Details of NMDS for Annual Publication "Coal Directory of India" of the Coal Controller Organisation, Ministry of Coal

Item No	Concept name	Definition	Guidelines
1	**Contact**	**Individual or organisational contact points for the data or metadata, including information on how to reach the contact points.**	
1.1	Contact Organisation	Organisation of the contact point(s) for the data or metadata.	Coal Controller Organisation, Ministry of Coal
1.2	Compiling agency	Organisation collecting and/or elaborating the data being reported	Coal Controller Organisation, Ministry of Coal
1.3	Custodian agency	Refers to an institution or agency which has responsibility of managing use, disclosure and protection of data/statistics.	Coal Controller Organisation, Ministry of Coal
1.4	Contact Details	The details of the contact points for the data or metadata.	Coal Controller Organisation, Ministry of Coal **Shri Sajeesh Kumar N**, Coal Controller Postal address: Scope Minar, 5th Floor, Core-I, Laxmi Nagar, Delhi-110092 Coalcont-wb@nic.in; sajeesh.kr@gov.in; 011-21210317
2	**Data Description and Presentation**	**Description of the disseminated data which can be displayed to users as tables, graphs or maps**	

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2.1	Data description	Metadata element describing the main characteristics of the Data Set in an easily understandable manner, referring to the main data and indicators disseminated.	Data related to Resources & Exploration, Production, Despatch, Pit-head Closing Stock, Royalty, DMF and NMET, Import and Export, Captive and Commercial Coal & Lignite Blocks.
2.2	System of Classification	Arrangement or division of objects into groups based on characteristics which the objects have in common	Indian coal and lignite have been classified as per following two standards: - (i) IS 770:2013 (ii) ISP for Coal & SLRC for Lignite
2.3	International/ National Standards Classification etc.	An international statistical standard is an internationally agreed statistical macro-socio-economic output framework or a cross-functional framework. International/ National standard classification, is the primary tool for collecting and presenting internationally/nationally comparable statistics by economic activity.	___

Item No	Concept name	Definition	Guidelines
2.4	Sector coverage	Description of sectors covered by the statistics.	Coal sector
2.5	Concepts and definitions	Characteristics of statistical observations, or variables used	As per Annexure
2.6	Unit of compilation	Entity for which information is sought and for which statistics are ultimately compiled.	Information is sought for Coking coal, Non-Coking coal and Lignite.
2.7	Population coverage	Definition of the main types of population covered by the statistics or variables	All coal and lignite mines (private and public) across the country are covered
2.8	Reference Period	Timespan or point in time to which the measured observation is intended to refer.	Annual (Financial Year)
2.9	Duration and period of enumeration	Duration of enumeration refers to the time taken to conduct the enumeration process of all nature.	Yearly
2.10	Sample size/Dataset Size	Sample size is the number of observations or individuals included in a study or experiment.	Not applicable

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2.11	Data Confidentiality	Rules applied for treating the datasets to ensure statistical confidentiality and prevent unauthorised disclosure.	Collection of Statistics Act, 2008 (7 of 2009) and read with rules 5 and 7 of the Collection of Statistics Rules, 2011.
3	**Institutional Mandate**	**Law, set of rules or other formal set of instructions assigning responsibility as well as the authority to an organisation for the collection, processing, and dissemination of statistics**	
3.1	Legal acts and other agreements	Legal acts or other formal or informal agreements that assign responsibility as well as the authority to an Agency for the collection, processing, and dissemination of statistics.	Collection of Statistics Act, 2008 (7 of 2009) and read with rules 5 and 7 of the Collection of Statistics Rules, 2011.
3.2	Data sharing/Data Dissemination	Exchange of data and/or metadata in a situation involving the use of open, freely available data formats and where process patterns are known and standard. Regular or *ad hoc* publications in which the data are made available to the public.	The data are available in the publication "Coal Directory of India"
3.3	Release calendar	Schedule of release dates.	Annual

