide a holistic view on the social, economic and environmental status of the country and its States and UTs. The SDG lndia index is the first attempt at

national level to assess where each State and Union Territory stands with regard to achieving the Sustainable Development Goals.

On Corporate front, a study of 218 companies by IIM Udaipur and Futurescape indicates that the companies are gradually incorporating SDGs into their responsible business actions. Around 35% companies at the aggregate level reported that they map their goals with SDGs, but only 30% shared their mapping.

Of the 218 companies, 60 companies have mapped their responsible business actions to SDGs. Nine of the top 10 companies mapped their goals with SDGs. The leading sectors are IT, Telecom and Energy where majority companies have mapped. The laggards are Financials and Other Industrials.

On average, companies map 11 SDGs with a low of 1 to a maximum of 17. Of the companies that mapped their SDG goals, a whopping 51 (85%) were in the private sector and 53 (71%) were manufacturing companies. This clearly establishes that private companies are leading in the focus on SDG implementation.

In terms of focus, the SDG 4 (quality education), SDG 8 (decent work), SDG 5 (gender equality), SDG 13 (climate action), SDG 6 (clean water and sanitation) occupy the top position. On the other hand, SDG 16 (peace, justice etc.) and SDG 14 (life below water) were mapped by less than 45% companies.

6. Conclusion

At present we are moving towards dangerous, irreversible shifts. World population is increasing rapidly. From 800 million at the start of Industrial revolution in 1750 to 7.2 Billion at present has put a great stress on our economy and in turn on the Environment. Forest cover is depleting, natural resources are being over-exploited, over consumed and polluted. We are seeing an increase in the number of climate related issues like rising sea levels, droughts and floods. However all is not lost. Learning from mistakes made in the past and replicating success stories should be our aim. Perhaps it is time to shift our focus to synergize our lifestyles to be more at equilibrium with the natural environment. Every day we are pushing the biophysical limits of our planet to the point where we now stand at the edge of a precipice. Can we instead live within those limits? Our ancestors did it. Why can't we?

The United Nations Sustainable Development Goals (SDGs) are 17 objectives that all 193 UN Member States have agreed to achieve by the year 2030. After its adoption in September 2015, the outcome document "Transforming Our World: The 2030 Agenda for Sustainable Development", commits world leaders to fight poverty and attain sustainable development by 2030. These goals not only convey the urgency of development, but also that this development must be sustainable and boost equality. The impact of these goals on global sustainable development will largely depend on our ability to transition to new governance for sustainability. India has taken up the task seriously and has introduced several schemes to meet the targets. NITI Ayog is monitoring the progress and bringing out the achievements on a yearly basis.

Mahatma Gandhi saw everything in an interrelated way. He believed in advaita (non-duality), he believed in the essential unity of man and, for that matter, of all that lives.At the end conclude with his famous quote. "*The Earth has enough resources for our need but not for our greed.*" Sustainable Development is the only answer for survival of our future generations.

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News

As per newspaper report, the dates for submission of bids for online auction of coal blocks for commercial mining could be further extended due to disruptions caused by the COVID-19 pandemic. The Centre had earlier extended the dates for submission of technical bids. Corporates, including, the Federation of Indian Mineral Industries, had urged the government to push back the dates for the e-auction process, leading to the new schedule.

According to the revised schedule, the last date for submitting a technical bid is 2 pm of September 29, and e- auction would be carried out for qualified bidders between October 19 and November 9. However, the sources said further extension is likely to be sought by investors, keeping in mind the COVID-19 restrictions on travel and movement.

Is world De-globalising !

– Manoj K Agarwal

Although the full impact of the pandemic is yet to be felt as new wave of infections are remerging in Europe, China, Singapore, Japan etc. and of course the world economy including individual nations are suffering negatively with recession, however, this pandemic can not be fully blamed for de-globalisation. The open system of trade, investment & capital was witnessing a slower growth in previous years which is now exacerbated by the pandemic.

Credit : Google images; systemicalternatives.org

DHL Connectedness Index is an interesting index measuring of globalisation which is published by NYU Stern business school & DHL. The index report provides an update on the state and trajectory of globalisation, highlighting key developments. It mainly measures the flows of trade, capital, information & people with 3.5 million data points on country to country flows. In their latest report 2018 (update 2019)[1], the major six take ways were; i) world's level of connectedness declined reversing previous years of gains, ii) escalating trade tensions, iii) China's reliance on exports to US falling, iv) the average distance across which countries trade do not indicate shift from globalisation to regionalisation, v) digital technologies are transforming information flows & vi) while world is more connected than at almost any previous point but international flows are far smaller as most business takes place within rather than across national border.

The debate if "Globalisation is dead" was spiked in 2019. DHL connectedness Index measuring globalisation is plotted in the adjacent figure from the year 2001 to 2018. Index declined in 2018, against the backdrop of major events of 2016 ie Brexit vote & US elections. Out of four pillars of index, drop for 2018 was mainly driven by international Capital flow mainly Foreign Direct Investment (FDI) and portfolio equity investment. In first half of 2019, however, the share of global output traded across national borders fell mainly due to USChina trade war. Of course year 2020 will have steeper decline due to pandemic. All four pillars of globalisation ie Trade, Capital, Information and people are facing head winds due to distrust among the nations.

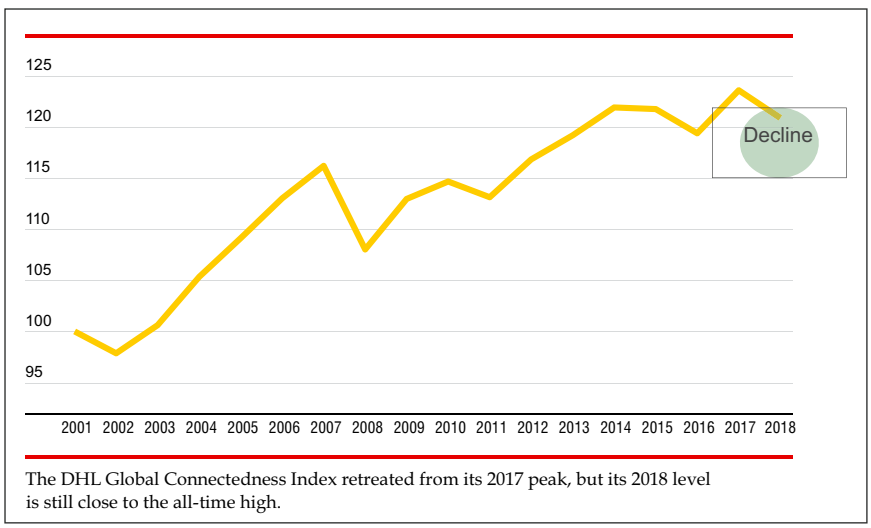


Figure 1 : DHL Global Connectedness Index, 2001-2018

1. DHL Connectedness Index 2018 & update 2019

It is important to evaluate a long journey reached to achieve what we are today here as "Globalisation" and is it now worth loosing it. To understand the future, history should be understood first. Henry George in 1879 came out with his work "Progress & Poverty" wherein he argued for a single tax on land sparking a political movement in United States around his work. David Lloyd George came out with first reformist "people oriented budget" in British parliament in 1911. World war I (1914-18) and then came the great depression of 1930s. It was the worst economic downturn started with stock market crash in 1929 and lasted till 1939. During this time in 1930s, John Maynard Keynes with his economic theory, famously know as Keynesian Economics, still remains very relevant. His theory was on total spending in the economy and its effect on the output and inflation. The theory was developed in the response to the Great depression and strongly advocated for the increased government spending (by fixing a govt role in the economy) with lower taxation to stimulate the demand to pull the economy out of depression. You may see how relevant the theory is in the present context of pandemics as well. World War II (1939-1945) gave the world new era of institutions like UN etc. Years 1989 to 91 witnessed fall of Berlin war & collapse of Soviet Union remain very historic events which shaped the world for 21st century for higher globalisation.

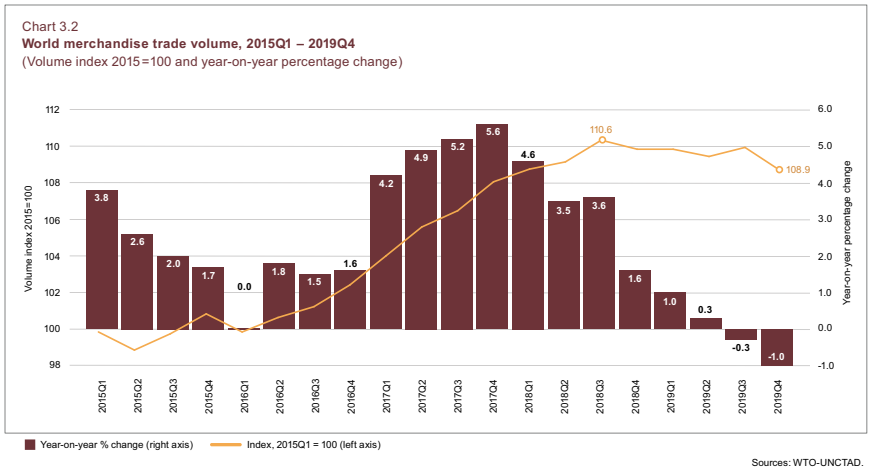
The journey includes the development of global trans-national institutions. The League of Nations (LON) was the first international diplomatic group developed after World War I as a way to solve disputes between countries before they erupted into open warfare. Unfortunately, LON effectively ceased operations during World War II. LON was then replaced by United Nations or UN presently. World Bank & IMF were also established in 1944 & 1945 respectively to provide financing, advice, and research to developing nations to aid their economic advancement. In the mean-while it would be important to also mention the creation of European Union in late 1990s and Brexit in 2016.

General Agreement of Tariff and Trade (GATT) was set up in 1947 for multi lateral trade negotiations to harmonise unilateral tariff reductions, for example repeal of Corn laws in 1846, by the nations with respect to the other foreign producers. If the reductions are taken in concert with the foreign powers, some producers gain new export market thus becoming supporters. In 1995, GATT became World Trade Organisation (WTO) representing 98% of the world trade with 164 member countries. WTO[2] is the only global international organisation dealing with the rules of trade among nations. At its heart are the WTO agreements, negotiated and signed by the bulk of the world's trading nations and ratified in their parliaments. The goal is to ensure that trade flows as smoothly, predictably and freely as possible. Other important trade treaties worth mentioning are Association of Southeast Asian Nation (ASEAN) and North American Free Trade Agreement (NAFTA). Additionally there are some initiatives for forming the trade associations for Asia Pacific regions are led by China & Japan. One of the aim of WTO was to cut tariffs by negotiations and agreed rates are applied to all the trading partners. Any trade disputes among the member nation are then settled with due process by WTO. Of course the agreement against WTO remains for its effectiveness. China joined WTO in 2001[3] but the WTO has not been successful to tame China for allegedly flouting the spirit of its rules by shaking down foreign investors for technologies and giving under the table assistance to own industries mainly its State owned enterprises (SOEs). SOEs have vast and opaque subsidies have distorted the markets and caused the gluts in supply for commodities such as steel. EU and Japan share America's concern on this. At the time of writing this article, members will choose next Director General for WTO from eight candidates. It would be interesting to see the consensus on candidate for the top job given the tensions between USA and China. UNCTAD is a permanent intergovernmental body established by the United Nations General Assembly in 1964. Its headquarters are located in Geneva, Switzerland, and have offices in New York and Addis Ababa.

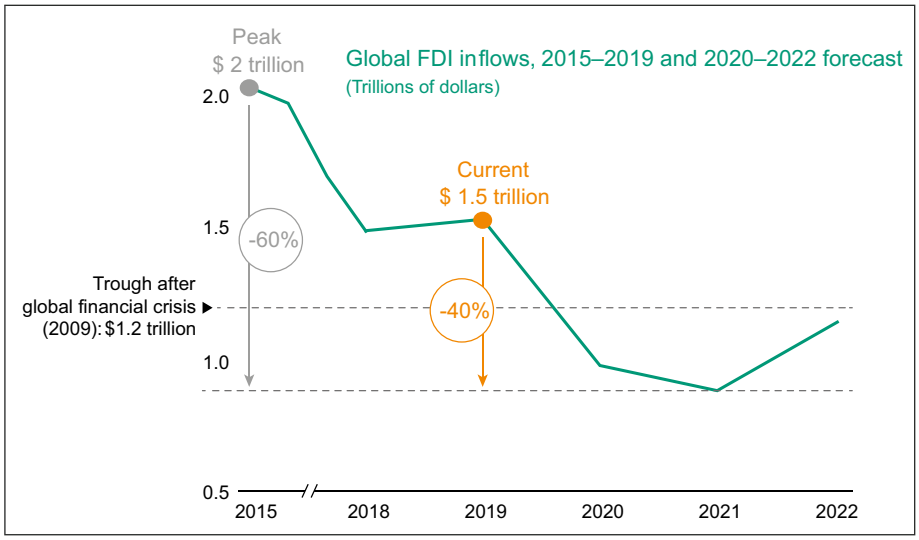
2. WTO.org

3. Economist 2019

World Investment Report (WIR) 2020[4] published by UNCTAD indicates that the Global FDI flows are forecast to decrease up to 40% in 2020 bringing it below $1 trillion from its 2019 level of $1.54 trillion. FDI is projected to decrease by a further 5 to 10 per cent in 2021 and to initiate a recovery in 2022. Interestingly, FDI has dipped below then Global Financial crises 2008-09 level of $1.2 trillion. The recovery in 2021 & 2022 of course will improve the FDI the projections are still even lower level than the Global financial crises level. The pandemic has resulted in a supply, demand and policy shock for FDI. Abrupt, frequent and local lock downs are further exacerbating the FDI leaving one of the pillar of globalisation in a shock. Though the good news is WIR 2020 estimates long term revival by 2030. Countries are keenly looking into the relocation of supply chain projects back to their national/regional boundaries which may result from globalisation to regionalisation/nationalisation.



2019-2020 data shows that Merchandise trade volume declined by 0.1 per cent in 2019, compared with 2.9 per cent growth in 2018. World GDP growth slowed to 2.3 per cent, down from 2.9 per cent the previous year. Seasonally-adjusted merchandise trade volume was down by 1.0 per cent in the fourth quarter of 2019 compared with the same period in 2018 and 1.2 per cent down compared with the third quarter. This is equivalent to a 4.6 per cent decline on an annualised basis. The key reasons for trade uncertainty were US-China trade dispute and impact of Brexit. WTO report further covers the impact of COVID19 pandemic impacting global trade in first half of 2020. Purchasing managers' indices (PMIs) show new export orders of manufacturers falling sharply to 27.1 in April 2020, compared with a baseline value of 50. In the same month, new export orders in services fell to 21.7, also measured against a baseline of 50. However, May 2020 data show a rebound to 32.2 and 29.8 for manufacturing & services respectively. A seasonally adjusted index of container port throughput was down 8 per cent year-on-year in May

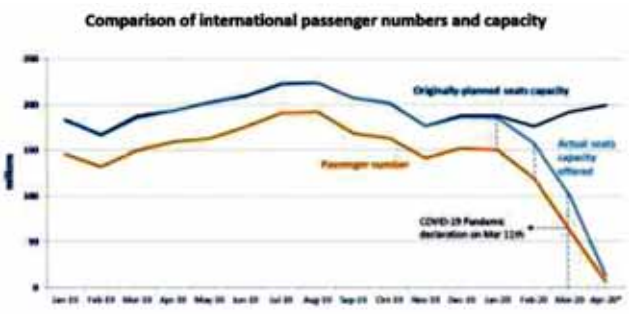


Let us look at another pillar for globalisation index ie Trade. WTO latest report[5] on World Trade and GDP

4. World Investment Report 2020 by UNCTAD
5. World Trade and GDP 2019-20 by WTO

2020, with no clear sign of bottoming out, the report elaborates. US-China trade tensions have further sparked the debate on trade imbalance between the countries and emphasis on domestic manufacture and trade thereby impacting negatively the globalisation curve.

Another important pillar for globalisation ie people & their movement. The International Civil Aviation Organization (ICAO) is a UN specialised agency, established by States in 1944 to manage the administration and governance of the Convention on International Civil Aviation (Chicago Convention). ICAO presentation[6] shows a dismal picture (see the chart). Passenger numbers decline started from mid 2019 & now it is touching bottom with over $50 billion loss from Jan-Apr 2020. Airlines are reviewing their orders for purchase of airplanes for cancellation. Localised quarantine restrictions are putting stumbling blocks on the air traffic revival. Recent spat between Spain & UK is an example after Covid-19



resurgence in Spain including US-China tensions on air travel. Countries are now discussing Air-bubble agreements to operate the flights between the countries reversing the globalisation. The fourth pillar i.e. information, will continue to grow as digital trade is thriving but still at very modest level. The sales abroad[7] of Amazon, Apple, Facebook and Microsoft are equivalent to just 1.3% of world exports.

