



DIRECTORS' REPORT

To

The Members,

Coal India Limited

Ladies and Gentlemen,

On behalf of the Board of Directors, I have great pleasure in presenting to you, the 44th Annual Report of Coal India Limited (CIL) and Audited Accounts for the year ended 31st March, 2018 together with the reports of Statutory Auditors and Comptroller and Auditor General of India thereon.

Coal India Limited (CIL) is a 'Maharatna' company under the Ministry of Coal, Government of India with headquarters at Kolkata, West Bengal. CIL is the single largest coal producing company in the world and one of the largest corporate employers with manpower of 298757 (as on 1st April, 2018). CIL operates through 82 mining areas spread over nine provincial states of India. Coal India Limited has 369 mines (as on 1st April, 2018) of which 174 are underground, 177 opencast and 18 mixed mines. CIL further operates 15 coal washeries, (11 coking coal and 4 non-coking coal) and also manages other establishments like workshops, hospitals, and so on. CIL has 27 training Institutes. Indian Institute of Coal Management (IICM) is an excellent training centre operates under CIL and imparts multidisciplinary management development programmes to the executives. Coal India's major consumers are Power and Steel sectors. Others include cement, fertilizer, brick, kilns, and a host of other industries.

CIL has eight fully owned Indian subsidiary companies:

- Eastern Coalfields Limited (ECL),
- Bharat Coking Coal Limited (BCCL),
- Central Coalfields Limited (CCL),
- Western Coalfields Limited (WCL),
- South Eastern Coalfields Limited (SECL),
- Northern Coalfields Limited (NCL),
- Mahanadi Coalfields Limited (MCL) and
- Central Mine Planning & Design Institute Limited (CMPDIL).

In addition, CIL has a foreign subsidiary in Mozambique namely Coal India Africana Limitada (CIAL).

The mines in Assam i.e. North Eastern Coalfields is managed directly by CIL.

Mahanadi Coalfields Limited, a subsidiary of Coal India Ltd is having four (4) Subsidiaries and one(1) Joint Venture, SECL has two(2) Subsidiaries and CCL has one (1) Subsidiary.

A) Subsidiaries of MCL

1. MJSJ Coal Ltd.

MJSJ Coal Ltd was incorporated on 13th August, 2008 as a Joint Venture Company of MCL. MJSJ Coal Ltd was incorporated for Gopalprasad OCP where MCL is having 60% shares, JSW Steel Limited and JSW Energy Limited having 11% shares each, Shyam Metalics and Energy Ltd (formerly known as Shyam DRI Power Limited) and Jindal Stainless Limited having 9% shares each. The paid up Share Capital of MJSJ Coal Ltd. as on 31-03-2018 was ₹ 95.10 Crore. The Hon'ble Supreme Court of India in its judgement dated 25.08.2014 and order 24.09.2014 declared allocation of Utkal-A coal block allocated to MJSJ Coal Ltd. as illegal and has quashed the allocation.

2. MNH Shakti Ltd.

MNH Shakti Ltd was incorporated on 16th July, 2008 as a Joint Venture Company of MCL. MNH Shakti Ltd was incorporated for Talabira-II & III OCP where MCL is having 70% shares, Neyveli Lignite Corporation Ltd having 15% shares and Hindalco Industries Ltd. having 15% shares. The Share Capital of MNH Shakti Ltd. as on 31-03-2018 was ₹ 85.10 Crore. The Hon'ble Supreme Court of India in its judgement dated 25.08.2014 and order 24.09.2014 declared allocation of Talabira- II and Talabira- III coal blocks allocated to MNH Shakti Ltd. as illegal and has quashed the allocation.

3. Mahanadi Basin Power Limited.

Mahanadi Basin Power Limited was incorporated on 2nd December, 2011 and certificate for commencement of business, issued by ROC on 06-02-2012. MBPL was incorporated as an SPV with 100% shares held by Mahanadi Coalfields Ltd and it's nominees with power generation capacity of 2x800 MW through Pit Head Power plant at Basundhara Coalfields. It is a wholly owned subsidiary of Mahanadi Coalfields Ltd (MCL) having its Registered Office at Plot No. G-3, Gadakana Chandrasekharpur, Bhubaneswar-751017, Odisha. The share capital as on 31.03.2018 was ₹ 5 Lakh.

4. Neelanchal Power Transmission Company Private Limited

MCL ventured into Power Transmission Business in the State of Odisha for better utilization of surplus funds along with development of infrastructure in the State of Odisha. Accordingly, on 8th January, 2013 another joint Venture Company namely, Neelanchal Power Transmission Company Private Limited (NPTCPL) was incorporated in partnership with Odisha Power Transmission Company Ltd (OPTCL) having 50:50 equity participation by virtue of a Joint Venture Agreement between the MCL and OPTCL with an objective of carrying out power transmission business in Odisha.