Item No	Concept name	Definition	Guidelines
3.4	Frequency of dissemination	The time interval at which the statistics are disseminated over a given time period.	Annual
3.5	Data access	The conditions and modalities by which users can access, use and interpret data. Statistics should be easy to find and obtain, presented clearly and in a way that can be understood, and available and accessible to all users in line with open data standards.	The dataset is available in the annual publication “Coal Directory of India” in Pdf format uploaded on the website of the Ministry of Coal (https://coal.nic.in/en/major-statistics/coal-statistics) Dataset Language: English
4	**Quality Management**	**Systems and frameworks in place within an organisation to manage the quality of statistical products and processes.**	
4.1	Documentation on methodology	Descriptive text and references to methodological documents available.	The concepts, definitions adopted are available in the same publication “Coal Directory of India”.
4.2	Quality documentation	Documentation on procedures applied for quality management and quality assessment.	The persons authorised by the Statistics Officer would be engaged in the respective jurisdiction for verification of information furnished by each informant, for inspecting relevant records, and for seeking clarifications, as may be necessary.

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4.3	Quality assurance	Guidelines focusing on quality in general and dealing with quality of statistical programmes, including measures for ensuring the efficient use of resources.	Multi-layer scrutiny and checking of data.
5	**Accuracy and Reliability**	**Statistics should accurately and reliably portray reality. Accuracy of data is the closeness of computations or estimates to the exact or true values that the statistics were intended to measure. Reliability of the data, defined as the closeness of the initial estimated value to the subsequent estimated value.**	
5.1	Sampling error	That part of the difference between a population value and an estimate thereof, derived from a random sample, which is due to the fact that only a subset of the population is enumerated.	No sampling involved
5.2	Measures of reliability	Reliability refers to the consistency of a measure.	As regard of accuracy and reliability, the data are based on monthly/annual returns of coal companies and data provided by administrative ministries/departments.
6	**Timeliness**	**Statistics should be made available to users with the shortest delay possible and be delivered on the promised, advertised or announced dates. The timeliness of the data collection release to be compiled.**	

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6.1	Timeliness	Length of time between data availability and the event or phenomenon they describe.	6 months
7	**Coherence and Comparability**	**Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain**	
7.1	Comparability – over time	Extent to which differences between statistics can be attributed to differences between the true values of the statistical characteristics.	The dataset is comparable over yearly time period.
7.2	Coherence	Extent to which statistics are reconcilable with those obtained through other Data Sources or statistical domains.	The data are collected from coal companies through monthly and annual returns.
8	**Data Processing**	**Any processing undertaken to finalise the data**	
8.1	Source data type	Characteristics and components of the raw statistical data used for compiling statistical aggregates.	a) Production and Despatch: Data are collected through Monthly Reports received from CIL, SCCL & NLCIL and other Public/Pvt Coal Companies. b) Import and Export: Monthly data are received from Director General of Commercial Intelligence and Statistics (DGCIS), Kolkata
8.2	Frequency of data collection	Time interval at which the source	a) Production and Despatch:

Item No	Concept name	Definition	Guidelines
		data are collected.	Data are collected through Monthly Reports received from CIL, SCCL & NLCIL and other Public/Pvt Coal Companies. b) Import and Export: Monthly data are received from Director General of Commercial Intelligence and Statistics (DGCIS), Kolkata
8.3	Mode and method of data collection method	The different combinations of data collection modes, pre-contact and follow-up modes. Method applied for gathering data for official statistics	a) Production and Despatch: Data are collected through Monthly Reports received from CIL, SCCL & NLCIL. b) Import and Export: Monthly data are collected from Director General of Commercial Intelligence and Statistics (DGCIS), Kolkata through their data dissemination portal. c) Power Generation: - Monthly data are received from Central Electricity Authority (CEA) by email.
8.4	Data validation	Process of monitoring the results of data compilation and ensuring the quality of the statistical results.	Multi-layer scrutiny and checking of data.
8.5	Data compilation	Operations performed on data to derive new information according to a given set of rules.	a) Production and Despatch: Data are collected through Monthly Reports received from CIL, SCCL & NLCIL and other Public/Pvt Coal Companies. b) Import and Export: Monthly data are received from Director General of Commercial Intelligence and Statistics (DGCIS), Kolkata
8.6	Data identifier(s)	The unique identifier for an administered item within a registration authority.	Not available