But the question is, if the pandemic is all to be blamed for de-globalisation. The coalesce of cover pages of

6. Effects of COVID 19 on civil aviation- Economic Impact Analysis 29 April 2020
7. Economist May 2020

some editions from the year 2018 to 2020 of Economist, stacked as below tell a trend in itself. The trend was set in from the year 2018 post Brexit and US-China trade.

The stack speaks clearly that the de-globalisation was "work-in progress" since 2018 and it got aggravated post pandemic. However, one thing is clear that De-globalisation is in play and pandemic is fast forwarding it.

Hegemony of a country creates a world order thereby may be a contributory factor for globalisation, is an argument to be ponder upon. British hegemony ended with WW I and thereafter replaced by US. Now the emergence of China as second economic power is challenging the hegemony of US. World is splitting in three groups ie pro-US, pro-China and third one either neutral (although difficult to remain one) or taking the position on issue to issue base, indicates as if hegemony of a particular country is over or it is temporary. But this may lead to much more noisy situation at international institutions like UN, WTO etc leaving the countries becoming more regionalistic or nationalistic.

Although the world is witnessing a decoupling from globalisation, all is not finished. Decoupling of globalisation may start with another wave of globalisation. This can be either, to start with, among the friendlier nations first then to expand to others. For example many companies got relocated from China to other asian countries like Vietnam, Indonesia, Bangladesh, India etc in response to US China tensions. There is also an emerging need among the nations to relook on their supply chain keeping in view the various business drivers. As per Prof. Felipe Monteiro of INSEAD , Global integration in an industry[8] will be largely determined by the extent of its exposure to four main drivers ie market drivers - consumers taste & habits across the borders, cost drivers - economics of scale, competitive drivers and government drivers - policies around localisation. Mr Michael O'Sullivan's book, "The Levelling: What's Next After Globalisation" argues a roadmap with multipolar world forming but international institutions are unprepared for this. The world, will cleave into "Leveller" countries that hew to rights and freedoms, and "Leviathan" ones that are content with state-managed growth and fewer liberties[9]. To wrap up, although the globalisation is in reverse gear leading to de-globalisation but on long term it will re-emerge with new forms and not going to disappear.

Important Announcement

Taking advantage of lockdown due to pandemic situation some mischievous elements have hacked the website of Coal Preparation Society of India.

Our new website : **cpsi-india.org.in** is under reconstruction. The new website will be active very soon.

We regret the inconvenience caused, if any.

Status of Coal Preparation in Germany

— Dieter Ziaja*

Abstract

This paper presents a brief overview about the status of the black (hard) & lignite coal industry in Germany as of the end of 2018. Data on coal production, imports and consumption for black (hard) coal and lignite coal are outlined.

Key words: black (hard) coal data, lignite coal data.

1. Introduction

An important part of the German energy mix is still based on coal. The considerable reserves of black (hard) coal in Germany amounts to approx. 2,500 million tonnes and the amount of lignite coal to 40,500 million tonnes and make these the most important indigenous source of energy for the country for decades to come.

Germany's total demand on coal is build up on domestic black coal and lignite coal as well as imported coal from Europe and overseas. In 2018 approx. 4.456 Mio metric tons of black (hard) coal were produced by German coal mines, which are located in the Ruhr area and Westphalia State. By the end of 2018 all black (hard) coal Mines were closed down.

Further and most importantly, approx. 171.3 million metric tons of lignite coal were produced for the German energy and thermal market. Former black coal and existing lignite mining areas are shown in Figure 1. To match the total requirements for steaming coal and coking coal an additional 38.094(2) million metric tons of black (hard) coal were imported in 2018.

To support and ensure the German coal supply for energy and coke production the German mining equipment manufacturers are playing a major role in the coal industry. With nearly 1.6 bn. Euro (4) in turnover for mining equipment, this industry gave its contribution to the world-wide mining industry to ensure good and save production in this industry.

2. Black (Hard) Coal

In December 2018 the last black (hard) coal mine in Germany (Prosper-mine) closed down. From 2019 onwards 100 % of all black coal requirements will be imported from Europe, Russia and overseas countries. In total 38.094 Mio tons were imported (2) in 2018.

Of this, the largest imports were sourced from:

EU-countries	1.621 Mio tons
Russia / CIS	17.727 Mio tons
USA/Canada	9.650 Mio tons
Australia	5.184 Mio tons
Colombia	2.500 Mio tons

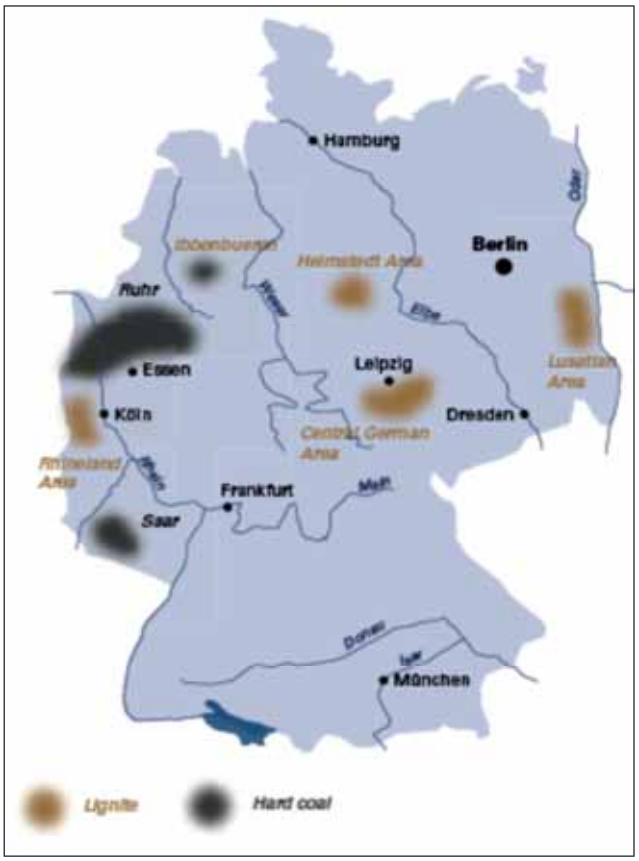


Figure 1 : German coal mining locations (3)

*Business Development Executive; MBE Minerals SA

3. Lignite Coal

3.1 *Location*

The total lignite resources of Germany are adding up to approx. 72.4 billion tons. Out of this approx. 35.9 billion tons are declared as "economically minable" based on today's mining technology. Lignite mining is concentrated in Germany in three major regions.

Namely from west to east: the Rhineland deposit between Cologne, Aachen & Mönchengladbach, the central Germany deposit around Helmstedt/Leipzig/ Halle and the Lusatia deposit which is located east of Dresden.

The Rhineland deposit, which covers approx. 2500 sqkm containing some 50.9 billion tons of lignite, of which 2.6 billion tonnes are approved or firmly planned in opencast mines, which allows mining for the next 45 years, based on today's mining extraction rate.

The geological lignite stocks of the Central German deposit contain approx. 10 billion tons of which 0.3 billion tons are developed and planned to be mined over the next 40 years.

The Lusatian mining area contains a geological lignite stock of approx. 11.5 billion tons of which 0.8 billion tons are developed and planned to be mined over the next 50 years. See Table1 and Figure 2.

Table 1 : German lignite reserves 2017, in bn. t[3]

Mining area	Geological reserves	Economically minable reserves	Approves and developed opencast mines
Rhineland	50.9	30.9	2.6
Lusatia	11.5	3.0	0.8
Central Germany	10.0	2.0	0.3
Total	**72.4**	**35.9**	**3.7**

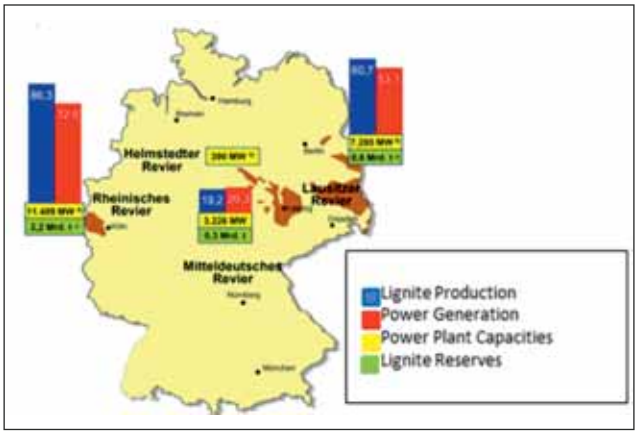


Figure 2 : Location and facts on German lignite coal mines 2017[1,3]

3.2 *Facts and data on German lignite coal*

In general, the Run Of Mine German lignite coal contains approx. 40 % pure coal, 5 % ash and 55 % water. The average calorific value of the raw lignite mined in Germany is around 9.000 kJ/ kg. In more detail, for the Rhineland deposits calorific values of 8.700 to 10.500kJ/kg were measured and for the Central German deposits calorific values between 9.000 and 11.300kJ/kg are typical. The calorific value of the Lusatian deposit ranges from 7.800 to 9.500kJ/kg.

The sulphur content is different in all three deposits. In the Rhineland deposit the sulphur content averages to 0,3% and for the Lusatian deposit the average sulphur content is between 0, 3 and 1, 0 %. The older lignite coal in the central German deposit has a sulphur content between 1, 5 - 2, 1%. (See Table 2.)

Table 2 : German lignite, selected coal quality, 2017[3]

Mining area	Calorific value kJ/kg	Ash content in %	Water content in %	Sulphur content in %
Rhineland	7.800 - 10.500	2,5 - 8,0	50 - 60	0,15 - 0,5
Lusatia	7.800 - 10.000	2,5 - 15,0	48 - 58	0,2 - 1,5
Central Germany	9.000 - 11.300	6,5 - 12,0	49 - 53	1,3 - 2,1

Table 3 : Lignite, production & utilisation in million t, 2017[3]

Mining area	Production[1]	Uitilsation		
		Generation of electricity and heat	Refining	Others
Rhineland	91.3	79.3	11.4	0,6
Lusatia	61.2	57.5	3,6	0,1
Central Germany	18.8	16.4	1.5	0,9
Helmstedt	-.-	-.-	-	-
TOTAL	**171.3**	**153.2**	**16.5**	**1.6**

The total output of German lignite for 2017 adds up to 171.3 million tonnes. Almost 90% of the German lignite is used in domestic thermal power plants to generate approx. 23 % of Germany's electrical energy (additional 14% of energy is based on black (hard) coal). In total approx. 37% of domestic energy generation is based on coal of all types. See Table 3.

4. Conclusion

The German black (hard) coal industry ceased production in December 2018. The German black (hard) coal production in 2018 was approx. 4.456 million tonnes.

The amount of imported black (hard) coal in 2018 reached approx. 38 million tons of which 27 million tonnes were used as steaming coal, 10 million tonnes as coking coal and 1 million tonnes for other applications.

With 171.3 million tonnes of lignite coal production, Germany is the biggest producer of lignite coal in the EU and lignite coal contributes almost 23% and black (hard) coal approx. 14% to Germany's primary energy generation.

The different mining areas, methods and challenges with its difficulties in terms of ensuring the right coal quality, high environmental standards and first-class pollution control at high efficiency ensures that German mining and processing equipment is well accepted worldwide.

With nearly 1.6 bn. Euro (4) in turnover in mining equipment the German equipment suppliers are still one of the world leading suppliers for high-tech mining equipment and technology world-wide.

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Country Report 2019 - South Africa

— Johan de Korte

1. Basic Production Statistics

1.1. *Remaining reserves*

The remaining reserve of coal in South Africa is estimated to be some 30.8 billion tons (L. Jeffrey - 2019) which constitutes some 3.5% of the global total.

The majority of the remaining coal is situated in the north-east of the country in the Highveld, Witbank and Ermelo coal fields (65%) and in the Waterberg coal field (21%).

1.2. *Overall coal production*

The coal production in South Africa has been relatively constant over the last 5 years with the total production at around 250 million tons per annum.

1.2. *Washed/saleable production; proportion of coal washed, exported, usage*

Typical breakdown of coal production and usage in South Africa is as follows:

- ROM tons mined per annum ~ 250 million tons per annum
- Coal exported via Richards Bay Coal Terminal ~ 72 million tons per annum
- Coal used by Eskom for power generation ~ 120 million tons per annum
- Coal converted to chemicals and fuels by Sasol ~ 40 million tons per annum
- Coal used by local industry ~ 18 million tons per annum

1.3. *Number of plants*

South Africa has approximately 65 coal processing plants.

1.3.1. The size and capacity of these plants vary between about 100 tons per hour to more than 2000 tons per hour. The average feed rate of all the plants is about 600 tons per hour.

1.3.2. Coal processing plants in South Africa use a wide range of equipment as shown in the table below:

Equipment	Estimated number of units
Coarse and small coal	
Norwalt	1
Wemco	23
Drewboy	4
Larcodems	2
3-Product cyclone	4
DSM cyclone	50
Tri-flo	1
FGX	1
Fine coal	
Spirals	33
Fine coal dense medium cyclones	3
TBS	2
Ultrafine coal	
Froth flotation	2
Filter press	11

2. General Trends

2.1. *Significant Industry Changes in Last 3 Years*

Large coal companies are selling off their assets to small BEE (Black Economic Empowerment) companies. Structure of the coal industry has shifted from a few large producers to many small producers.

Most of the small mining companies are focused on the production of low-grade thermal coal for the local power utility (Eskom).

In the past, plants tended to be large and with complicated layouts while new plants constructed in the last few years are small, simple plants. The plants can (and often are) re-located from one site to another site as needed.

The quality of ROM coal is declining as small companies extract coal reserves considered insignificant by previous large companies. In addition, discard dumps from previous operations (mainly from the 1970's and 1980's) are being re-washed to extract low grade thermal coal for Eskom. Pillars from previous underground mining operations are now also being mined with opencast mining methods.

The net result of the above is that a larger proportion of the coal now being mined in South Africa requires processing to render the coal suited to utilization.

2.2. *R&D Outcomes and Direction*

The main focus of R&D at present is dry processing, processing and dewatering of fine coal and the optimal utilization of coal discards and low-grade reserves.

Most of the coal processing research in South Africa is coordinated through Coaltech, a collaborative research organization which has many of the coal producers as its members.

3. Plant Design

3.1. *Typical circuits*

A typical South African plant employs the following processing route:

- ROM coal is crushed to 50 mm top-size. In most cases closed crushing circuits equipped with double-roll crushers and a sizing screen is used.
- The crushed coal is then de-slimed at 1 mm using wet screening.
- The 50 x 1 mm size fraction is processed in DSM cyclones (the 3-product cyclone is at present becoming popular and a few plants have already replaced their DSM cyclones with 3-product cyclones)
- The minus 1 mm size fraction, arising from the de-sliming screens, is further de-slimed at 150 micron using hydro-cyclones.
- The 1 x 0.15 mm size fraction (the de-sliming cyclone underflow) is processed with spirals
- The minus 0.15 coal contained in the hydro-cyclone overflow is sent to thickeners. The thickener underflow is either pumped to ponds (although no longer widely acceptable) or filtered using filter presses for disposal together with the coarse discard coal.

3.2. *Latest trends*

New plants built in recent years are equipped with large diameter DSM cyclones - following the Australian example. These cyclones have been proven to be very effective.

Discard coal from operations during the 1970's and 1980's is being re-processed to produce low-grade thermal coal for the inland market. A few new plants have been constructed specifically for this purpose.