5. Mahanadi Coal Railway Limited

Pursuant to MoU signed between IDCO, MCL and IRCON on 20th May, 2015, a Joint venture Company viz. Mahanadi Coal Railway Limited was incorporated on 31st August, 2015 with a equity participation in the ratio of 64:26:10 among MCL, IRCON and IDCO to build, construct, operate and maintain identified rail corridor projects including doubling, third line, traffic facility projects important for coal connectivity that are critical for evacuation of coal from mines, in the state of Odisha. The share capital as on 31.03.2018 was ₹ 5 Lakh.

(B) Subsidiaries of SECL

1. M/s Chhattisgarh East Railway Ltd(CERL)

1. CERL is a joint venture Company among South Eastern Coalfields Limited, M/s IRCON International Limited and Chhattisgarh State Industrial Development Corporation incorporated on 12th Mar'13 for construction of railway lines for evacuation of coal. The Company has achieved financial closure for East Rail Corridor Phase I Project on 24.11.2017.
2. The total land required for the construction of Main Line from Kharsia to Dharamjaigarh had been acquired.
3. The proposal for diversion of 26.52 Ha of forest land for 12 Villages in 0-10 KM and Spur 0-28 KM had been approved.
4. Tenders amounting to ₹ 655 Crores had already been issued for construction of Major Bridges, Minor Bridges, Road Bed and supply, fabrication, erection, Launching of Steel Girders and Design, Supply, Erection, Testing & Commissioning of Traction sub-station for various segments in 0-10 KM, 10-74 KM and 0-28 KM spur, supply of Signaling & Telecommunication Cable and Supply & Stacking of Ballast.
5. Detailed survey and requirement of land for Chhal had been completed and notification for acquisition of private land issued. The survey of other two feeder lines originating from Korichhapar and Dharamjaygarh is under finalization in consultation with SECL.

During the year 2017-18, the paid up and subscribed capital of the Company remained at ₹ 306 Crore. SECL holds 67.23% equity Share during 2017-18.

2. M/s Chhattisgarh East- West Railway Ltd (CEWRL)

CEWRL is a joint venture Company among South Eastern Coalfields Limited, M/s IRCON International Limited and Chhattisgarh State Industrial Development Corporation incorporated on 25th Mar'13 for construction of railway lines for evacuation of coal. Achievement during 2017-18 are-

- 1) The revision of Detailed Project Report (DPR) was necessitated due to approval of inflated mileage of 40% from Railway Board as against our request of 50% and introduction of GST Act w.e.f 01st July 2017 and incorporating suggestions received from Coal India Limited. Accordingly, the Revised Detailed Project Report (DPR) of East-West Rail Corridor Project, from Gevra Road to Pendra Road via Dipka, Katghora, Sindurgarh, Pasan, approximately 135.30 km in length with connectivity to Kusmunda, Junadih and Dipka Sidings along with a provision to construct and integrate with the East West Rail Corridor for about 35 Kms of Feeder lines to connect Kartali, Ambica, Saraipali and Vijay West Mines of SECL prepared and submitted by IRCON and duly independently financially appraised by M/s CARE Risk Solutions Pvt. Ltd (formerly M/s CARE Kalypto Risk Technologies & Advisory Services Pvt. Ltd.), Mumbai had been approved at a total Project Cost of ₹ 4,970.11 Crores.
- 2) The approval of inflated mileage of 40% for the first five years of operation for a chargeable distance of 135 Km from the Railway Board had been communicated on 15th June 2017.
- 3) The Company has initiated the process of financial closure through rupee term loan of ₹ 3976.00 Crore, being 80% of the total project to finance the project in the Debt to Equity Ratio of 80:20. The balance amount is proposed to be the promoter's contribution.
- 4) The Stage I approval for diversion of 459.522 Ha of forest land for the project has been approved on 26.02.2017 and upon compliances, the working permission has been granted on 31st March 2018. Final Stage II clearance for the same is under process.
- 5) Land acquisition for main line and Urga -Kusmunda has been largely completed.
- 6) Detailed survey and requirement of land to initiate land acquisition for various connectivity and feeder lines is being worked out.

During the year 2017-18, the paid up and subscribed capital of the Company has remained the same at ₹ 504.05 Crore with SECL holds 64.06% Share.