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9	**Metadata Update**	**The date on which the metadata element was inserted or modified in the database.**	
9.1	Metadata last posted	Date of the latest dissemination of the metadata	March 2025
9.2	Metadata last update	Date of last update of the content of the metadata.	March 2025

Annexure-I

Coal: Coal is a combustible sedimentary rock formed from ancient vegetation which has been consolidated between other rock strata and transformed by the combined effects of microbial action, pressure and heat over a considerable time period. This process is commonly called "coalification". Coal occurs as layers or seams, ranging in thickness from millimetres to many tens of metres. It is composed mostly of carbon (50–98 per cent), hydrogen (3–13 per cent) and oxygen, and smaller amounts of nitrogen, Sulphur and other elements. It also contains water and particles of other inorganic matter. When burnt, coal releases energy as heat which has a variety of uses.

Classification of Coal

Coal refers to a whole range of combustible sedimentary rock materials spanning a continuous quality scale. For convenience, this continuous series is often divided into two main categories, namely Hard Coal and Brown Coal. These are further divided into two subcategories as given below.

- **Hard Coal**
  - Anthracite
  - Bituminous coal
  - Coking coal
  - Other bituminous coal
- **Brown coal**
  - Sub-bituminous coal
  - Lignite

Hard Coal: Coal of gross calorific value not less than 5700 kcal/kg (23.9 GJ/t) on an ash-free but moist basis and with a mean random reflectance of vitrinite of at least 0.6.

Brown Coal: Non-agglomerating coal with a gross calorific value less than 5700 kcal/kg (23.9 GJ/t) containing more than 31% volatile matter on a dry mineral matter free basis.

Classification of Coal in India

In India coal is broadly classified into two types – Coking and Non-Coking. The former constitute only a small part of the total coal resources of the country. These two are further subdivided as follows on the basis of certain physical and chemical parameter as per the requirement of the industry.

- **Coking Coal:** Coking coal, when heated in the absence of air, form coherent beads, free from volatiles, with strong and porous mass, called coke. Coking coal has coking properties and is mainly used in steel making and metallurgical industries.
- **Semi Coking Coal:** Semi Coking Coal, when heated in the absence of air, form coherent beads not strong enough to be directly fed into the blast furnace. Such coal is blended with coking coal in adequate proportion to make coke. Clearly, Semi Coking Coal has comparatively less coking properties than coking coal. It is mainly used as blendable coal in steel making, merchant coke manufacturing and other metallurgical industries.

- **Non-Coking Coal:** Non-Coking Coal does not have coking properties and is mainly used for power generation. It is also used for cement, fertilizer, glass, ceramic, paper, chemical and brick manufacturing, and for other heating purposes.
- **Washed Coal:** Processing of coal through water separation mechanism to improve the quality of coal by removing denser material (rocks) and high ash produces washed coal which has less ash, higher moisture, better sizing, better consistency, less abrasive, etc. The washed coking coal is used in manufacturing of hard coke for steel making. Washed non-coking coal is used mainly for power generation but is also used by cement, sponge iron and other industrial plants.
- **Middlings and Rejects:** In the process of coal washing, apart from Clean Coal we also get two by-products, namely, Middlings and Rejects. Clean coal has low density whereas rejects have high density. Middlings have intermediate density. Rejects contain high ash, mineral impurities, fraction of raw coal feed, etc. and are used for Fluidized Bed Combustion (FBC) Boilers for power generation, road repairs, briquette (domestic fuel) making, land filling, etc. Middlings are fraction of raw coal feed having values of classificatory parameters between that of clan coals and rejects. It is used for power generation. It is also used by domestic fuel plants, brick manufacturing units, cement plants, industrial plants, etc.
- **Hard Coke:** Solid product obtained from carbonisation of coal, used mainly in the iron & steel industry.