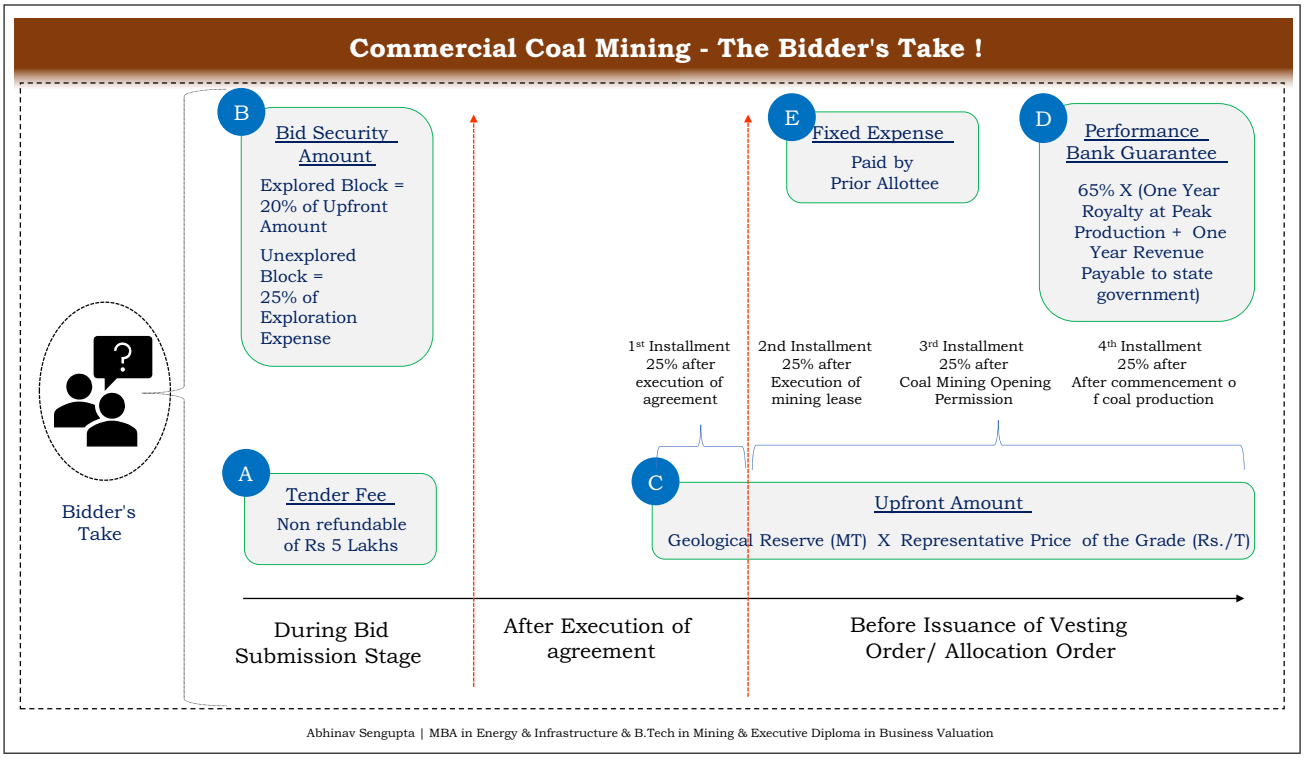
An increasing number of plants are replacing DSM cyclones with 3-product cyclones to enable the plants to produce both a high-grade export and a low-grade local thermal coal using a single medium circuit.

3.3. *New Plants and Significant Upgrades*

Few new, especially large, plants have been constructed in the country in the last few years. Most of the plants constructed are small plants to process small coal reserves and/or re-process discard dumps. A large capacity plant is, however, currently under construction for Exxaro, one of the local coal mining companies. A new 400 ton per hour plant, employing a Larcodems, was also recently commissioned to produce both export and inland coal.

3.3. *Reference*

Jeffrey, L. "I had a Coal Mine in Africa …" Keynote presentation at the Southern African Coal Processing Society conference held in Secunda from 20 to 22 August 2019.


Commercial Coal Mining - The Bidder's Take !
B
Bid Security Amount
Explored Block = 20% of Upfront Amount
Unexplored Block = 25% of Exploration Expense
E
Fixed Expense
Paid by Prior Allottee
D
Performance Bank Guarantee
65% X (One Year Royalty at Peak Production + One Year Revenue Payable to state government)
Bidder's Take
1st Installment 25% after execution of agreement
2nd Installment 25% after Execution of mining lease
3rd Installment 25% after Coal Mining Opening Permission
4th Installment 25% after After commencement o f coal production
A
Tender Fee
Non refundable of Rs 5 Lakhs
C
Upfront Amount
Geological Reserve (MT) X Representative Price of the Grade (Rs./T)
During Bid Submission Stage
After Execution of agreement
Before Issuance of Vesting Order/ Allocation Order
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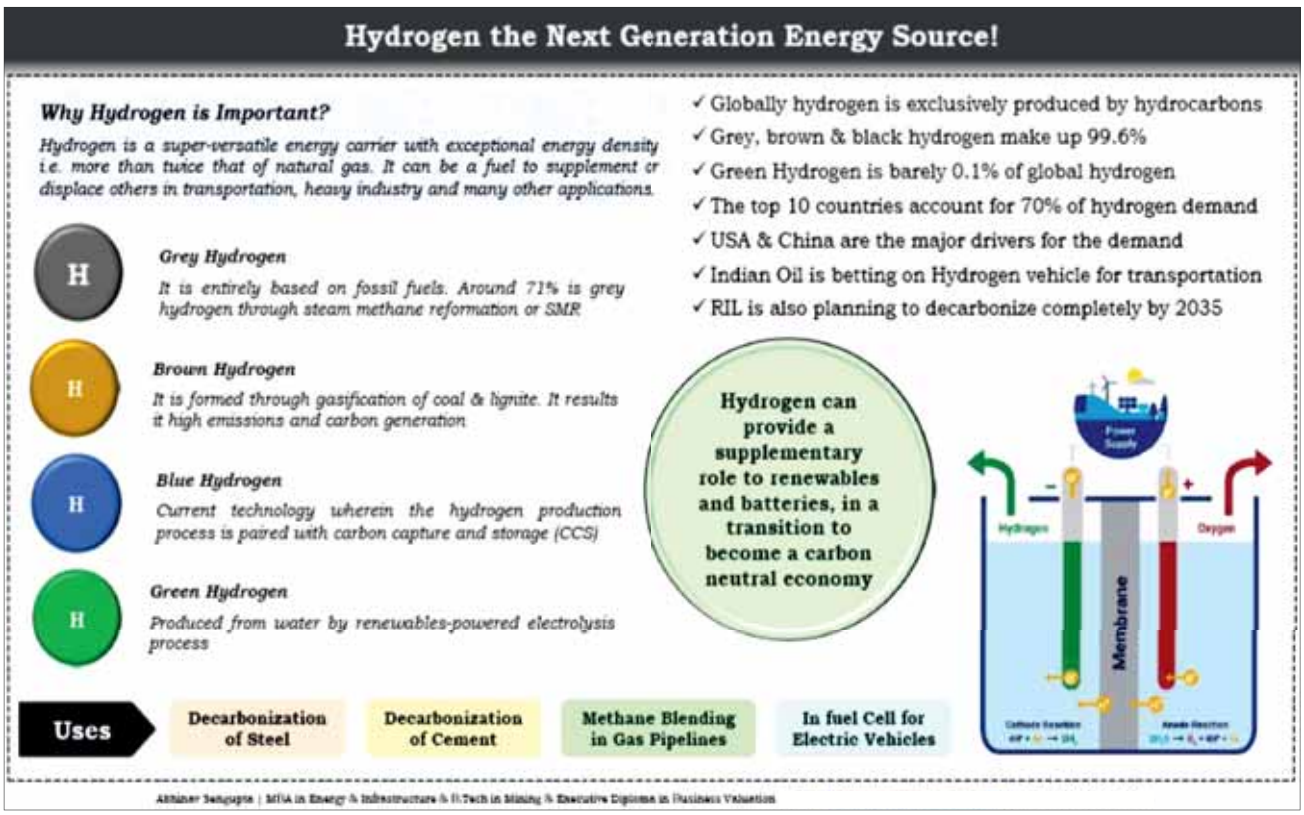
Hydrogen the Next Generation Energy Source!
Why Hydrogen is Important?
Hydrogen is a super-versatile energy carrier with exceptional energy density i.e. more than twice that of natural gas. It can be a fuel to supplement or displace others in transportation, heavy industry and many other applications.
Grey Hydrogen
It is entirely based on fossil fuels. Around 71% is grey hydrogen through steam methane reformation or SMR
Brown Hydrogen
It is formed through gasification of coal & lignite. It results it high emissions and carbon generation
Blue Hydrogen
Current technology wherein the hydrogen production process is paired with carbon capture and storage (CCS)
Green Hydrogen
Produced from water by renewables-powered electrolysis process
✓ Globally hydrogen is exclusively produced by hydrocarbons
✓ Grey, brown & black hydrogen make up 99.6%
✓ Green Hydrogen is barely 0.1% of global hydrogen
✓ The top 10 countries account for 70% of hydrogen demand
✓ USA & China are the major drivers for the demand
✓ Indian Oil is betting on Hydrogen vehicle for transportation
✓ RIL is also planning to decarbonize completely by 2035
Hydrogen can provide a supplementary role to renewables and batteries, in a transition to become a carbon neutral economy
Membrane
Uses
Decarbonization of Steel
Decarbonization of Cement
Methane Blending in Gas Pipelines
In fuel Cell for Electric Vehicles

Decarbonization, Digitalization & Decentralization in Energy & Infrastructure Sector

Decarbonization means phasing out the carbon from the process chain to reduce the emissions of carbon dioxide into the atmosphere. It is important to halt the climate changes

Digitalization
The adoption of digital technologies to modify a business model. The aim is to create a value from the use of new, advanced technologies by exploiting digital network dynamics

Decentralization
It is the process by which the activities of an sector, particularly those regarding planning and decision making, are distributed or delegated away from a central, authoritative location or group

Sector	Decarbonization	Digitalization	Decentralization
Oil & Gas	✓	✓	✗
Power	✓	✓	✓
Steel & Metals	✓	✓	✗
Cement	✓	✓	✓
Coal Mining	✗	✓	✗
Construction	✗	✗	✓
Roadways	✗	✗	✓
Shipping	✗	✓	✓
Railways	✓	✓	✗
Fertilizers	✓	✗	✗

✓ *Efforts are undergoing* ✗ *Still requires ground to cover*

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Tentative Limiting Value of Ash (%) in Coal w.r.t GCV & Moisture

Empirical Formula = 1.8 GCV = 154 * [100-(1.1A+M)]-108M

Where A – Ash (%), M - Moisture (%), GCV – Kcal/Kg

GCV of Coal (in KCAL/Kg)

Moisture (%)	2500	2800	3100	3400	3700	4000	4300	4600	4900	5200	5500	5800	6100	6400	6700	7000
1	62.80	59.61	56.42	53.23	50.05	46.86	43.67	40.48	37.30	34.11	30.92	27.73	24.55	21.36	18.17	14.98
2	61.25	58.06	54.88	51.69	48.50	45.31	42.13	38.94	35.75	32.56	29.37	26.19	23.00	19.81	16.62	13.44
3	59.70	56.52	53.33	50.14	46.95	43.77	40.58	37.39	34.20	31.02	27.83	24.64	21.45	18.26	15.08	11.89
4	58.16	54.97	51.78	48.60	45.41	42.22	39.03	35.84	32.66	29.47	26.28	23.09	19.91	16.72	13.53	10.34
5	56.61	53.42	50.24	47.05	43.86	40.67	37.49	34.30	31.11	27.92	24.73	21.55	18.36	15.17	11.98	8.80
6	55.06	51.88	48.69	45.50	42.31	39.13	35.94	32.75	29.56	26.38	23.19	20.00	16.81	13.62	10.44	7.25
7	53.52	50.33	47.14	43.96	40.77	37.58	34.39	31.20	28.02	24.83	21.64	18.45	15.27	12.08	8.89	5.70
8	51.97	48.78	45.60	42.41	39.22	36.03	32.85	29.66	26.47	23.28	20.09	16.91	13.72	10.53	7.34	4.16
9	50.43	47.24	44.05	40.86	37.67	34.49	31.30	28.11	24.92	21.74	18.55	15.36	12.17	8.98	5.80	2.61
10	48.88	45.69	42.50	39.32	36.13	32.94	29.75	26.56	23.38	20.19	17.00	13.81	10.63	7.44	4.25	1.06
11	47.33	44.14	40.96	37.77	34.58	31.39	28.21	25.02	21.83	18.64	15.45	12.27	9.08	5.89	2.70	-0.48
12	45.79	42.60	39.41	36.22	33.03	29.85	26.66	23.47	20.28	17.10	13.91	10.72	7.53	4.34	1.16	-2.03
13	44.24	41.05	37.86	34.68	31.49	28.30	25.11	21.92	18.74	15.55	12.36	9.17	5.99	2.80	-0.39	-3.58
14	42.69	39.50	36.32	33.13	29.94	26.75	23.57	20.38	17.19	14.00	10.81	7.63	4.44	1.25	-1.94	-5.12

Media Reports on Need for Washing of Thermal Coal in India

State : New Delhi

Publication: **THE PIONEER**

Pg. No. : 04

Date : May 09, 2020

Heading : Govt may do away with mandatory washing of coal for thermal power units

Link : https://www.dailypioneer.com/2020/india/govt-may-do-away-with-mandatory-washing-of-coal-for-thermal-power-units.html

Govt may do away with mandatory washing of coal for thermal power units

PNS ■ NEW DELHI

The Environment Ministry is reportedly set to issue a notification that is likely to do away with the mandatory use of washed coal in power stations located beyond 500 KM from coal supplying mines. If done, it would not only clear the last hurdle in the implementation of a new technology called flue gas desulfurisation (FGD) but also renege on one of its own reforms.

Through a January 2014 notification, the Ministry had made it mandatory for use of washed coal having ash content of 34 percent or more for use in power stations located beyond 500 KM from coal supplying mines.

At a time when the country is reeling under its worst crisis ever, experts question the wisdom behind this proposed move especially since it is also contrary to the Prime Minister's advise that mineral sector should benchmark its operations to international standards.

The notification will do away with globally accepted process of coal washing and preparations before despatch to a consumer.

"Indian Coal does not contain any significant percentage of Sulphur which would warrant setting up of FGD equipments involving crores of rupees. Also, unlike what is being projected, washing of coal is 100% pro environment. The perceived extra cost of washed coal is compensated by high heat value and lesser freight cost, resulting in eventual benefit," said RK Sachdev, President of Coal Preparation Society of India.

R Srikanth, Head of Energy and Environment Research Program at National Institute of Advanced Studies, Bengaluru, who also feels washing coal is a better and globally accepted norm, says, "To tackle pollution, Environment Ministry must prioritise high-efficiency Electrostatic Precipitators (ESPs) with Indian technology which can remove 99.98% of PM pollutants with very low increase in tariff.

Instead, Environment and Power Ministries are prioritising expensive and imported FGDs." He further informed that an MoP order shows only 30% domestic content in FGD equipment which will raise fixed cost per unit and CO_2 emissions, due to 1.5% increase in auxiliary consumption."

In fact, the Environment Ministry's 2014 notification had put the onus for supply of washed coal to thermal power plants on Coal India Limited. Many say that this PSU also stands to benefit out of this notification, as the mandate is being done away with.

It is in public domain that despite its promise a decade ago on building washeries while issuing its IPO, CIL has not been able to make more than two such facilities.

What worries experts is the ramifications this new technology will have on escalating costs for consumers.

"Environment Ministry should re-examine the issues through consultations with industry and experts, before taking any decision. Preparation of washed coal for use by thermal power plants has been part and parcel of coal mining industry globally and India is no exception," added Sachdev. In fact, it best suits Indian Coal considering the high ash and low Sulphur content in Indian Coal.

Publication: **STANDARD POST**

Pg. No. : 11

Date : May 16, 2020

Heading : FGD not needed, coal washing important for thermal plants

FGD not needed, coal washing important for thermal plants

Hyderabad, May 15 : At a time when PM Narendra Modi is exhorting India to get self-reliant with a focus on local, a proposed move by the Ministry of Environment, Forest & Climate Change (MoEFCC) that shall open floodgates for foreign players in critical power sector for installation of Flue Gas Desulphurisation (FGD) has raised alarm bells among experts. A proposed notification that shall do away with mandatory washing of coal for thermal plants has raised concerns about its consequences for the coal and power sectors. Andhra Pradesh & Telangana have 13 thermal power plants. The move towards installation of FGD would completely wipe out the advantage of Rs 90,000 cr infusion announced by FM Nirmala Sitharaman to revive the discoms out of deep red and help the power sector. The Coal Preparation Society of India (CPSI) has said that the said notification is full of glaring loopholes and is a result of misrepresentation by the Ministry of Coal, Ministry of Power and NITI Aayog. It alleges that this looks like a desperate bid to prepare the case against washing of coal which is a global practice. In a Memo to the PMO & Ministry of Environment, Forest & Climate Change, CPSI has said that notification withdrawing its own mandate for supply and use of washed coal having ash content of 34% or more for use in power stations located beyond 500 km from coal mines, is a designed campaign to push for the installation of an FGDs and other pollution control equipments that shall impose enormous financial strain to the already starving power sector in India. "It is highly surprising that no consultation has been done with concerned stakeholders, neither any inputs sought from the public about the proposed policy changes which shall have severe ramification for the power and coal sectors in India," said RK Sachdev, President, CPSI, and also a former Advisor to Coal Ministry. Sachdev further added, "Indian Coal does not contain any significant percentage of Sulphur which would warrant setting up of FGD equipments involving crores of rupees.