(C) Subsidiary of CCL

Jharkhand Central Railway Limited is a Joint Venture Company among Central Coalfields Limited, M/s IRCON International Limited and Govt. of Jharkhand incorporated on 31st August, 2015 for evacuation of Coal in which CCL holds 64% shares. During the year 2017-18, the Authorised Capital of the company increased from ₹ 100 Crores to ₹ 500 Crores.

The work of Shivpur - Kathotia new BG Rail Line has been identified to be taken up by M/s Ircon International Limited, implementing agency of JCRL. M/s IRCON prepared Detailed Project Report which was approved by JCRL Board. Further, EC Railway has accorded its approval on the DPR (Revised Project Cost - ₹ 1799.64 Crs) submitted by M/s IRCON on 27th Feb. 2018. M/s IRCON has taken up the matter for finalization of inflated mileage and concession agreement with Railways.

1. STATE OF COMPANY AFFAIRS

- 1) Offtake during 2017-18 was 580.284 Mt highest ever with an increase of 6.8% compared to 543.32 Mt in 2016-17.
- 2) Coal supply to the Power sector was 454.224 Mt in 2017-18, representing a growth of about 6.8%. CIL had supplied 425.40 Mt in 2016-17.



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- 3) Supply of coal to Non-power sector in 2017-18 was 127.25 Mt representing a growth of about 8.67% compared to 117.09 Mt in 2016-17.
- 4) Coal Inventory as on 31.03.18 was 55.49 Mt. against 68.42 Mt. in 31.03.17 resulting in liquidation of about 13 Mt.
- 5) 11 coal blocks have been allotted to Coal India Ltd subsidiaries i.e. ECL, BCCL and WCL. These new blocks will help them to produce more than 100 MTA each.
- 6) Company has commissioned two major rail infrastructure projects, Tori-Balumath section in Tori - Shivpur division under jurisdiction of CCL and Jharsuguda- Barpali- Sardega section under jurisdiction of MCL, which were built on deposit basis and are now operational.

2. FINANCIAL PERFORMANCE

2.1 Financial Results (CIL Consolidated)

CIL is one of the largest profit making and tax & dividend paying enterprises in India. CIL and its subsidiaries have achieved an aggregate Pre-Tax Profit of ₹ 10726.44 crores for the year 2017-18 against a reinstated pre-tax profit of ₹14,446.33 crores in the year 2016-17 after taking into account the impact of pay revision for non-executive employees w.e.f. 01.07.2016 and taking provisions for executives pay revision which is to be implemented retrospectively from 01.01.2017. The above mentioned figure also includes the actuarial impact of ₹ 7384.37 cr. due to increase in ceiling of gratuity from ₹10 Lakhs to ₹ 20 Lakhs w.e.f. 29.03.2018. The subsidiary wise details of Pre-tax Profit after considering the impact of pay revisions and increase in gratuity ceiling limit of CIL are given in **Annexure 1**.

There is growth in Profit Before Tax of 31.35% on comparison the Profit Before Tax of 2016-17 (without considering the provision of pay revision of executive and non-executive) with the Profit Before Tax of 2017-18 (without considering the provision of pay revision of executives and non-executives, impact of increase in ceiling of gratuity limit from ₹10 Lakh to ₹20 Lakh but including the payment of revised wages of non-executives from 01.10.2017 to 31.03.2018). The subsidiary wise details of Pre-tax Profit after without considering the impact of pay revision and increase in gratuity ceiling limit of CIL are given in **Annexure 1A**.

CIL as a group had achieved profit for the year of ₹ 7020.22 crores in 2017-18 compared to ₹ 9,279.77 crores in 2016-17. Total Comprehensive Income of the company is ₹ 7652.73 crores compared to ₹ 9361.77 crores in 2016-17 (share of non-controlling interest of ₹ 0.12 crore; previous year: ₹ 0.25 crore).

Highlights of performance

The highlights of performance of Coal India Limited Consolidated for the year 2017-18 compared to previous year are shown in the table below:

PARTICULARS	2017-18	2016-17
Production of Coal (in million tonnes)*	567.365	554.14
Off-take of Coal (in million tonnes)	580.287	543.32
Sales (Gross) (₹/Crores)	127162.17	122286.96
Capital Employed (₹/Crores) Note- 1	55883.03	58300.67
Capital Employed (₹/Crores)- excluding capital work in progress and intangible assets under development	42082.50	47940.07
Net Worth (₹/Crores)	19827.37	24498.28
Profit Before Tax (₹/Crores)	10726.44	14446.33
Profit for the Period (₹/Crores)	7020.22	9279.77
Total Comprehensive Income for the period (₹/Crores)	7652.73	9361.77
Profit for the Period / Capital Employed (in %)	12.56	15.92
Profit before Tax / Net Worth (in %)	54.10	58.97
Profit for the period / Net Worth (in %)	35.41	37.88
Earning Per Share (₹) (Considering Face Value of ₹10 per share)	11.31	14.80
Dividend per Share (₹) (Considering Face Value of ₹10 per share)	16.50	19.90
Coal Stock (Net) (in terms of No. of months Net Sales)	0.73	1.18
Trade Receivables (Net) (in terms of No of Months Gross Sales)	0.82	1.22