Categorisation of Coal in India

In India, coking coal has been categorized or graded on the basis of ash content as per following scheme:

Grade	Ash Content
Steel Gr. I	Ash content < 15%
Steel Gr. II	15%<=Ash content<18%
Washery Gr. I	18%<=Ash content<21%
Washery Gr. II	21%<=Ash content<24%
Washery Gr. III	24%<=Ash content<28%
Washery Gr. IV	28%<=Ash content<35%

In India, semi coking coal has been categorized or graded on the basis of ash and moisture content as per following scheme:

Grade	Ash + Moisture content
Semi coking Gr. I	less than 19%
Semi coking Gr. II	Between 19% and 24%

In India, non-coking coal had been categorized or graded on the basis of Useful Heat Value (UHV) as per following scheme:

Grade	Useful Heat Value

A	UHV> 6200 kCal/K
B	6200 >=UHV(KCal/Kg)>5600
C	5600 >=UHV(KCal/Kg)>4940
D	4940 >=UHV(KCal/Kg)>4200
E	4200 >=UHV(KCal/Kg)>3360
F	3360 >=UHV(KCal/Kg)>2400
G	2400 >=UHV(KCal/Kg)>1300

In order to adopt the best international practices, India decided to switch over from the grading based on Useful Heat Value (UHV) to the grading based on Gross Calorific Value (GCV) and therefore on 16.01.2011 the Ministry of Coal notified the switch over. As per the new system, following nomenclature has been introduced for gradation of non-coking coal.

Grades of Non-coking Coal

GRADE	GCV BAND (K.Cal./Kg.)
G-1	Exceeding 7000
G-2	Exceeding 6700 and not exceeding 7000
G-3	Exceeding 6400 and not exceeding 6700
G-4	Exceeding 6100 and not exceeding 6400
G-5	Exceeding 5800 and not exceeding 6100
G-6	Exceeding 5500 and not exceeding 5800
G-7	Exceeding 5200 and not exceeding 5500
G-8	Exceeding 4900 and not exceeding 5200
G-9	Exceeding 4600 and not exceeding 4900
G-10	Exceeding 4300 and not exceeding 4600
G-11	Exceeding 4000 and not exceeding 4300
G-12	Exceeding 3700 and not exceeding 4000
G-13	Exceeding 3400 and not exceeding 3700
G-14	Exceeding 3100 and not exceeding 3400
G-15	Exceeding 2800 and not exceeding 3100
G-16	Exceeding 2500 and not exceeding 2800
G-17	Exceeding 2200 and not exceeding 2500

Run-of-Mine (ROM) Coal: The coal delivered from the mine to the Coal Preparation Plant (CPP) is called run-of-mine (ROM) coal. This is the raw material for the CPP and consists of

coal, rocks, middlings, minerals and contamination. Contamination is usually introduced by the mining process and may include machine parts, used consumables and parts of ground engaging tools. ROM coal can have a large variability of moisture and particle size.

Opencast Mining: Open-pit mining, open-cut mining or opencast mining is a surface mining technique of extracting rock or minerals from the earth by their removal from an open pit or borrow. This form of mining differs from extractive methods that require tunneling into the earth such as long wall mining. Open-pit mines are used when deposits of commercially useful minerals or rock are found near the surface; that is, where the overburden (surface material covering the valuable deposit) is relatively thin or the material of interest is structurally unsuitable for tunneling (as would be the case for sand, cinder, and gravel). For minerals that occur deep below the surface - where the overburden is thick or the mineral occurs as veins in hard rock – underground mining methods extract the valued material.

Underground Mining of Coal: It refers to a group of underground mining techniques such as Longwall Mining, Room- And-Pillar Mining, etc. used to extract coal from sedimentary ("soft") rocks in which the overlying rock is left in place, and the mineral (coal) is removed through shafts or tunnels.

Stripping Ratio: In mining, stripping ratio or strip ratio refers to the ratio of the volume of overburden (waste materials) required to be handled in order to extract some tonnage of coal. For example, a 3:1 stripping ratio means that mining one tonnes of coal will require mining three tonnes of waste materials. This is a phenomenon related to mainly Opencast (OC) mining which requires removal of overburden prior to extraction of coal. Underground mining operations tend to have lower stripping ratio due to increased selectivity.

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