Publication : **ET EnergyWorld**
Date : May 15, 2020
Heading : Experts object to MOEFCC notification on coal washing
URL : https://bit.ly/3cPn4M5

Experts object to MoEFCC notification on coal washing

The Coal Preparation Society of India (CPSI) said on Thursday that the proposed notification is full of "glaring loopholes and is a result of misrepresentation by the Ministry of Coal, Ministry of Power and NITI Aayog"

Shaukat Mohammed • TNN • May 15, 2020, 07:27 IST

VIJAYWADA: The proposed notification by the Ministry of Environment, Forest & Climate Change (MoEFCC) will do away with mandatory washing of coal for thermal plants has raised concerns about its consequences for the coal and power sectors. Andhra Pradesh and Telangana have 13 thermal power plants.

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Date : May 15, 2020
Heading : Experts object to MOEFCC notification on coal washing
URL : https://bit.ly/3cPn4M5

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The move towards installation of FGD would completely wipe out the advantage of Rs 90,000 cr infusion announced by FM Nirmala Sitharaman to revive the discoms out of deep red and help the power sector. The Coal Preparation Society of India (CPSI) has said that the said notification is full of glaring loopholes and is a result of misrepresentation by the Ministry of Coal, Ministry of Power and NITI Aayog.

It alleges that this looks like a desperate bid to prepare the case against washing of coal which is a global practice. In a Memo to the PMO & Ministry of Environment, Forest & Climate Change, CPSI has said that notification withdrawing its own mandate for supply and use of washed coal having ash content of 34% or more for use in power stations located beyond 500 km from coal mines, is a designed campaign to push for the installation of an FGDs and other pollution control equipments that shall impose enormous financial strain to the already starving power sector in India.

"It is highly surprising that no consultation has been done with concerned stakeholders, neither any inputs sought from the public about the proposed policy changes which shall have severe ramification for the power and coal sectors in India," said RK Sachdev, President, CPSI, and also a former Advisor to Coal Ministry. Sachdev further added, "Indian Coal does not contain any significant percentage of Sulphur which would warrant setting up of FGD equipments involving crores of rupees. Also, unlike what is being projected, washing of coal is 100% pro-environment. The perceived extra cost of washed coal is compensated by high heat value and lesser freight cost, resulting in eventual benefit."

R Srikanth, Head of Energy and Environment Research Program at National Institute of Advanced Studies, Bengaluru, said "Washing coal is a better and globally accepted norm to tackle pollution. Environment Ministry must prioritise high-efficiency Electrostatic Precipitators (ESPs) with Indian technology which can remove 99.98% of PM pollutants with very low increase in tariff. Instead, Environment and Power Ministries are prioritizing expensive and imported FGDs". He further informed that a MoP order shows only 30% domestic content in FGD equipment which will raise fixed cost per unit and CO2 emissions, due to 1.5% increase in auxiliary consumption.

Some industry observers say that this inexplicable hurry is also intriguing at a time when India is faced with its worst economic crisis ever. "This said notification also blatantly disregards Prime Minister, Narendra Modi's exhortation that Indian Coal Industry be benchmarked against the global practices. Coal washing is an internationally established protocol used by thermal power plants without any glaring adverse impact on the environment. It is clear a very strong international FGD lobby has managed to sway the imagination of the babus even as the political leadership has been kept in the dark," said an industry observer

This new strategy of installing FGDs shall not only mean an additional strain to the power sector but will also increase tariff increasing the burden on user with no significant reduction in pollution as is being made out, many say.

State : Punjab
City : Chandigarh
Publication : **DAINIK BHASKAR**
Pg No : 10
Date : May 16, 2020
Heading : Foreign FGD will affect coal and power sector

विदेशी एफजीडी से कोयला व ऊर्जा क्षेत्र पर पड़ेगा असर

• विशेषज्ञों ने प्रस्ताव को लेकर जताई चिंता

चंडीगढ़। जहां प्रधानमंत्री मोदी स्थानीयता पर जोर देकर भारत के आत्मनिर्भर होने की बात कह रहे हैं। वहीं, पर्यावरण व जलवायु परिवर्तन मंत्रालय का प्रस्तावित कदम अति महत्वपूर्ण विद्युत क्षेत्र में एफजीडी के क्षेत्र में विदेशी खिलाड़ियों के लिए रास्ते खोल देगा। जिसमें विद्युतीय फैक्टरियों के लिए कोयले की धुलाई की अनिवार्यता को अमान्य कर दिया जाएगा और इसी से कोयला व विद्युत क्षेत्र की चिंताएं बढ़ी हैं।

सीपीएसआई अध्यक्ष व कोयला मंत्रालय के पूर्व सलाहकार आरके सचदेव का कहना है कि यह सचमुच आश्चर्यजनक है कि संबंधित साझीदारों से कोई सलाह नहीं ली गई और न ही प्रस्तावित नीतिगत बदलावों के बारे में लोगों से कुछ पूछा, जिसका भारत में ऊर्जा व कोयला के क्षेत्र में भारी असर पड़ेगा। बेंगलुरू के नेशनल इंस्टीट्यूट ऑफ एडवांस्ड स्टडीज के ऊर्जा व पर्यावरण शोध कार्यक्रम के अध्यक्ष आर श्रीकांत ने कहा कि प्रदूषण से लड़ने के लिए कोयले की धुलाई का विकल्प बेहतर और वैश्विक तौर पर स्वीकार्य है।

Publication: **PUNJAB EXPRESS**
Pg No : 11
Date : May 16, 2020
Heading : Shun foreign FGD in favour of local tech in power sector: Experts to MOEFOC

Shun foreign FGD in favour of local tech in power sector: Experts to MOEFCC

PUNJAB EXPRESS BUREAU
Chandigarh, May 16

At a time when PM Narendra Modi is exhorting India to get self-reliant with a focus on local, a proposed move by the Ministry of Environment, Forest & Climate Change (MoEFCC) that shall open floodgates for foreign players in critical power sector for installation of Flue Gas Desulphurisation (FGD) has raised alarm bells among experts. A proposed notification that shall do away with mandatory washing of coal for thermal plants has raised concerns about its consequences for the coal and power sectors. Coal-fired power plants generate 73% of electricity in India.

The move towards the installation of FGD would completely wipe out the advantage of Rs 90,000 cr infusion announced by FM Nirmala Sitharaman to revive the discoms out of deep red and help the power sector, say experts.

The Coal Preparation Society of India (CPSI) has said that the said notification is full of glaring loopholes and is a result of misrepresentation by the Ministry of Coal, Ministry of Power and NITI Aayog. It alleges that this looks like a desperate bid to prepare the case against the washing of coal which is a global practice.

Structural reforms for attracting private investments in Coal and Mineral Sectors

(Announced by Finance Minister on 16th May 2020)

Hon'ble Finance Minister announced relief measures in terms of structural reforms for attracting private investments and developing start of the art infrastructure in fourth tranche (16th May 2020) of Rs 20 lakh crore stimulus package. The announcements focused on structural reforms in 8 sectors, including coal, minerals, defence production, air space management, MRO (maintenance, repair and overhaul), airports, power distribution companies in UTs, Space and atomic energy.

A. Coal Sector

Introduction of Commercial Mining in Coal Sector: The Government will introduce competition, transparency and private sector participation in the Coal Sector through:

1. A revenue sharing mechanism instead of regime of fixed Rupee/tonne. Any party can bid for a coal block and sell in the open market.
2. Entry norms will be liberalised. Nearly 50 Blocks will be offered immediately. There will not be any eligibility conditions, only upfront payment with a ceiling will be provided.
3. There will be exploration-cum-production regime for partially explored blocks against earlier provision of auction of fully explored coal blocks. This will allow private sector participation in exploration.
4. Production earlier than scheduled will be incentivized through rebate in revenue-share.

Diversified Opportunities in Coal Sector

1. Coal Gasification/Liquefication will be incentivised through rebate in revenue share. This will result in significantly lower environment impact and also assist India in switching to a gas-based economy.
2. Infrastructure development of Rs. 50,000 crore will be done for evacuation of enhanced Coal India Limited's (CIL) target of 1 billion tons coal production by 2023-24 plus coal production from private blocks. This will include Rs 18,000 crore worth of investment in mechanised transfer of coal (conveyor belts) from mines to railway sidings. This measure will also help reduce environmental impact.

Liberalised Regime in Coal Sector

1. Coal Bed Methane (CBM) extraction rights will be auctioned from Coal India Limited's (CIL) coal mines.
2. Ease of Doing Business measures, such as Mining Plan simplification, will be taken. This will allow for automatic 40% increase in annual production.
3. Concessions in commercial terms given to CIL's consumers (relief worth Rs 5,000 crore offered). Reserve price in auctions for non-power consumers reduced, credit terms eased, and lifting period has been enhanced.

B. Mineral Sector

Enhancing Private Investments in the Mineral Sector. There will be structural reforms to boost growth, employment and bring state-of-the-art technology especially in exploration through:

1. Introduction of a seamless composite exploration-cum-mining-cum-production regime.
2. 500 mining blocks would be offered through an open and transparent auction process.
3. Joint Auction of Bauxite and Coal mineral blocks to enhance Aluminum Industry's competitiveness will be introduced to help Aluminum industry reduce electricity costs.

Policy reforms in Mineral Sector

The distinction between captive and non-captive mines to allow transfer of mining leases and sale of surplus unused minerals, leading to better efficiency in mining and production shall be removed. Ministry of Mines is in the process of developing a Mineral Index for different minerals. There will be rationalisation of stamp duty payable at the time of award of mining leases.

Auction of Coal Mines for Sale of Coal
Updated Schedule of the Tender Process

(11th Tranche of Auction under the Coal Mines (Special Provisions) Act, 2015)
(1st Tranche of Auction under the Mines and Mineral (Development and Regulations)

S. No.	Event	Timeline (in days)	Date
1	(i) Publication of notice inviting tender (NIT) in one English and one Hindi national newspaper, (ii) Publication of NIT on the website of MoC, (iii) Publication of NIT and Tender Documents on website of MSTC Ltd, (iv) Commencement of sale of Tender Document at the website of MSTC. The date of completion of the last sub-event among the above sub-events shall be considered To	To	Thursday, June 18, 2020
2	Pre-bid meeting	To + 22	Friday, July 10, 2020
3	Last date of receiving written queries from Bidders	To + 85	1600 hours on Friday, September 11, 2020
4	Last date of receiving written requests for Site Visit	To + 92	1600 hours on Friday, September 18, 2020
5	Last date for written responses to queries by the Nominated Authority	To + 95	Monday, September 21, 2020
6	Last date for registration of bidder at the website of MSTC	To + 96	Tuesday, September 22, 2020
7	Last date for sale of Tender Document at the website of MSTC	To + 99	Friday, September 25, 2020
8	Bid Due Date	To + 103	1400 hours on Tuesday, September 29, 2020
9	Opening of the Technical Bid (s)	To + 104	Wednesday, September 30, 2020
10	Start date of examination of the Technical Bid (s)	To + 105	Thursday, October 01, 2020
11	End date of examination of the Technical Bid (s)	To + 120	Friday, October 16, 2020
12	Conduct of electronic auction (Financial Bid – Final Offer) for the Qualified Bidders	To + 123 - To + 144	Monday, October 19, 2020 – Monday, November 09, 2020
13	Recommendation by the Nominated Authority to the Central Government for selection of Successful Bidder	To + 146	Wednesday, November 11, 2020
14	Approval of Successful Bidder by the Central Government T1		
15	Intimation to the Successful Bidder (subject to receipt of instruction from the Central Government)	T1 + 2	
16	Execution of the Agreement between the Successful Bidder and Nominated Authority	T1 + 7	
17	Last date for furnishing of Performance Security and payment of Fixed and Upfront Amount by the Successful Bidder	T1 + 47	
18	Issuance of [Vesting Order / Allocation Order] by Nominated Authority	T1 + 50	

Source : mstc website.

रजिस्ट्री सं. डी.एल.- 33004/99 REGD. No. D. L.-33004/99

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 21 मई, 2020

का.आ. 1561(अ).—जबकि केन्द्रीय सरकार ने पर्यावरण (संरक्षण) नियमावली, 1986 के नियम 5 के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3, धारा 6 और धारा 25 के तहत अपनी शक्तियों का प्रयोग करते हुए, ऐश सामग्री (ऐश कंटेंट) को 34% तक की सीमा सहित कोयले का उपयोग करने के लिए ताप विद्युत संयंत्रों की कतिपय श्रेणियों को अधिदेशित करते हुए भारत के राजपत्र, असाधारण में सा.का.नि. 02 (अ), तारीख 2 जनवरी, 2014 द्वारा पर्यावरण (संरक्षण) नियमावली, 1986 के नियम 3 के उपनियम 8 का संशोधन प्रकाशित किया।

और जबकि सा.का.नि. 02 (अ), तारीख 2 जनवरी, 2014 द्वारा उक्त अधिसूचना द्वारा निम्नलिखित समय-सीमा तक कच्चे अथवा मिश्रित अथवा लाभकारी कोयले (बेनिफिसिएटिड कोल), जिसमें ऐश सामग्री चौंतीस प्रतिशत (34%) से अधिक ना हो, का उपयोग करने के लिए त्रैमासिक आधार पर कोयला आधारित ताप विद्युत संयंत्रों को अधिदेशित किया गया है :

क्रम सं.	विद्युत संयंत्र की श्रेणी	गर्तमुख(पिट-हैड)/कोयला खान से ताप विद्युत संयंत्र के अवस्थान की दूरी	समय-सीमा
(क)	एकल ताप विद्युत संयंत्र (किसी भी क्षमता के) और कैटिप्व ताप विद्युत संयंत्र (100 मेगावाट और अधिक क्षमता सहित)	गर्तमुख विद्युत संयंत्रों को छोड़कर गर्तमुख से दूरी पर ध्यान दिए बिना शहरी क्षेत्रों,या परिस्थितिकीय रूप से संवेदनशील क्षेत्रों या अत्यधिक प्रदूषित क्षेत्रों में अवस्थित	2 जून, 2014 से प्रभावी।
(ख)		1000 किमी से अधिक दूर	2 जून, 2014 से प्रभावी।
(ग)		750-1000 किमी के बीच	1 जनवरी, 2015 से प्रभावी।
(घ)		500-749 किमी के बीच	5 जून, 2016 से प्रभावी।

और जबकि, केंद्रीय सरकार ने पर्यावरण (संरक्षण) नियमावली के नियम 5 के उप-नियम (3) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 6 और धारा 25 के अधीन अपनी शक्तियों का प्रयोग करते हुए भारत के राजपत्र, असाधारण में स.का.आ. 3305 (अ), तारीख 7 दिसंबर, 2015 और सा.का.नि.593 (अ), तारीख 28 जून, 2018 द्वारा विद्युत उत्पादन की क्षमता और विद्युत संयंत्र की संस्थापना की तारीख और समय-बद्ध रीति से प्राप्त किए जाने के आधार पर ताप विद्युत संयंत्रों की विभिन्न श्रेणियों के लिए उत्सर्जन मानकों और विनिर्दिष्ट जल उपभोग को प्रकाशित किया था।

और जबकि, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय ने विद्युत मंत्रालय द्वारा दिनांक 13 अक्तूबर, 2017 को प्रस्तुत की गई यथा संशोधित योजना के अनुसार विभिन्न ताप विद्युत संयंत्रों को वर्ष 2022 तक प्रदूषण नियंत्रण उपकरण संस्थापित करने के लिए पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 5 के तहत निर्देश जारी करने के लिए केंद्रीय प्रदूषण नियंत्रण बोर्ड को दिनांक 7 दिसंबर, 2017 के फा.सं. क्यू-15017/40/2007-सीपीडब्ल्यू द्वारा निदेश दिए।

और जबकि, विद्युत मंत्रालय ने अन्य बातों के साथ-साथ यह अभ्यावेदन किया है कि प्रदूषण नियंत्रण प्रौद्योगिकियों के उन्नत होने के साथ ही ताप विद्युत संयंत्र दहन प्रक्रिया से उत्पन्न फ्लाई-ऐश का पता लगाने में बेहतर उपकरणों से सुसज्जित हुए हैं और बिना धुला कोयला अधिक कुशलता और मितव्ययता से प्रयोग किया जा सकता है; ताप विद्युत संयंत्रों को राख अवयवों की विभिन्न किस्मों के साथ कोयले के लिए डिजाइन किया गया है और इनमें सूखी राख (ड्राई ऐश) निकालने, उसका रखरखाव करने और राख के उपयोग के लिए आपूर्ति प्रणालियों को उपलब्ध कराया गया है; धुले कोयले के उपयोग से बिजली उत्पादन महंगा हो जाता है; ताप विद्युत संयंत्रों में उत्पन्न फ्लाई-ऐश सीमेंट निर्माण, ईंटें बनाने, सड़क बिछाने, खनन के उपरांत रिक्त हुए स्थलों और निचले क्षेत्रों को भरने के लिए बैक-फिल सामग्री जैसे कई लाभकारी उपयोगों के लिए प्रयोग की जा रही है; औसतन ऐश की मात्रा 34% तक बनाए रखने की आवश्यकता उद्योगों को कोयले का आयात करने के लिए प्रेरित करती है जिससे विदेशी मुद्रा इत्यादि का बहिर्वाह (आऊटफ्लो) होता है।