*Production and Offtake of Coal for FY 2017-18 includes 3.227 MT and 1.327 MT (FY 2016-17 5.324 MT & 4.118 MT) in respect of Gare Palma IV/2&3 and Gare Palma IV/1 OC Mine for which Coal India Ltd. has been appointed akin to a designated custodian w.e.f 01.04.2015 (through SECL).

Note-1: Capital employed = Gross Block of Fixed assets (including capital work in progress and intangible assets under development) less accumulated depreciation plus current assets minus current liabilities.

Transfer to Reserves

During the year 2017-18, a sum of ₹ 544.89 crore (₹ 510.75 crores) was transferred to General Reserve out of CIL Consolidated profits and amount of ₹ 483.80 crores was utilized for issuing of bonus shares.



Capital reserve on consolidation includes ₹ 1548.45 crore recognised as utilization of Capital Redemption Reserve, General Reserve and Retained Earnings on issue of bonus shares by subsidiary companies viz. Northern Coalfields Limited (NCL), Mahanadi Coalfields Limited (MCL), South Eastern Coalfields Limited (SECL) and Coal Mine Planning and Designing Institute Limited (CMPDIL) in the ratio of 4:1, 4:1, 7:5 and 1:1 respectively to Coal India Limited (holding Co.). No. of shares issued as Bonus Shares by NCL, MCL, SECL and CMPDIL are 5462372 equity shares of ₹ 1000 each, 5649064 equity shares of ₹ 1000 each, 41,82,850 equity shares of ₹ 1000 and 1,90,400 equity shares of ₹ 1000 each respectively.

The Subsidiary wise break up of no. of equity shares issued are as follows :-

(In Numbers)

Company	Pre-Bonus Issue	Post- Bonus Issue
ECL	22184500	22184500
BCCL	21180000	21180000
CCL	9400000	9400000
NCL	1365593	6827965
WCL	2971000	2971000
SECL	2987750	7170600
MCL	1412266	7061330
CMPDIL	190400	380800

2.2 Dividend Income and Pay Outs (CIL Standalone)

While the financial statements of both CIL Standalone and CIL Consolidated are presented separately, only CIL Standalone is listed and relevant for dividend payment to its shareholders. The dividend to its shareholders are paid out of CIL's Standalone income, the major part of which constitutes the dividend income received during 2017-18 from its five profit making subsidiaries i.e. CCL, NCL, SECL, MCL and CMPDIL. The breakup of such dividend received and accounted for during the year from different subsidiaries are given in **Annexure 2**.

During the year 2017-18, CIL Standalone has paid a total dividend (by way of interim dividend) of ₹ 10,242.24 crores @ ₹16.50 per share on 6,20,74,09,177 number of Equity Shares of ₹10/- each fully paid up. Out of above total dividend, the share of Govt of India was ₹ 8044.86 crores and for other shareholders, ₹ 2197.38 crores. (Earlier year - Govt of India- ₹ 9736.40 crores and Other shareholders - ₹ 2616.36 crores)

2.3 Supplementary Audit of Financial Statements by Comptroller and Auditor General of India (C&AG)

The report from the C& AG is pending and the report and comments received on supplementary audit of Standalone and Consolidated Financial Statements will be enclosed in **Annexure 3** and **Annexure 4**.

2.4 Management Explanation on Statutory Auditor's Report

Management Explanation on Statutory Auditor's Report

The statutory auditors of the company have given an unqualified report [**Annexure 3(A)** and **Annexure 4(A)**] on the Standalone Financial Statements and Consolidated Financial Statements respectively of the company for the financial year 2017-18. However, they have drawn attention under 'Emphasis of Matter' on certain issues. These issues under 'Emphasis of Matter' along with observations of the auditors elsewhere in the annexures of the audit report are enclosed as **Annexure 5** & **Annexure 5(A)** respectively with Management explanation thereto.

3. COAL MARKETING

3.1 (a) Off-take of Raw Coal

Off-take of raw coal continued to maintain its upward trend and reached 580.284 million tonnes for fiscal ended March 2018, surpassing previous highest figure of 543.32 million tonnes achieved during the last year, i.e., an increase of 6.8 % over the last year. The overall raw coal off-take achieved was 96.7% of the Annual Action Plan Target.