और जबकि, कोयला मंत्रालय ने अन्य बातों के साथ-साथ अभ्यावेदन किया है कि कोयला खानें वर्षों से कच्चे कोयले की गुणवत्ता, आकार और बाहरी सामग्री में सुधार के लिए निरंतर कड़े प्रयास कर रही हैं जिससे सभी संबंधित उपकरणों की टूट-फूट में उल्लेखनीय कमी आई है, कोयला धुलाई प्रक्रिया में कई प्रकार का रखरखाव होता है और कोयला खानों से धुलाई-स्थलों (वाशरीज़) तक कोयले की बड़ी मात्रा को सड़क द्वारा ले जाने और फिर आगे

विद्युत संयंत्रों तक ले जाने के लिए रेल साइडिंग्ज़ तक ले जाने से बचना; धुलाई की प्रक्रिया केवल कोयले को धुले हुए कोयले और वाशरी अवशिष्ट में बाँटती है जबकि खनित कोयले की राख की मात्रा वही रहती है; निम्न श्रेणी कोयला वाशरी अवशिष्ट कई छोटे उपयोगकर्ता उद्योगों में, अधिक प्रदूषण आदि सृजित करते हैं।

और जबकि, कोयला मंत्रालय और विद्युत मंत्रालय ने इसलिए अनुरोध किया है कि दिनांक 2 जनवरी, 2014 की अधिसूचना पर पुन: विचार द्वारा, विद्युत संयंत्रों को धुले हुए कोयले के प्रयोग के लिए अधिदेशित करने पर गौर किया जाना अपेक्षित है जिससे पर्यावरण पर प्रतिकूल प्रभाव डाले बिना कोयले की लंबी दूरी की ढुलाई के लिए बिजली के उत्पादन में आसानी होगी।

और जबकि, नीति आयोग ने अपनी रिपोर्ट में वाशरीज़, कोयला खनन, परिवहन और विद्युत संयंत्रों में कोयले की खपत की दृष्टि से इस विषय का विश्लेषण करने के बाद अन्य बातों के साथ-साथ संक्षिप्त में यह अभ्यावेदन किया है कि समीपवर्ती उद्योगों में वाशरी अवशिष्ट का इस्तेमाल अधिक प्रदूषण पैदा करता है; चूंकि वाशरी अवशिष्ट अनेक छोटे उद्योगों में वितरित होते हैं, इसलिए विद्युत संयंत्र पर उत्पन्न प्रदूषण की तुलना में अनेक स्थलों पर उत्पन्न प्रदूषण को नियंत्रित करना अधिक कठिन होता है; धुलाई प्रक्रिया में उत्पन्न राख (ऐश) कोयला कणों के साथ-साथ पानी को भी प्रदूषित करती है और इसका लाभकारी उपयोग नहीं किया जा सकता, कोयला धुलाई प्रक्रिया में पानी का अधिक प्रयोग होता है, अपशिष्ट सृजन होता है; वाशरी अवशिष्ट के निपटान का पर्यावरण पर प्रतिकूल प्रभाव होता है क्योंकि इसमें बड़ी मात्रा में निम्न श्रेणी कोयला अवशिष्ट, तरल अपशिष्ट प्रवाह, कोयला भण्डारण, कोयला मिट्टी का रखरखाव, अपवाह और उड़ने वाली धूल का रखरखाव और निपटान करना होता है, कोयला धुलाई का स्थलाकृति, जल निकास स्वरूप और गुणवत्ता, जल निकायों, बड़े पैमाने पर प्रतिवेशी वायु गुणवत्ता पर भी प्रतिकूल प्रभाव पड़ता है; धुलाई प्रक्रिया से विद्युत उत्पादन की लागत में भी वृद्धि होती है जिसका कोई पर्यावरणीय लाभ इत्यादि भी नहीं होता।

और जबकि, नीति आयोग ने इसलिए सिफारिश की है कि पर्यावरणीय और प्रदूषण मानकों का निर्धारण करना और उन्हें लागू करना विवेकपूर्ण होगा, जिन्हें कोयले में ऐश की मात्रा प्रतिबंधित किए जाने के बजाए, परिवहन दूरी के आधार पर विद्युत उत्पादकों के साथ जोड़ा जाना चाहिए।

और जबकि, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय ऊर्जा मंत्रालय, कोयला मंत्रालय के अभ्यावेदनों, नीति आयोग और कई हितधारकों की रिपोर्ट पर विवेचन करने तथा सावधानीपूर्वक विचार करने के बाद एवं जनहित में निम्नलिखित निष्कर्ष पर पहुंचा है—

i) खनित कोयले में ऐश सामग्री की मात्रा समान रहती है। वाशरी से ऐश सामग्री दो स्थानों (वाशरी और विद्युत संयंत्र) में विभाजित हो जाती है जबकि बिना धुला कोयला विद्युत संयंत्र में प्रयोग किया जाता है, ऐश सामग्री का निपटान केवल एक स्थान अर्थात विद्युत संयंत्र में किया जाता है;

ii) ताप विद्युत संयंत्र प्रदूषण नियंत्रण, ऐश प्रबंधन के लिए तकनीकी रूप से सुसज्जित होते हैं क्योंकि उनमें फ्लाई-ऐश का निराकरण करने के लिए उच्च क्षमता वाले उपकरण होते हैं, ड्राई ऐश निष्क्रमण और हैंडलिंग सिस्टम, ऐश उपयोग के लिए सप्लाई सिस्टम और फ्लू गैसों को तितर-बितर करने के लिए बड़े टाल (स्टैक) होते हैं;

iii) पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय ने उत्सर्जन मानक अधिसूचित किए हैं जिनमें क्रमश: ताप विद्युत संयंत्रों को समयबद्ध रीति से इन मानकों का पालन करने के लिए अधिदेशित किया गया है;

और जबकि, फ्लाई ऐश प्रबंधन और विभिन्न स्तरों पर बिना धुले कोयले के संसाधन के दौरान उत्पन्न अन्य संबंधित पर्यावरणीय पहलुओं सहित बिना धुले कोयले की हैंडलिंग के लिए यथासंभव उत्कृष्ट कार्यढांचे को अपनाना समयोचित है।

और जबकि, कोयला मंत्रालय ने अभ्यावेदन किया है कि मौजूदा अप्रत्याशित कोविड-19 महामारी और इसके फलस्वरूप देश में ऊर्जा उत्पादन के लिए कोयला क्षेत्र की मांग को प्रोत्साहित कर घरेलू कोयले के उपयोग की तत्काल आवश्यकता को देखते हुए यह वांछनीय है कि तत्काल अधिसूचना जारी की जाए।

अब, इसलिए, केंद्रीय सरकार पर्यावरण (संरक्षण) नियमावली, 1986 के नियम 5 के उपनियम (4) के साथ पठित पर्यावरण संरक्षण अधिनियम, 1986 (1986 का 29) की धारा 3, धारा 6 और धारा 25 के तहत अपनी शक्तियों का प्रयोग करते हुए, उक्त नियमावती के नियम 5 के उपनियम (3) के भाग (अ) के तहत सूचना देने की अनिवार्यता को हटा देने के उपरांत जनहित में पर्यावरण (संरक्षण) नियमावली, 1986 को आगे संशोधित करते हुए एतद्वारा निम्नलिखित नियम बनाती है, अर्थात्:

1. (1) इन नियमों को पर्यावरण (संरक्षण) संशोधन नियमावली, 2020 कहा जाएगा।

   (2) ये सरकारी गज़ट में प्रकाशित होने की तारीख से लागू होंगे।

2. पर्यावरण (संरक्षण) नियमावली, 1986 में, नियम 3 में, उपनियम (8) के लिए निम्नलिखित उपनियम प्रतिस्थापित होगा, अर्थात् :-

   "(8) ताप विद्युत संयंत्रों को, ऐश सामग्री अथवा दूरी संबंधी अनुबंधों के बिना, निम्नलिखित शर्तों के अध्याधीन कोयले के प्रयोग की अनुमति होगी:

   (1) उत्सर्जन मानदण्डों के लिए प्रौद्योगिकीय समाधान निर्धारित करना:

   i. वर्तमान अधिसूचनाओं और केंद्रीय प्रदूषण नियंत्रण बोर्ड द्वारा समय-समय पर जारी अनुदेशों के अनुसार विविक्त सामग्री के लिए विनिर्दिष्ट मानदंडों का अनुपालन करना।

   ii. वाशरी के मामले में मिडलिंग और अवशिष्टों का एफबीसी(तरलीकृत तल दहन) प्रौद्योगिकी आधारित विद्युत संयंत्रों में उपयोग किया जाए। एफबीसी संयंत्रों में मिडलिंग और अवशिष्टों के लिए वाशरी में संयोजन (लिंकेज) होना चाहिए।

2. ऐश पॉन्ड का प्रबंधन:

   i. ताप विद्युत संयंत्र धुले हुए कोयले से बिना धुले हुए कोयले पर स्विच करने के कारण फ्लाई-ऐश पॉन्ड(मौजूदा विद्युत उत्पादन क्षमता) की अतिरिक्त क्षमता की पात्रता प्राप्त किए बिना, समय-समय पर जारी की गई अधिसूचनाओं में यथा-अधिसूचित शर्तों का पालन करें।

   ii. ऐश प्रबंधन के लिए जल की खपत को अनुकूल करने हेतु समुचित प्रौद्योगिकी समाधान लागू हों;

   iii. यदि आवश्यक हो तो फ्लाई-ऐश का अधिकतम उपयोग सुनिश्चित करने के लिए स्थल विशिष्ट स्थितियों के आधार पर ऐश का पृथक्करण इलैक्ट्रो-स्टेटिक अवक्षेपक (प्रेसीपिटेटर) स्तर पर किया जाए।

   iv. ताप विद्युत संयंत्र उपर्युक्त 2(i) के अध्याधीन, छोड़ी हुई अथवा चालू खानों (वर्किंग माइन्स) में (खान मालिकों द्वारा सुविधाजनक बनाया जाए) पर्यावरणीय सुरक्षा उपायों के साथ फ्लाई-ऐश का निपटान करें।

3. परिवहन:

i. ढके हुए रेलवे वैगन (तिरपाल अथवा किसी अन्य माध्यम से ढके हुए रेलवे वैगन) और/अथवा खान-क्षेत्र से परे ढके हुए वाहक (कन्वेयर) द्वारा ही कोयले का परिवहन किया जाए। तथापि, जब तक रेल परिवहन/वाहक इन्फ्रास्ट्रक्चर उपलब्ध नहीं हो जाता, सड़क परिवहन ट्रकों द्वारा किया जाए जो तिरपाल अथवा किसी अन्य माध्यम से ढके हुए हों।

ii. ताप विद्युत संयंत्र द्वारा सुनिश्चित किया जाए कि

(क) रेल अथवा कन्वेयर द्वारा परिवहन के लिए विद्युत संयंत्र में अथवा इसके समीप रेल साइडिंग सुविधा अथवा कन्वेयर सुविधा स्थापित हो; और

(ख) यदि रेल अथवा कन्वेयर सुविधा की अनुपलब्धता के कारण परिवहन न हो पाए, तो यह सुनिश्चित किया जाए कि संबंधित खान के डिलीवरी स्थान से कोयले का परिवहन ढके हुए ट्रकों (तिरपाल अथवा किसी अन्य माध्यम द्वारा), अथवा किसी अन्य यंत्रीकृत बंद ट्रक से सड़क द्वारा हो।

(4) इसे वित्तीय वर्ष 2020-21 और उसके बाद के लिए संबंधित परियोजनाओं हेतु संगत पर्यावरणीय स्वीकृति की अतिरिक्त शर्तें भी समझा जाएगा। मौजूदा पर्यावरणीय स्वीकृतियों को संशोधित किया जाएगा ताकि संगत क्षेत्रों के लिए उपरोक्त शर्तों को प्रवर्तनशील बनाया जा सके। तदनुसार संबंधित राज्य प्रदूषण नियंत्रण बोर्ड द्वारा प्रचालन की अनुमति जारी की जाएगी।

[फा.सं. 13014/01/2020–आईए-I(टी)]

गीता मेनन, संयुक्त सचिव

टिप्पण—मूल नियम भारत के राजपत्र में सं.का.आ. 844(अ), तारीख 19 नवंबर 1986 द्वारा प्रकाशित किए गए थे और पश्चातवर्ती संशोधन सं.का.आ. 82(अ), तारीख 16 फरवरी, 1987; का.आ. 64(अ), तारीख 18 जनवरी, 1988; सा.का.नि. 931(अ), तारीख 27 अक्तूबर,1989; का.आ. 23(अ), तारीख 16 जनवरी, 1991; सा.का.नि. 95(अ), तारीख 12 फरवरी, 1992; सा.का.नि. 329(अ), तारीख 13 मार्च, 1992; सा.का.नि. 562(अ), तारीख 27 मई, 1992; सा.का.नि. 884(अ), तारीख 20 नवंबर, 1992; सा.का.नि. 386 (अ), तारीख 22 अप्रैल, 1993; सा.का.नि. 422 (अ), तारीख 19 मई, 1993; सा.का.नि. 801 (अ), तारीख 31 दिसंबर, 1993; सा.का.नि. 320 (अ), तारीख 16 मार्च, 1994; सा.का.नि. 560 (अ), तारीख 19 सितंबर, 1997; सा.का.नि. 378 (अ), तारीख 30 जून, 1998; सा.का.नि. 07 (अ), तारीख 22 दिसंबर, 1998; सा.का.नि. 407 (अ), तारीख 31 मई, 2001; सा.का.नि. 826 (अ), तारीख 16 नवंबर, 2009; सा.का.नि. 513 (अ), तारीख 28 जून, 2012; सा.का.नि. 02 (अ), तारीख 02 जनवरी, 2014; का.आ. 3305 (अ), तारीख 07 दिसंबर, 2015; सा.का.नि. 593 (अ), तारीख 28 जून, 2018; और का.आ. 236 (अ), तारीख 16 जनवरी, 2020 द्वारा किए गए।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 21st May, 2020

S.O. 1561(E).—Whereas the Central Government had, in exercise of its powers under Section 3, Section 6 and Section 25 of Environment (Protection) Act, 1986 (29 of 1986) read with rule 5 of Environment (Protection) Rules, 1986, published draft rules further to amend sub-rule (8) of rule 3 of Environment (Protection) Rules, 1986, in the Gazette of India, Extraordinary, *vide* number G.S.R. 02(E), dated the

2nd January, 2014 mandating certain categories of thermal power plants to use coal with ash content restricted to 34%.

And whereas, the said Notification *vide* number G.S.R. 02(E) dated the 2nd January, 2014, mandated coal based thermal power plants to use raw or blended or beneficiated coal with ash content not exceeding thirty-four percent (34%), on quarterly basis, by the time lines given below:

Sl. No.	Category of Power Plant	Distance of location of Thermal Power Plant from pit-head/coal mine	Time lines
(a)	Stand-alone Thermal Power Plants (any capacity), and Captive Thermal Power Plants (with capacity of 100 MW and above)	Located in urban areas, or ecologically sensitive areas or critically polluted areas, irrespective of distance from pit-head, except pit-head power plants.	With effect from 2nd June, 2014.
(b)		beyond 1000 km	With effect from 2nd June, 2014.
(c)		between 750-1000 km	With effect from 1st January, 2015.
(d)		between 500-749 km	With effect from 5th June, 2016.

And whereas, the Central Government had, in exercise of its powers under sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, in the Gazette of India, Extraordinary, *vide* number S.O. 3305 (E), dated the 7th December, 2015 and G.S.R. 593 (E), dated the 28th June, 2018 published the emission standards and specific water consumption for various category of thermal power plants, based on capacity of power generation and date of installation of power plant and to be achieved in time bound manner.

And whereas, the Ministry of Environment, Forest and Climate Change directed the Central Pollution Control Board vide F.No.Q-15017/40/2007-CPW dated the 7th December, 2017 to issue Directions under Section 5 of Environment (Protection) Act, 1986, to various Thermal Power Plants to install pollution control equipment as per the revised plan submitted by the Ministry of Power dated the 13th October, 2017 by 2022.

And whereas, the Ministry of Power has, *inter alia*, represented that with advancement in pollution control technologies, thermal power plants are better equipped to capture fly-ash generated in combustion process and unwashed coal can be used more efficiently and economically; thermal power plants are designed for coal with wide variety of ash content and are equipped with dry ash evacuation, handling and supply systems for ash utilisation; using washed coal makes power generation costlier; fly ash generated in thermal power plants is being used in several beneficial uses like cement manufacturing, brick making, road laying, back-fill material for reclamation of mine voids and low lying areas; requirement of maintaining average ash content to 34% prompts industries to undertake import of coal, resulting in outflow of foreign exchange etc.

And Whereas, the Ministry of Coal has, *inter alia*, represented that the coal mines are constantly striving to improve raw coal in terms of quality, size and extraneous material over the years which has considerably reduced wear and tear of all related equipment, coal washing process involves multiple handling and avoidable road transportation of huge quantities of coal from coal mines to washeries and then to rail sidings for onward transport to power plants; the washing process only divides the coal into washed coal and washery rejects while the ash content of mined coal remains the same; use of low grade coal washery rejects, in the multiple small user industries, generates more pollution etc.

And Whereas, the Ministry of Coal and Ministry of Power have, therefore, represented that the mandating power plants to use washed coal requires to be revisited by reconsidering the notification dated the 2nd January, 2014 which will help ease power generation for long distance haulage of coal without adverse impact on the environment.

And Whereas, the **NITI Aayog**, in its report after analysing the issue from the perspective of washeries, Coal mining, transportation and consumption of coal at power plants has, *inter alia*, summed up that use of washery rejects in nearby industries generates more pollution; since washery rejects are distributed in number of smaller industries, the pollution control at numerous points is more difficult than controlling the

pollution at power plant end; Ash generated in the washing process pollutes water along with coal particles and cannot be gainfully utilised; Coal washing process involves increased water use, effluent generation; Disposal of washery rejects has negative environmental impact as it has to handle and dispose huge quantity of low grade coal washery rejects, liquid effluent streams, coal storage, handling coal dust, runoff and fugitive dust; Coal washing also adversely impacts topography, water drainage pattern and quality, water bodies, surrounding air quality at large scale; Washing process increases the cost of power generation with no commensurate environmental advantages etc.

And Whereas, NITI Aayog has, therefore, recommended that it may be prudent to determine and enforce the environmental and pollution norms, to be complied with by the power generators, rather than restricting the ash content in coal, based on distance of transportation.

And Whereas, the Ministry of Environment, Forest and Climate Change, after deliberating the representations from Ministry of Power, Ministry of Coal, report of NITI Aayog and various stakeholders and after careful considerations & in larger public interest, arrived at the following:

(i) The extent of ash content in mined coal remains the same. With washeries, the ash content gets divided at two places (washeries and the power plant), whereas if unwashed coal is used in power plant, the ash content is handled at only one place viz. the power plant;

(ii) Thermal power plants are technologically equipped to address pollution control, ash management as they have high efficiency equipment to capture fly ash, dry ash evacuation and handling systems, ash supply systems for ash utilisation and tall stacks for wider dispersal of flue gases;

(iii) The Ministry of Environment, Forest and Climate Change has notified emission norms, mandating respective thermal power plants to adhere to such norms in a time bound manner;

And Whereas, it is expedient to adopt best possible framework towards handling of unwashed coal including management of fly ash and other associated environmental aspects arising out of processing of unwashed coal at different stages.

And Whereas, the Ministry of Coal has represented that in view of the existing unprecedented COVID-19 pandemic and the resultant immediate requirement of utilization of domestic coal by stimulating coal sector demand for power generation in the country, it is desirable to issue the notification at the earliest.

Now, therefore, in exercise of the powers conferred by Section 3, Section 6 and Section 25 of the Environment Protection Act, 1986 (29 of 1986) read with sub-rule (4) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government, after having dispensed with the requirement of notice under clause (a) of sub-rule (3) of rule 5 of the said rules, in public interest, hereby makes the following rules to further amend the Environment (Protection) Rules, 1986, namely :-

1. (1) These rules may be called the Environment (Protection) Amendment Rules, 2020

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

2. In the Environment (Protection) Rules, 1986, in rule 3, for sub-rule (8), the following sub-rule shall be substituted, namely :-

"(8) Use of coal by Thermal Power Plants, without stipulations as regards ash content or distance, shall be permitted subject to following conditions:

(1) **Setting Up Technology Solution for emission norms:**

(i) Compliance of specified emission norms for Particulate Matter, as per extant notifications and instructions of Central Pollution Control Board, issued from time to time.

(ii) In case of washeries, Middling and rejects to be utilized in FBC (Fluidised Bed Combustion) technology based thermal power plants. Washery to have linkage for middling and rejects in Fluidised Bed Combustion plants.

(2) **Management of Ash Ponds:**

(i) The thermal powers plants shall comply with conditions, as notified in the Fly Ash notification issued from time to time, without being entitled to additional capacity of fly ash pond (for existing power generation capacity) on ground of switching from washed coal to unwashed coal.

(ii) Appropriate Technology solutions shall be applied to optimise water consumption for Ash management;

(iii) The segregation of ash may be done at the Electro-Static Precipitator stage, if required, based on site specific conditions, to ensure maximum utilization of fly ash;

(iv) Subject to 2(i) above, the thermal power plants to dispose flyash in abandoned or working mines (to be facilitated by mine owner) with environmental safeguards.

(3) **Transportation:**

(i) Coal transportation may be undertaken by covered Railway wagon (railway wagons covered by tarpaulin or other means) and/or covered conveyer beyond the mine area. However, till such time enabling Rail transport/conveyer infrastructure is not available, road transportation may be undertaken in trucks, covered by tarpaulin or other means.

(ii) It shall be ensured by the thermal power plant that

a. Rail siding facility or conveyor facility is set up at or near the power plant, for transportation by rail or conveyor; and

b. If transportation by rail or conveyor facility is not available, ensure that the coal is transported out from the Delivery Point of the respective mine in covered trucks (by tarpaulin or other means), or any mechanized closed trucks by road.

(4) This shall also be deemed to be additional conditions of the relevant Environmental Clearances for respective projects for financial year 2020-21 and onwards. The existing Environmental Clearances shall stand modified so as to make the above conditions operative for relevant sectors. The Consent to Operate shall be issued by respective State Pollution Control Boards accordingly."

[F.No.13014/01/2020-IA.I(T)]

GEETA MENON, Jt. Secy.

Note:-The principal rules were published in the Gazette of India *vide* number S.O. 844(E), dated the 19th November,1986 and subsequently amended *vide* numbers S.O. 82(E), dated 16th February, 1987; S.O. 64(E), dated18th January, 1988; G.S.R. 931(E), dated 27th October, 1989; S.O. 23(E), dated 16th January, 1991; G.S.R. 95(E), dated 12th February, 1992; G.S.R.329(E), dated 13th March, 1992; G.S.R. 562(E), dated 27th May, 1992; G.S.R. 884(E), dated 20th November, 1992; G.S.R. 386(E), dated 22nd April, 1993; G.S.R. 422(E), dated 19th May, 1993; G.S.R. 801(E), dated 31st December, 1993; G.S.R. 320(E), dated 16th March, 1994; G.S.R. 560(E), dated 19th September, 1997; G.S.R. 378(E), dated 30th June, 1998;G.S.R. 7(E), dated 22nd December, 1998; G.S.R. 407(E), dated 31st May, 2001; G.S.R. 826(E), dated 16th November, 2009; G.S.R. 513(E), dated 28th June, 2012; G.S.R. 02(E) dated 2nd January, 2014; S.O. 3305 (E), dated 7th December, 2015; G.S.R. 593(E), dated 28th June, 2018 and S.O. 236 (E), dated 16th January, 2020.

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MoEFCC Notification Dated 21st May 2020
Point-wise clarifications / correction position
(As pointed out by CPSI)

Points made by Ministry of Power	Clarifications / correct position
i. With advancement of pollution control technologies, thermal plants are better equipped to capture fly ash and unwashed coal can be used more efficiently and economically.	i. Pollution control technologies at the power plant to capture fly ash do not impact efficiency of the boiler where coal is burnt. It is a fact that inferior quality impacts efficiency of boilers even in critical and super critical power plants.
ii. Fly ash generated in thermal power plants has market, is being used in several beneficial uses like cement manufacturing, brick making etc.,	ii. This argument does not make economic sense. Moreover, the percentage of usable ash from power plants is not high and this will result in excessive pollution at the power station.
iii. Thermal power plants are designed for coal with wide variety of ash content and are equipped with dry ash evacuation, handling and supply systems for ash utilisation; using washed coal makes power generation costlier	iii. Washing coal at the mine and delivering only washed coal to the user will not result in any additional expenses and this should be the practiced. Washing per say is a very simple and inexpensive process. It is completely incorrect to say that washing increases the cost of generation.
iv. Requirement of maintaining average ash content to 34% prompts industries to undertake import of coal, resulting in outflow of foreign exchange etc.	iv. Coal imported by plants which are not designed for use of superior imported coal has been done to make up for shortages in availability of domestic coal from CIL It has no correlation with ash content.

Points made by Ministry of Coal	Clarifications / correct position
i. Coal companies are making efforts to improve raw coal in terms of quality, size and extraneous material over the years which has considerably reduced wear and tear of all related equipment.	i. The removal of ash in coal from 42-45% to 34% will have several environmental benefits like less emission of GHGs when burnt at power plants, less generation of ash etc. World over coal is washed.
ii. Coal washing process involves multiple handling and avoidable road transportation of huge quantities of coal from coal mines to washeries and then to rail sidings for onward transport to power plants;	ii. As washeries are supposed to be set up at the mines, where is the questions of multiple transportation of coal, except in some cases where merchant washeries were set up some distance away, that too because individual mines were of smaller capacity and washeries are taking coal from more than one source.
iii. Mandating power plants to use washed coal requires to be revisited by reconsidering the notification dated the 2nd January, 2014 which will help ease power generation for long distance haulage of coal without adverse impact on the environment.	iii. The argument put forth by Coal Ministry that the withdrawal of notification of 2nd January 2014, will help ease power generation for long distance haulage of coal without adverse impact on environment is totally wrong and misleading. Long distance power plants always stand to gain by taking coal with lower ash content and higher heat value, as they save in freight in taking washed coal of which less quantity is to be transported.
iv. Washing process only divides the coal into washed coal and washery rejects while the ash content of mined coal remains the same; use of low grade coal washery rejects, in the multiple small user industries, generates more pollution etc.	iv. This is an illogical statement. Washing reduces ash from the ROM coal. There is no study which establishes the notion that indiscriminate use of rejects add to pollution. Yes, the ash which would have been generated at the power station is getting distributed but under no circumstances can any process produce more ash than that contained in the unwashed coal. The only logical thing to do is to use rejects to fill mine voids.

Points made by NITI Aayog	Clarifications / correct position
i. Use of washery rejects in nearby industries generates more pollution; the pollution control at numerous points is more difficult than controlling the pollution at power plant end;	i. There is no such situation in and around washeries. Rejects should have minimum heat value so that these can be safely disposed in the mines. MoEFCC guidelines are being followed.
ii. Ash generated in the washing process pollutes water along with coal particles and cannot be gainfully utilised;	ii. Washeries are based on 'Closed Circuit' design and there no effluent let out. In most cases, mine water is being used.
iii. Coal washing process involves increased water use, effluent generation; handling coal dust, runoff and fugitive dust;	iii. As already explained, no effluent is generated and adequate protections for fugitive dust are built is the washeries at suitable points.
iv. Coal washing also adversely impacts topography, water drainage pattern and quality, water bodies, surrounding air quality at large scale; Washing process increases the cost of power generation with no commensurate environmental advantages etc.	iv. Washeries are set up after MOEF gives environmental clearance. If the washeries were having severe adverse impacts then the EMP of such washeries would have had very extensive mitigation measures but this does not seem to be the case. This only indicates that conclusions drawn by NITI Aayog is without any basis.

Action taken by CPSI on recent notification of MoEFCC

As soon as the recent notification dated 21st May 2020 issued by the Ministry of Environment, Forest and Climate Change that gives full freedom to the coal companies to supply unwashed coal of any ash content without any upper limit, to power plants, irrespective of their distance from the coal supplying mines came to its notice, CPSI organised a Webinar on 30th May 2020. Indian Chamber of Commerce (ICC) Kolkata organised another Webinar on 15th June 2020. At both these online meetings consensus was that this notification is a highly retrograde step and CPSI must put the facts before the Government and ask for a wider deliberation among all stakeholders and subject experts.

In view the wide ranging adverse impact of the recent notification issued by the Ministry of Environment, Forest & Climate Change, the Coal Preparation Society of India (CPSI) got all the aspects of washing of thermal coal and use of washed coal in power plants studied in detail through a group comprising of highly experienced experts having in-depth knowledge of coal mining, preparation, transportation and use in thermal power stations. The Expert Group constituted by CPSI comprised of the following well known industry experts:

1. Shri Alok Perti, IAS (Retd), Former Secretary (Coal) to Government of India.
2. Shri R K Sachdev, Former Advisor (Coal) to GoI and President, Coal Preparation Society of India.
3. Shri V S Verma, Former Member and Chairman, CERC, Member (Planning) CEA and DG, Bureau of Energy Efficiency (BEE).
4. Shri Partha Sarathi Bhattacharyya, Former Chairman, Coal India Ltd.
5. Shri D N Prasad, Former Adviser, Ministry of Coal.
6. Prof. Sumantra Bhattacharya, Professor and Head, Department of Fuel Minerals & Metallurgical Engineering, Indian Institute of Technology (ISM) Dhanbad.
7. Dr R Srikanth, Professor & Dean, National Institute of Advanced Studies, Bangalore.

The Report of the Expert Group has been submitted to the Hon'ble Prime Minister of India and various concerned ministries including NITI Aayog with the request that this important issue should be openly discussed and inputs from all stake holders and subject experts be sought and based on the inputs received a fresh notification be issued.

Executive Summary of the Report of the Expert Group is available on following pages .

Executive Summary of Report of the Expert Group on 'Washing of Thermal Coal is Vital for India'

Background:

India is the second largest producer of coal and more than 80% of its annual production is consumed in the power sector. COAL is the one of the main drivers of India's economic growth. India is endowed with over 13% of world's proven coal reserves. The total annual production in 2019-20 has been 729 million tonnes. At the current rate of production, the proven reserves can last for several decades and adequately meet the country's need for electricity, iron & steel, cement and many other industries.

While, quantitatively our coal resources are abundant and fairly well distributed in eastern and south eastern parts of the country, but the ash content is very high ranging from 24 to 55%, sometimes even more. Further, with predominance of open cast mining the quality gets further deteriorated due to out of seam dilution. Sulphur content, however, is low from 0.4 to 0.7% only, which is a positive feature of our coals.

Washing of coal is a simple and cost-effective technique of removing the extraneous material, for reducing the ash content and improving the heat value and thereby coal burns efficiently in power plant boilers with significantly reduced emissions. Washing also helps in reducing the inorganic part of sulphur in coal that in turn helps in significantly reduced SOx emissions.

While during FY 2019-20 India's domestic coal production was 729 million tonnes (mt) and total import was of 243 million tonnes (mt), the total consumption was therefore over 970 mt. Of this, power sector utilities consumed about 630 mt of coal. In addition, out of about 180 mt thermal coal that was imported, a part was used by power utilities for meeting the gap in the domestic and the balance was used by cement and other industries. At least, 70% of this can easily be substituted by domestic washed coal.

On January 2nd 2014, MoEFCC had issued a notification mandating use of washed or blended coal with ash content not over 34% to be supplied for use in power plants located more than 500 km from the supplying mines and also for those located is ecologically sensitive locations, and also those located in urban areas and environmentally sensitive locations. The primary objective of the mandate was to control pollution during transportation as well in and around the power stations. This approach was in tune with the commitments made for reduction of emission density of our GDP by 33% in 2030 below the level that existed in 2005.

On 21st May2020 MoEFCC, by issuing a fresh notification, scrapped the mandatory coal washing for power generation in certain thermal power plants that was mandated vide the notification of 2ndJanuary 2014.

The unfortunate aspect of the notification dated 21st May 2020 is that this been based on the representations made by the Ministries of Coal, Power and NITI Aayog, which are scientifically, environmentally and economically grossly misplaced and in all likelihood will lead to excessive environmental damages and significant losses of economic benefits established out of using washed coal for power generation.