In the year 2017-18, ECL, CCL, NCL, WCL, SECL and NEC could outperform their achievement of last year. NCL, WCL & NEC had also exceeded its target. Company-wise target vis-à-vis actual off-take for 2017-18 and 2016-17 is shown in **Annexure 6**.

Offtake could have been more, but for the following reasons:

- Evacuation problem due to closure of Dhanbad Chandrapura line at Katras & Sijua Areas at BCCL.
- Constraints of Rakes as per Indent at MCL & SECL.
- Constraints of N -Box at NCL & CCL for movement to upward country.
- Frequent Strikes at various mines of Talcher field in MCL & CCL.
- Evacuation constraint of Magadh-Amrapali mines at CCL. Now Tori-Shivpur Rail Line is commissioned upto Balumath, dispatch from Magadh and Amrapali of CCL has started from Balumath siding.
- EC issues at Kusmunda mine of SECL.

Initiatives taken for enhancing off-take are as under:

- Regular co-ordination with Railway at all levels including Railway Board to optimize use of logistics resources available in the subsidiary coal companies, analyzing inputs of the subsidiaries to identify alternate source for coal movement wherever and whenever required to achieve overall sectoral targets and mitigating critical fuel requirement of consuming sectors, particularly power stations.



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- Coordination with MOC for various long and short-term policy decisions to overcome coal movement constraints for power and non-power sector consumers and taking operational decisions for moving coal from various sources on contingent situations to meet critical requirements of consuming sectors, particularly power utilities etc.
- Periodic Meetings and follow ups with Power producers in addressing issues relating to coal movement.
- Source Rationalization of coal linkage for optimizing coal movement as per the requirement of the consumers and logistics.
- At the preference of Power Utilities, sources of supply to Power Plants are readjusted on quarterly basis within the Aggregated ACQs under Flexi Utilisation Scheme.
- Besides enhancing dispatches through Rail mode, Power stations within the vicinity of 50-60 KM of the mines having FSA have been offered coal through Road/RCR mode to be lifted by their own transport arrangement for further augmenting the dispatch.
- Ministry of Power has been requested to prevail upon the power plants situated within 20 Kms to lift their entire requirement by Road mode from 2018-19 onwards, to increase availability of rakes for movement to long distance plants.
- In the Meeting held on 22nd and 25th January, 2018, taken by the Hon'ble MOS (I/C) for Power and New and Renewable Energy, it was decided that all power plants located within 20 km to 40 Km from pithead shall construct elevated closed belt conveyors/MGR within 2-3 years. Power plants located beyond 40 Kms and up 100 Km may also consider the option of MGR based on financial viability.
- **Initiative for long-term demand creation:**
 - a) Scheme for Harnessing and Allocating Koyala (Coal) Transparently in India, SHAKTI.
 - b) Auction of coal linkages to Non-Regulated Sector.
- Establishment of IMC (Initiatives, Monitoring and Control Cell) at CIL HQ & Subsidiary coal companies for day to day monitoring of coal movement in coordination with Railways and Power companies.

Special E-Auction Schemes:-

From the year 2015-16, Special Forward E-Auction scheme introduced by MOC for meeting the coal requirement of Power plants, is being continued. During 2015-16, 2016-17 & 2017-18, around 13.8 Mill tes, 47 Mill tes & 28.9 Mill tes coal was booked by the power consumers under this scheme of e-auction respectively.

A similar scheme for consumers in the non - power sector was also launched as Exclusive E-auction scheme for non-power. During 2015-16, 2016-17 & 2017-18, around 1.5 Mill tonnes, 6.2 Mill tes & 11.1 Mill tonnes coal was booked by the non-power consumers under this e-auction.

Special Spot e-auction was also conducted during 2016-17 & 2017-18 for the buyers of non-specified end use where 6.2 Mill tes & 0.7 Mill tes coal was booked respectively.

(b) Sector-wise dispatch of coal & coal products:

In the year 2017-18, CIL dispatched 581.475 MT of Coal & Coal Products against the AAP target of 601.18 MT i.e., an achievement of 96.7%. CIL has dispatched 39 MT of coal and coal products more than last year with a growth of 7.2%.

A quantity of 454.224 MT of coal and coal products was despatched to power utilities against the target of 452.236 MT i.e., an achievement of 100.4%. This is 28.8 MT more than last year's dispatch of 425.397 MT, resulting in a growth of 6.8%.

Sector-wise break-up of dispatch of coal & coal products for 2017-18 against the target and last year's actual are given in **Annexure 7**.