Past studies and trials that have looked at specific power plants in India have shown that the use of washed thermal coal results in the following benefits accruing to the power plants:

- Savings in coal transport cost.
- Increase in operating hours.
- Increase in Pant Load Factor and Plant Utilisation Factor.
- Reduction in break-downs / down time.
- Increase in overall efficiency.
- Increase in generation and units sent out per day.
- Reduction in support fuel oil.
- Reduction in specific coal consumption.
- Saving in land area for ash dumping and reduced water requirement for ash disposal.
- Reduction in CO2, SPM and SOX emissions.
- Savings in per unit cost of electricity generation.
- Reduction in capital cost of new power plants.

Globally also, coal is washed and used in power stations and also traded after making it saleable after washing.

Mahanadi Coalfields (MCL) is currently implementing three greenfield washeries (10 mty capacity each), after securing all necessary clearances, including the environmental clearance (EC) from MoEF&CC. These washeries are being established on the Build-Operate-Maintain (BOM) concept with capital cost being borne by the coal company and operation & maintenance would be responsibility of the contractor for which he would be paid an agreed amount. In case of Lakhanpur washery, which is in advanced stage of commissioning, the capital cost is below Rs. 400 crore and the operating cost has been fixed at Rs.104 per tonne (exclusive of water, power, and GST). The minimum guaranteed yield of washed coal for reducing ash content from 41.5% to 33.5% has been finalized as 78.7%. Similarly, MCL has issued "Letters of Intimation" for setting up state-of-art washeries in the Hingula area and Jagannath area of Talcher coalfield. All three washeries have been designed with environment-friendly features and based on 'closed circuit' concept with zero liquid discharge.

Modern washeries established at the producing mines with high yields and generating rejects with less than 1400 Kcal/kg heat value, which have no useful value and can best be used to fill mine voids are being planning and established. The rationale of avoiding washing of coal on the plea that washeries are 'highly polluting' is flawed. Further, mandatory use of rejects in FBC boilers is fraught with uncertainties and consequent unreliability of power plant operation. Rejects must necessarily be disposed off as mine-fills.

After in-depth examinations of all related aspects of washing of thermal and the use of washed coal, the Expert Group arrived at the following specific recommendations:

1. All thermal coals should be washed at the mine site before dispatch.
2. All mines having coal production of more than 2.50 million tonnes per annum should be equipped with a coal washery. Coal India Ltd and SCCL should draw a time bound Action Plan to achieve this.
3. Coal mines having smaller production may be provided with a suitably located central coal washery of capacity matching with cluster of mines it is meant to service.
4. All washeries should follow the concept of having discards/rejects of GCV of less than 1400 Kilo Cal/kg as designed for the three washeries under implementation in MCL areas.
5. Washery discards/rejects must be dumped back into de-coaled areas in open cast mines along with the overburden debris.
6. All washeries should be designed and implemented on 'closed circuit' or 'zero liquid discharge' concept.
7. The notification issued by MOEF&CC on 21st May 2020 withdrawing the previous notifications which mandated washing of coal and allowing

unwashed coal to be used in power plants under any conditions be held in abeyance and a process of consultation with all stakeholders be initiated to arrive at a more reasonable and scientifically appropriate viewpoint which can then be converted into a formal notification.

This is also noteworthy that in his book 'CONVENIENT ACTION - continuity for Change', Hon'ble Prime Modi says 'Due to the use of washed coal, the energy consumed in transportation, handling and milling, is optimized as the inert material from coal is eliminated. This helps in reducing the auxiliary consumption of equipment involved in coal processing because the use of improved quality coal ultimately results in reduction of emission of GHG as compared to conventional coal.' (Copy of page-86 of the book is attached at Annex - 1 of the Report).

It is also to be noted that the assured supply of washed coal of appropriate quality and in adequate volume, will trigger faster implementation of Clean Coal Technologies that will lead to higher energy efficiency of the entire Energy sector (from the mine to the power plant) and result in tariff reductions necessary to enhance the competitiveness of Indian industry. In addition, usage of washed coal in TPPs will also reduce air pollution and CO2 emissions from the Coal, Railways, and Power sectors. This will also embody the true spirit of 'Atmanirbhar Bharat' and also Atamnirbhar Coal Sector.

News about Coal Auctions for Commercial Mining

On 18th June 2020, Hon'ble Prime had unveiled auction of 41 coal blocks for commercial mining. These included four blocks with reserves of coking coal.

Major takeaways from Hon'ble Prime Minister's speech are:

1. Self-reliant India can't be possible without strong mining & mineral sector.
2. The start of auction for Commercial coal mining is a win-win for all stakeholders.
3. New resources & market will come up and state govt will get a revenue boost.
4. Employment opportunities will be generated for the poor.
5. We have kept in mind the commitment made towards environmental protection.
6. 100 mt of coal will be turned into gas in the next decade.
7. Coal gasification to help in transport, urea & steel manufacturing sector.
8. Eastern and Central India will benefit a lot from this reform. Regions rich in coal and mineral will progress due to these reforms. These are the areas which have aspirational districts. Commercial mining will bring employment opportunities to these areas.
9. The coal blocks that are getting auctioned today will provide lakhs of jobs in these areas. The government will spend Rs 50,000 crore for creating infrastructure around coal mining.

Summary of Themes

The IEA report identifies several themes with respect to recent coal sector investment trends including -

Global coal supply investment remained resilient in 2019

Investment in coal supply was USD 90 Billion in 2019, representing a 15% increase on 2018 investment, despite ongoing social and investor pressures. The report highlights the following as the key drivers of investment growth for the period:

- Global coal supply investment driven by Chinese investment - Given that China represents half of global demand and almost half of the world's production, its investment decisions have a critical impact on overall global supply investment. Chinese policy reforms in 2016-17 focussing on the closure of inefficient mines increased sector efficiency and profitability coincided with renewed support for infrastructure development to deliver increasing Chinese investment.
- Coal investment remained responsive to coal pricing - Economic factors remained a key contributor to 2019 coal supply investment as spending remained well aligned with price signals from the preceding period. The coal supply investment against previous year pricing dynamic is widely supported by IEA analysis of historical data.

Global coal supply investment is expected to decline substantially in 2020

The report estimates substantial investment declines of 24% in 2020 compared to 2019 given shrinking coal demand, depressed coal pricing, environmental challenges, and disruptions to supply chains resulting from the effects of COVID-19.

However, the IEA reports that this decline is not as severe as oil and gas investment declines, as the report notes that the resumption of Chinese industrial activity and demand for coal is likely to mitigate investment declines.

Large state-owned companies in China and India follow long-term investment strategies driven by structural energy security and employment considerations, which has reduced shocks to investment caused by the short-term effects of the COVID-19 pandemic.

The coal power fleet continues to expand

Despite record coal fire plant retirements and low numbers of final investment decisions, the coal power fleet is expected to expand in the short term given a considerable existing construction pipeline. The IEA reports that 130 GW of projects under construction are expected to start operation between 2020 and 2023, and when considering anticipated retirements, net growth in the global coal fleet will be around 40 GW.

Investment signals for Carbon Capture, Usage and Storage (CCUS) project development highest since 2014

Capital spending for CCUS remains modest at under USD1 billion in 2019. However, regulatory clarification published in 2020 regarding US Section 45Q tax credit reform has improved CCUS investment signals as 15 projects have been identified as targeting 45Q support. Section 45Q of the US tax code provides up to USD 50 (inflation adjusted) per tonne of CO2 sent to geological storage, or up to USD 35 per tonne used for enhanced oil recovery, for up to 12 years, if the effectiveness of storage is monitored and construction begins by 1 January 2024.

World Coal Association – Responsible Coal Principles Project Terms of Reference – May 2020

1. Background and Purpose

Providing assurance to our investment community

Through its strategic review process, the World Coal Association (WCA) has chosen to aadvance a proposal to evaluate which areas of common ground exist among member companies for core ESG principles and consider advancing these shared principles for the benefit of WCA and its members.

There is increasing pressure on the global coal industry from the 'keep in in the ground' movement and a recognition that developing such principles is a way for the WCA to support its members and positively respond to this issue.

This project is a first step in providing assurance to the finance and insurance community that WCA members are responsible companies and provide a responsible return on investment.

Stage One in 2020 would be focused on existing areas of commonality and alignment. Decisions on accreditation, compliance with the principles and measuring 'continuous improvement' will form part of future stages of this project.

2. Project objectives

1. Distinguish the companies signing up as part of a coalition of coal value chain players who are committed to developing coal/coal-related projects in a socially, economic and environmentally responsible way
2. Provide financial community members (institutional holders, analysts, lenders, insurers and surety providers) a framework to push back against blanket thermal coal divestment
3. Establish a best practice framework that supports the advancement of 'clean coal' against a number of principles
4. Increase the value proposition of WCA membership
5. Acknowledge that we have two different markets – developed and developing – and that our language needs to be realistic and recognise the 'pursuit of continuous improvement'.

3. Benefits

A shared principles document with WCA members as signatories would achieve a number of benefits:

1. Demonstrate the high standards of member companies
2. Differentiate members from other companies in the coal value chain in a way that can also provide an alternative to "keep it in the ground" arguments
3. Offer another avenue in the WCA value proposition
4. Provide another means for ESG to serve as a benefit versus a cost

4. Project Deliverables

1. Desktop research on existing ESG principles from WCA's 18 corporate members
2. Mapping to ascertain where there is alignment and where there are material differences
3. Work with the WCA's Responsible Coal Principles Committee to support drafting a set of key principles for WCA covering key ESG areas (see below) and that represent alignment across WCA corporate members
4. A set of key principles to be agreed by the 'Responsible Coal Principles' committee and put forward to the WCA Board for approval

and potential live or virtual signing ceremony, followed by syndication/distribution to key financial community firms.

5. Areas to Cover

The areas to cover as part of WCA's 'Responsible Coal Principles' have been informed by a number of international standards and organisations, including the UN Global Compact and the International Council on Mining and Metals.

1. Environmental performance (incl. emissions)
2. People (incl. health and safety, support of diversity)
3. Portfolio resilience
4. Regulation and policy
5. Governance, risk and business integrity (incl. human rights and anti-corruption)
6. Supporting local communities
7. Stakeholder engagement and knowledge sharing

The priority is to find alignment across the WCA membership on a set of principles based on public positions of companies and clarification of support.

6. Process

WCA has established a 'Responsible Coal Principles Committee' to guide the development of these principles. This committee is chaired by Vic Svec, Svec Consulting (previously with Peabody). The Committee will:

1. Review and approve the Terms of Reference for this project
2. Provide recommendations for an independent researcher
3. Review and provide feedback on the research
4. Support the development of draft principles
5. Support efforts to achieve alignment across the WCA membership on the proposed shared principles.

The draft project timeline is as follows:

March	April	May	June	July	August	September	October
Call for nominations to Committee	Committee holds first call to discuss project scope	Terms of Reference circulated to committee for review and approval	Research phase and mapping of principles – alignment and differences	Development of draft principles	Development of draft principles	Draft principles ready for review at WCA Board Workshop (1st Sept)	Principles formally presented at Board of Directors meeting for approval
Draft project scope circulated to committee	Summary note circulated to committee	Researcher agreed and appointed	Monthly call with committee to review project progress	Monthly call with committee to review project progress	Monthly call with committee to review project progress		Planning for dissemination and implementation of principles – including signing ceremony
	Calls held with potential researchers	Desktop research phase commences					

In its first call, the Committee suggested that once the areas to be covered have been agreed, the principles are developed 2-3 issues at a time. It may make sense to complete the research across all principles and then work through the principles a number of issues at a time to facilitate alignment and ensure a holistic approach.

The approach will be confirmed once the researcher has been appointed.

7. Project administration

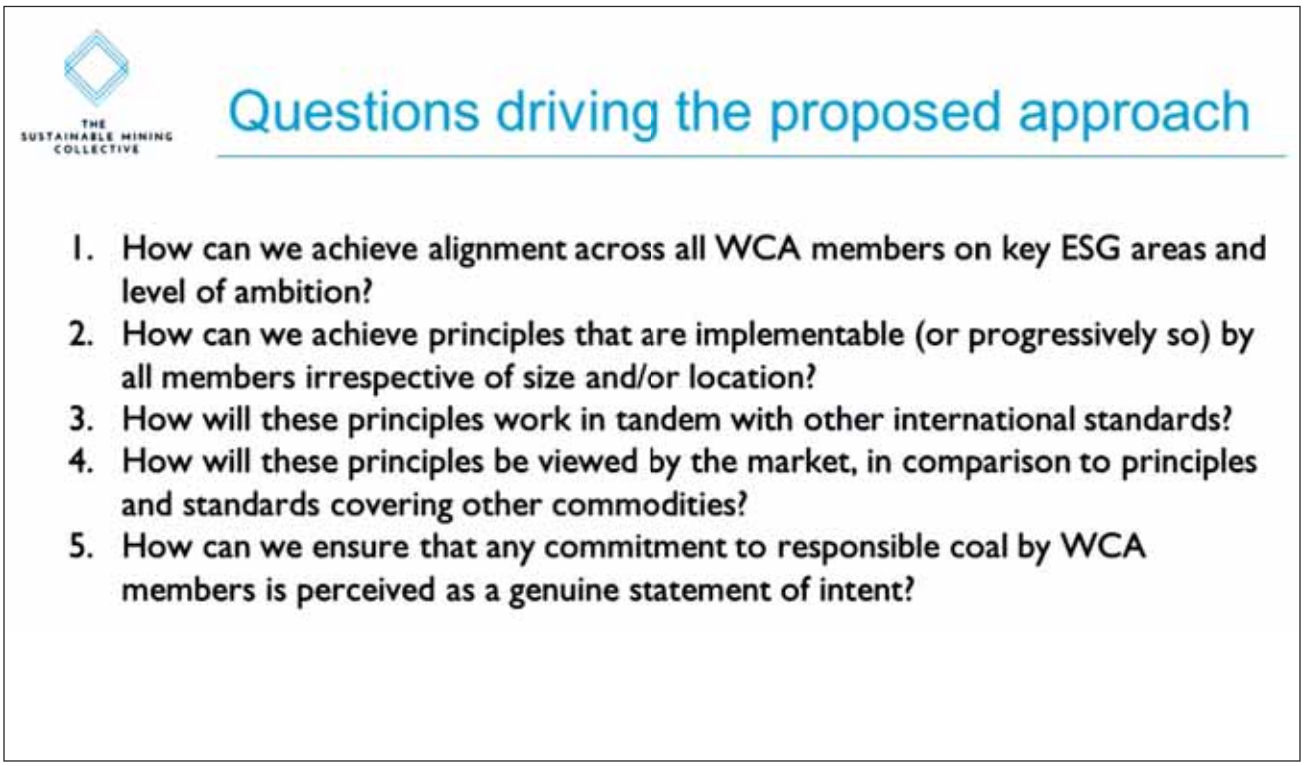
- Katie Warrick, WCA Communications and Strategy Director, is the WCA's project lead. Liam McHugh, WCA's Director of Policy and Government Relations, will be providing support on the project.
- Vic Svec, Svec Consulting, is the Chair of the Responsible Coal Principles Committee.
- The Committee is comprised of representatives from 10 WCA member companies and associations and will be providing guidance and oversight on the project, through conference calls and reviews of content over email.
- The researcher will be appointed with agreement from the committee and with the approval of the WCA Chief Executive, Michelle Manook.
- The researcher will be expected to provide weekly updates to Katie Warrick and, where necessary, participate in the monthly calls with the Committee.

News

As per newspaper report, the coal ministry is laying the groundwork for leasing out unused mine land for constructing related infrastructure or other "public purpose" projects with the aim of monetising idle assets and attracting more private investment in the sector. The proposal, which is reported to under formulation, for seeking the Cabinet's nod, will supplement the move to allow commercial coal mining by private companies. If approved, the proposal will yield a land bank for related infrastructure that will be needed once commercial coal mining begins. The auction of blocks for commercial coal mining is currently underway.

The leasing out land is expected to mobilise private capital for coal-related infrastructure, leaving coal companies to concentrate resources on mining. For power projects, it gives coal companies the option of setting up plants themselves or in partnership, either with the public or private sector. Land can be leased for coal washeries, conveyor systems, coal handling plants, railway siding and thermal or renewable power plants.