3.2 Dispatches of coal and coal products by various modes:

Dispatches of coal and coal products during 2017-18 went upto 581.475 million tonnes from 542.494 million tonnes registering a growth of 7.2%. Overall dispatch by Non-Rail mode had been 102.7% of the target. Growth in dispatches via Rail mode was 2.3 % and in the overall Non-Rail mode by 13.3 %. Road dispatches increased by 18% compared to the previous year. Movement by MGR also increased by 8.7% compared to last year. However, dispatches through other modes, like belt & rope decreased by 3.8 % compared to the last year.

Dispatch of coal and coal products by various modes for the years 2017-18 and 2016-17 are given in **Annexure 8**.

3.3 Wagon Loading

Overall wagon loading materialization was 92.8 % of the target. This was achieved due to sustained efforts and regular coordination with railways at different levels. The increase in loading over last year was of 7.2 rakes per day. Company wise performance showed that ECL, NCL, WCL & NEC outperformed its target. ECL, CCL, NCL, WCL & NEC exceeded last year's level of loading.

Wagon loading performance of 2017-18 vis-à-vis 2016-17 is given in **Annexure 9**.

3.4 Consumer satisfaction

- i. For enhanced customer satisfaction, special emphasis has been given to Quality Management of coal from mine to dispatch point.
- ii. Continuing with the steps for independent assessment of grades of mines through various academic institutes of national repute by CCO, annual grade declaration of 2018-19 has been finalized by CCO. Total 386 mines were re-assessed and out of these 61 mines are downgraded and 42 mines are up-graded.
- iii. In order to monitor coal quality, a portal UTTAM (Unlocking Transparency by Third Party Assessment of Mined Coal) has been launched by CIL to capture entire life cycle of sample. With the help of the portal, information of coal quality on regular basis will be accessible to both Coal Cos. and Consumers.



- iv. CIL is supplying (-) 100mm sized coal to all power plants w. e. f. 01.01.2016 except pit head plants having mutual agreement for sourcing (-) 250 mm coal. In addition to crushing facilities at coal handling plants, mobile crushers are being installed to meet the additional crushing requirement.
- v. Emphasis has been given for maximum production of (-)100 mm coal through surface miners. For this, surface miners have been deployed for production of coal in mines wherever technically / commercially feasible. Total coal production through Surface Miners was 266 Mt in 2017-18 compared to 256 Mt in 2016-17 which constitute about 47% of total production of coal.
- vi. Measures like picking of shale / stone, selective mining by conventional mode, adopting proper blasting procedure / technique for reducing the possibility of admixture of coal with over-burden material & improved sizing of coal etc. are taken up.
- vii. For better consumer satisfaction and enhanced transparency Third Party validation through transparent process of sampling & analysis facility has been extended for the first time to all customers including Spot E-Auction, Special spot auction, Exclusive E-Auction and FSA consumers in Non-Power sector (FSA against Pre NCDP linkage for low & medium demand) including State Nominated Agencies through IIT-ISM and QCI.
- viii. Area laboratories of subsidiary coal companies have been equipped with 121 Bomb Calorimeters for accurate and transparent measurement of GCV of coal samples. 43 labs. across the subsidiary companies have already got NABL accreditation and another 12 labs, accreditation process is underway. It is expected that standardization of the process as per NABL standard will go in a long way to enhance customers' confidence about the process of assessment of coal quality and facilitate quality monitoring.
- ix. The guidelines / SOP issued by MoC vide letter dated 26.11.2015 on third party sampling at loading ends has already been implemented through Central Institute of Mining and Fuel Research (CIMFR). Sampling and analysis covering supply of about 529 Mt on annual basis to power utilities has been taken up by CIMFR across various loading points of coal companies.
- x. Electronic weighbridges with the facility of electronic printout have been installed at rail loading points to ensure that coal dispatches are made only after proper weighment. Coal Companies have also taken action for installation of standby weighbridges to ensure 100% weighment.
- xi. 22 Auto Mechanical Samplers (AMS) are also working in subsidiary coal companies for coal sampling, eliminating chances of biasness in sampling process. Procurement of further AMS is under process. The process has been initiated to do a pilot study for deployment of Augur Sampling equipment to draw samples without human intervention.
- xii. In order to ensure consumer satisfaction and resolve consumer complaints, special emphasis has been given to quality management and redressal of consumer complaint. On-line filing and redressal of complaints have been implemented.

3.5 Marketing of Coal:

Status of execution of Fuel Supply Agreements and performance of e-auction:

Supply of coal was made to various consumers including Power Sector under the applicable provisions of New Coal Distribution Policy. Due to overall deficit in availability of coal considering the projected coal production from domestic sources and commitments made through signing of FSAs/issuance of Letter of Assurances (LOA), supplies under FSAs has been pegged at various level of commitments (trigger). Power sector being the major consuming sector having significant importance in the economy, supplies to power sector has been guided as per the various Government directives and policies.

- (i) For power stations, commissioned on or before 31.03.2009, 306 million tonnes had been considered to be supplied through bilateral legally enforceable Fuel Supply Agreements (FSA) with a trigger level of 90%. The total quantity covered under FSA against the allocation as on March'18 was about 295 million tonnes.
- (ii) Apart from the above, 181 Letter of Assurances have been issued to power plants by subsidiary companies of CIL, as per the recommendations of various SLC (LT) Meetings for about 433.80 Million tonnes. Further, as per Presidential Directives dated 16th April'2012 and revised directive dated 17-7-2013, a list of Power Plants having an aggregate capacity of 78535 MW was notified for signing of FSA. A total 173 TPPs, 149 cases having normal LOA and 24 cases having Tapering LOA (as per MOC OM dated 30.06.2015 tapering linkages are not existent as on date), were listed. Till 31st March'2018, out of 149 regular LOAs 146 FSAs have been signed. The balance FSAs could not be signed for the reasons not attributable to CIL. However, out of the above, 1 FSA has been transferred to SCCL and 2 FSAs became null and void since the plants have been converted from IPP to CPP.
For post-NCDP Plants (Plants commissioned after March 2009), total FSA commitment of CIL as on date is for an Annual Contracted Quantity (ACQ) of about 227.33 Million tonnes for the aggregate capacity of about 57571 MW which is backed by long term Power Purchase Agreement (PPA) and qualify for commencement of coal supply subject to commissioning etc.
- (iii) As on 1st April, 2018, about 800 units other than power and steel plants have operative FSAs with subsidiaries of CIL for a quantity of about 57.4 million tonnes.
- (iv) For supply of coal to Small and Medium and Other Consumers whose annual coal requirement is less than 10,000 tonnes, 8 Mill tonnes was earmarked by CIL for allocation to agencies nominated by the State Govt's/ UT's for the year 2017-18. 15 States sent their nomination of 19 State Agencies for the year 2017-18 of which 11 State Agencies of 10 States have signed FSAs for 2.454 Mill. tonnes and drawing coal accordingly.
- (v) CIL has conducted three tranches of Auction of Coal Linkages for Sponge Iron, Cement, CPP, Steel (coking) and 'Others (non-coking & coking)' sub-sectors under Non-Regulated Sector during the period Jun'16 to Nov'17 in accordance with the policy guidelines dated 15.02.2016 issued by Ministry of Coal. The auction has been envisaged as a transparent system of linkage allocation, which is based on competitive bidding. Various consumer friendly measures such as 3rd party sampling, exit option, no performance incentive, delivery from specified mine/siding, back-up mine in the event of Force Majeure, etc. have also been introduced. The auction is followed by



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signing of Fuel Supply Agreements (FSA) for the booked quantity. The tenure of the FSA is 5 years that can be further extended by another 5 years on mutual agreement. The performance summary of Tranche I, II & III of auctions is as under:

Sub-sector	Tranche - I		Tranche - II		Tranche -III		Total	
	Quantity booked (MTPA)	% gain	Quantity booked (MTPA)	% gain	Quantity booked (MTPA)	% gain	Quantity booked (MTPA)	% gain
Sponge Iron	2.05	0.51	4.29	10.10	2.54	7.20	8.88	7.55
Cement	0.68	0.16	0.77	0.90	0.12	0.00	1.57	0.56
CPP	18.07	8.97	8.18	14.85	4.59	22.05	30.84	12.68
Others	1.34	0.76	1.27	5.14	0.67	10.60	3.28	4.50
Steel (coking)	--	--	0.22	0.00	0.00	--	0.22	0.00
Others (coking)	--	--	0.04	0.00	0.36	2.97	0.39	2.68
Total	22.14	6.95%	14.76	10.60%	8.28	13.37%	45.18	9.64%

Note : % gain over non-power notified price

(vi) Under Special Forward E Auction scheme during the year 2017-18, successful bid quantity was around 29 mill tonnes as against 47 mill tonnes in the last year. The premium gain through Special Forward E-auction over & above the notified price was 27% during the year 2017-18 as against 16% during 2016-17. In Exclusive E Auction scheme during 2017-18, successful bid quantity was around 11.1 mill tonnes as against 6.3 mill tonnes in the last financial year. The premium gain through Exclusive E-auction over & above the notified price was around 27% during the year 2017-18 as against 9.3% in last financial year. During the period under review, around 55.1 mill. tonnes of coal was successfully bid under Spot E- auction to the successful bidders as against 53.7 mill. tonnes of successful bid quantity during 2016-17. The notional gain through Spot E-auction over & above the notified price was 66% during the year 2017-18 as against 25% during last financial year. About 0.7 Mill tes coal was successfully bid under Special Spot E-Auction during 2017-18 with gain of 39% over notified price whereas during last financial year about 6.2 Mill tonnes coal was successfully bid under this scheme with 20% gain over notified price.