WCA Responsible Coal Principles



THE SUSTAINABLE MINING COLLECTIVE

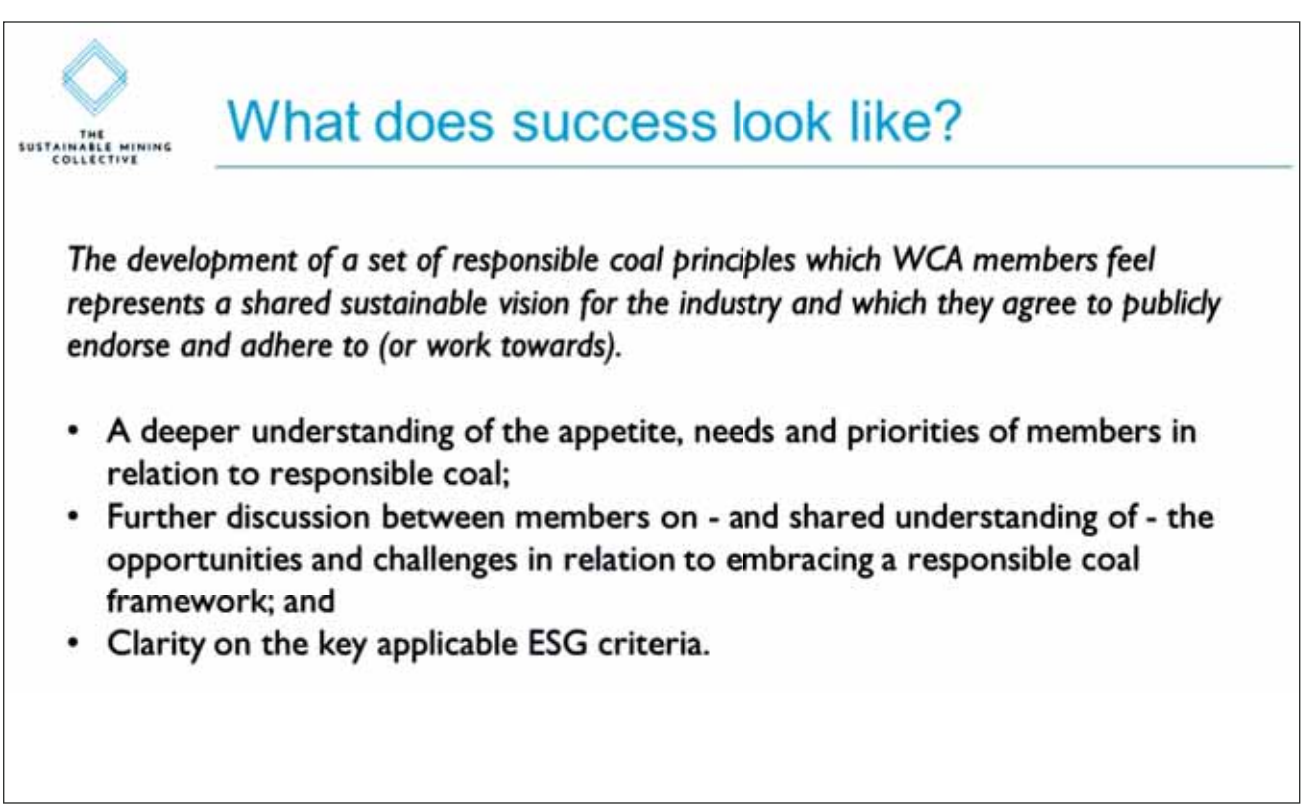
Approach principles

- Flexible and adaptive, as required, to meet the needs of the project
- Staged approach, regular check in and milestone decision points
- Effective communication with WCA lead and RCPC on progress and emerging opportunities and challenges
- 'Pursuit of continuous improvement' – a progressive approach that provides a pathway for all WCA members, irrespective of geographic location or size of operation

THE SUSTAINABLE MINING COLLECTIVE

Proposed approach – 3 workstreams

Phase	Workstream	Output
1.	Desktop Research and Mapping of Alignment and Divergence across WCA members	Report: Mapping of Alignment and Divergence on Principles/Approach, with research annexed.
Stop/Go Checkpoint *Possible questions (which may be consicered during phase 1):* *Is the publicly available information sufficient to determine alignment and divergence?* *Is consultation with members required at this stage?* *Are there significant material differences that need to be further explored before principles can be drafted?* *What are the key learnings/findings to be integrated into principle drafting?*		
2.	Development of draft principles with RCPC Committee	Draft 'Responsible Coal Principles'
Stop/Go Checkpoint *Possible questions (which may be considered during phase 2):* *How should consultation with WCA members (not on the Committee) be best approached?* *Is there value in wider engagement with investors at this stage?* *How can any areas/principles of difference be best handled?* *Are the principles sufficiently balanced between ambitious, realistic and encouraging?*		
3.	Finalisation of principles	Final 'Responsible Coal Principles'


THE SUSTAINABLE MINING COLLECTIVE
What does success look like?
The development of a set of responsible coal principles which WCA members feel represents a shared sustainable vision for the industry and which they agree to publicly endorse and adhere to (or work towards).
• A deeper understanding of the appetite, needs and priorities of members in relation to responsible coal;
• Further discussion between members on - and shared understanding of - the opportunities and challenges in relation to embracing a responsible coal framework; and
• Clarity on the key applicable ESG criteria.

DOE Announces Intent to Commit $81 Million for Coal FIRST Design Development

The U.S. Department of Energy's (DOE) Office of Fossil Energy (FE) has announced its intention to commit approximately $81 million in federal funding for cost-shared research and development projects through the release of the draft funding opportunity announcement (FOA) DE-FOA-0002180, Design Development and System Integration Design Studies for Coal FIRST Concepts. The draft FOA has been issued so that interested parties are aware of DOE's intention to issue the finalized FOA later this summer.

Projects resulting from the finalized FOA will support DOE's Coal FIRST initiative.

DOE's Coal FIRST (Flexible, Innovative, Resilient, Small, Transformative) initiative will develop the coal plant of the future that is needed to provide secure, stable, and reliable energy. Coal FIRST plants will be capable of flexible operations to meet the emerging needs of the grid and transportation sector; use innovative and cutting-edge components that improve efficiency and reduce emissions; provide resilient energy to Americans; be small compared to today's conventional utility-scale coal-fired plants; and transform how coal technologies are designed and manufactured. Some designs will also provide hydrogen to support transportation and industrial applications.

The projects will complete (1) design development; (2) host site evaluation and environmental information volume; (3) an investment case analysis; and (4) a system integration design study for an engineering-scale prototype of one of the following Coal FIRST power plant concepts:

1. Flexible Ultra Supercritical (USC) Coal-Fired Power Plant
2. Pressurized Fluidized Bed Combustor with Supercritical Steam Cycle Power Plant
3. Hybrid Natural Gas Turbine / USC Coal Boiler Power Plant
4. Flexible Gasification of Coal & Biomass to Generate Electric Power and a Carbon-Free Hydrogen Co-Product

Projects will be managed by the National Energy Technology Laboratory.

Details in the draft FOA are subject to change. Read the draft FOA here.

The Office of Fossil Energy funds research and development projects to reduce the risk and cost of advanced fossil energy technologies and further the sustainable use of the Nation's fossil resources. To learn more about the programs within the Office of Fossil Energy, visit the Office of Fossil Energy website or sign up for FE news announcements.

Attachments

- Original document
- Permalink

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Shri Alok Perti

Shri Alok Perti, Chairman, CPSI, is an IAS officer (1977 batch) of Assam-Meghalaya Cadre. He retired as the Secretary and then Advisor, Ministry of Coal, Govt. of India. He has served as Chairman of Expert Appraisal Committee of Ministry of Environment, Forest and Climate Change for Hydro-electric and river projects. He core strengths inter alia cover coal, energy, environment and health related policy issues.

Shri Ashwani Saxena

Shri Ashwani Saxena has forty seven years of experience in the areas of Corporate Business Management; Project Planning & implementation; Engineering & Project monitoring. Worked in Public, Private and Government Sectors in roles as consultant, design and engineering, turnkey project execution a owners representative and as regulator. Currently EIA Assessor with NABET, Quality Council of India, Chairman Board of Governors of Sustainable Development.

Shri Manoj K Agarwal

Shri Manoj K Agarwal is an Engineer, Management, Law graduate & Insolvency Professional, is presently Managing Partner at MANROM Consult LLP, a management consulting firm. Manoj has keen interest in global macro-economics and geo-political matters.

Manoj has over 33 years of corporate experience in CXO positions as a Senior business leader and has dealt in various functions like General Management, Strategy, Operations (with P&L responsibility), Business development, strategic alliances, JVs, M&A, Project development, Finance, Legal and HR in various sectors like Energy (Power), Resources, Steel, Non-ferrous, Infra-structure, Technology, EPC & Consulting.

Manoj's experience covers working with large Indian companies like Lanco, Essar & Vedanta and multinationals like Lurgi and Duro Felgura SA.

Shri Abhinav Sengupta

Shri Abhinav Sengupta is an MBA in Energy & Infrastructure & B.Tech in mining engineering having over 9 years of experience in Coal, Power & Infrastructure Sector has acquired strong industry exposure in areas of Strategic/Risk Advisory, Due-Diligence, Financial Appraisal, Feasibility Studies, Business Process Consulting and Strategic Procurement.

With strong domain knowledge of Energy & Infrastructure; brings in skills of Techno-Economic Studies, Financial Modelling, Business Development, Data-analytics, Market Research, Business Intelligence, ERP Implementation and Report Writing.

He is currently working with PwC India in their advisory division of Mining & Metals and has worked in organizations like TATA Consulting Engineers, Wipro Technologies, aXYkno Caps and Dilip Buildcon Ltd.

On February 2020, Abhinav has completed an Executive Diploma in Business Valuation from the Institute of Cost Accountant of India (ICMAI)

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Coal Preparation Society of India (CPSI)

www.cpsi-india.org.in

Representing India's commitment to Clean Coal to the world, **Coal Preparation Society of India (CPSI)** is a non-profit, non-government professional body having members from coal, power, iron and steel sectors and their allied industries. CPSI has been dedicatedly promoting washing of high ash domestic coal to improve quality and enhance the calorific value, making it more suitable for use in **High Efficiency Low Emission (HELE)** power generating Systems. Such efforts will lead to more environment friendly usage of coal as a source of energy. It will therefore be a step which will facilitate fulfilling the country's commitment to decisions taken in **COP 21**.

Main Objectives of **CPSI** inter alia are;

- To act as a facilitator in policy formulation in coal beneficiation and preparation.
- To provide an effective network amongst coal producers, consumers, coal washery operators, technical and research organizations, venture capitalists both domestic and international.
- To provide an independent platform for deliberating important issues pertaining to technological, operational, financial, commercial and policy aspects of the Indian Coal Preparation Industry.
- To promote and encourage any new idea beneficial for India. Encourage international companies and professional global bodies to exchange information on demonstrated, prevalent state of art technologies relevant to Indian coal industry.
- India's commitment to environment.

CPSI is a member of the **International Organizing Committee (IOC)** of the **International Coal Preparation Congress (ICPC)** which is held once in three years. The **International Organizing Committee (IOC)** is a body on which so far 15 countries are represented through non-government organizations which deal in their respective countries with the issues relating to coal preparation. **CPSI** is a member of **IOC** representing India.

XIX International Coal Preparation Congress & Expo (ICPC) was organised under the aegis of CPSI from 13th to 15th November, 2019 at New Delhi was a great success. This prestigious global event on COAL was held in India after 37 years. The last one was the 9th ICPC held in 1982 in New Delhi.

The World Coal Association, UK, IEA Clean Coal Centre, UK, Federation of Indian Mineral Industries (FIMI), Sponge Iron Manufacturers Association (SIMA) and Association of Power Producers (APP) were associated with CPSI in organising the XIX ICPC.

CPSI is an Associate Member of the **World Coal Association** - a global industry association formed of major international coal producers and stakeholders and has bilateral relationship with IEA Clean Coal Centre, UK for promoting clean coal technologies for use in High Efficiency Low Emission (HELE) power generating Systems.

CPSI is a member of ASSOCHAM and Associate Member of the **PHD Chamber of Commerce and Industry**, and has over **75** large companies as the Corporate Members and a large number of individual members.

CPSI is registered under the Societies Registration Act, XXI of 1860 and its head office is located in New Delhi.

Contact Details :

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Mobile : +91 98103 02360
Web site : www.cpsi-india.org.in

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With plants ranging from 10 tons per hour up to 480 tons per hour, FGX has the right size to suit your coal processing needs.

FGX can also provide a mobile dry coal processing plant that is ideal for high wall mining applications.

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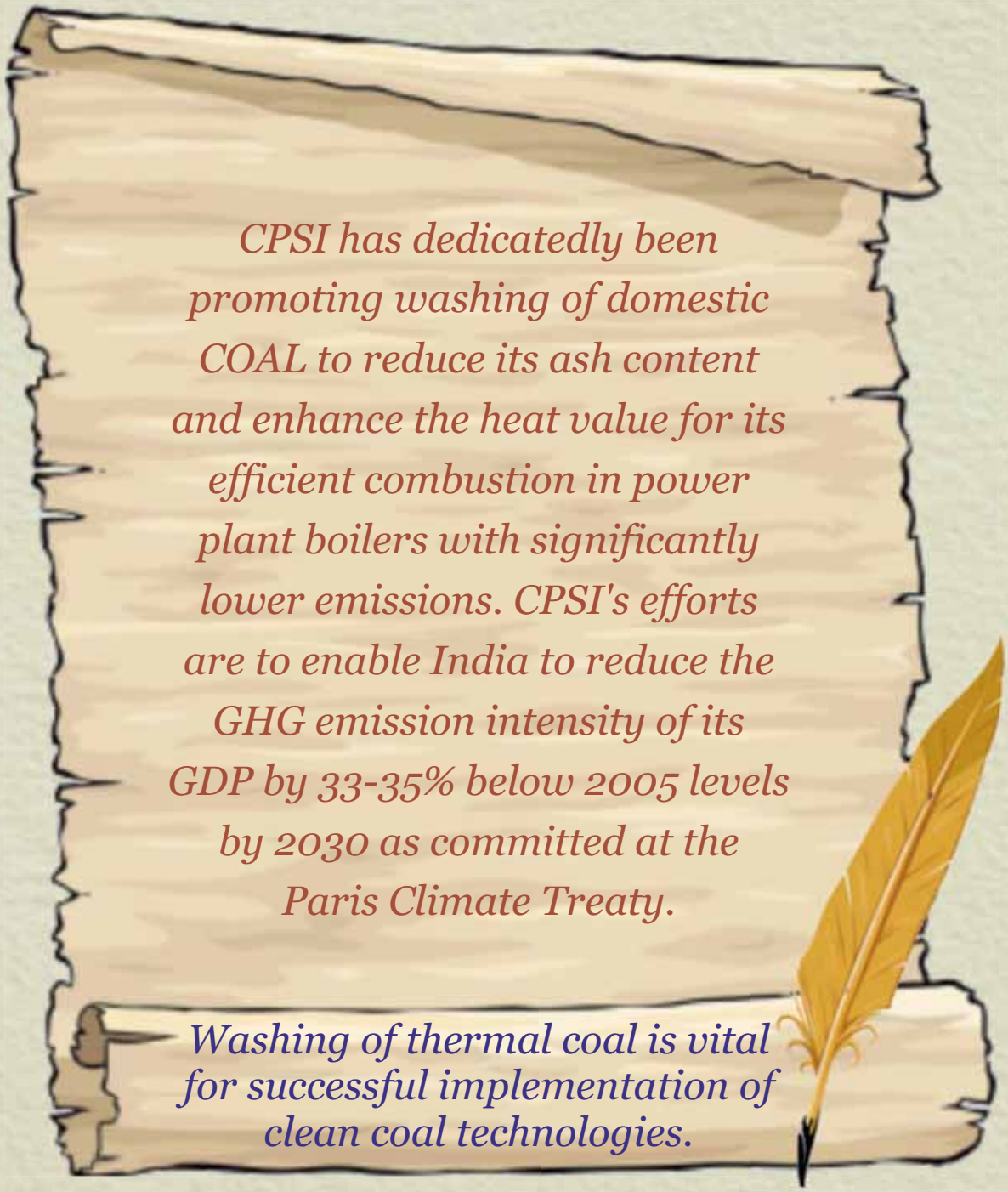
Washing of coal is vital for introduction of clean coal technologies in India in tune with Hon'ble Prime Minister Shri Narendra Modi's exhortation towards ***Atamnirbhar Bharat*** *and* ***Atamnirbhar*** *coal industry.*



CPSI has dedicatedly been promoting washing of domestic COAL to reduce its ash content and enhance the heat value for its efficient combustion in power plant boilers with significantly lower emissions. CPSI's efforts are to enable India to reduce the GHG emission intensity of its GDP by 33-35% below 2005 levels by 2030 as committed at the Paris Climate Treaty.

Washing of thermal coal is vital for successful implementation of clean coal technologies.