Implementation of SHAKTI Policy of Government :

In consideration of the stressed assets in new power projects not having any long term linkages, on 17.05.2017, Cabinet Committee on Economic Affairs (CCEA) approved a new policy for allocation of future coal linkages in a transparent manner for such power sector consumers. This policy is known as 'Scheme for Harnessing and Allocating Koyala (Coal) Transparently in India' (SHAKTI). The policy is an important initiative in alleviating a key challenge in power sector i.e. lack of coal linkage and is expected to positively contribute in resolution of a number of stressed assets. Ministry of Coal (MoC) circulated the policy guidelines vide their letter dated 22.05.2017.

The salient features of the policy are:

(A) Under the old regime of LoA-FSA :

- FSA may be signed with the pending LoA holders after ensuring that the plants are commissioned by 31.03.2022.
- The 583 pending application for LoA may be closed.
- The capacities totaling 68000 MW as per CCEA decision dated 21.06.2013 would continue to get coal at 75% of ACQ even beyond 31.03.2017.
- About 19000 MW capacity out of 68000 MW which could not be commissioned by 31.03.2015 may be allowed coal supply under FSA at 75% of ACQ provided these plants are commissioned within 31.03.2022.
- Actual coal supply to power plants shall be to the extent of long term PPA and medium term PPAs to be concluded in future against bids to be invited by Discoms as per bidding guidelines issued by MoP.

With these, the old regime of LoA-FSA would come to finality and fade away.

(B) Following to be considered under new more transparent coal allocation policy for power sector, 2017-SHAKTI (Scheme for Harnessing and Allocating Koyala (coal) Transparently in India)–

- CIL/ SCCL may grant coal linkages to State/Central Gencos/JVs at notified price on recommendations of Ministry of Power.
- Linkages to IPP having PPA based on domestic coal but no linkage:
 - shall be on auction basis where bidders shall quote discount on tariff.
 - Bid Evaluation Criteria shall be the non-zero Levellised Value of the discount.
- Linkages to IPPs/ Power Producers without PPAs shall be on auction basis where methodology would be similar to that followed under linkage auction to non-regulated sector i.e. the bidders would bid for premium above the notified price of the coal company.
- Coal linkages may also be earmarked for fresh PPAs, by pre-declaring the availability of coal linkage with description, to the States. States may indicate these linkages to Discoms/ SDAs.
- Power requirement of group of States can also be aggregated and procurement of such aggregated power can be made by an agency designated by Ministry of Power or authorized by such States on the basis of tariff based bidding. Linkages shall be granted for full normative quantity to Special Purpose Vehicle (SPV) incorporated by nominated agency for setting up Ultra Mega Power Projects (UMPP) under Central Government initiative through tariff based competitive under the guidelines for determination of tariff, on the recommendation of MoP.
- MoC in consultation with MoP may formulate a detailed methodology of a transparent bidding process for allocating coal linkages to IPPs, having PPAs based on imported coal, with full pass through of cost saving to consumers.



Under A (i) of SHAKTI Policy, 3 FSAs have been signed for 11.91 MT for the aggregated capacity of 3300 MW and under B(i) 1 FSA has been signed for 3.927 MT for the capacity of 1200 MW till 31st March,18.

CIL successfully conducted Linkage Auction under the B(ii) provision for the Plants having PPAs but no linkages through a bidding based on tariff discount in September 2017. Out of 31 bidders who submitted EOI, 14 bidders were found eligible by CEA and 10 bidders submitted EMD and turned out successful for booking 27.18 MTPA.

Flexi Utilization of Domestic Coal for reducing cost of Power generation:

Government introduced a policy for flexi utilization of domestic coal by State/Central Gencos to reduce the cost of electricity in June 2016 following approval of Cabinet. Under the policy, State/Central Gencos are allowed to aggregate their contracted quantity for supply to Plants on efficiency based parameters to reduce cost of power generation. CIL implemented the policy through signing of a supplementary agreement with the State/ Central Gencos in April 2017. Out of a total annual contracted quantity of 419.9 MTPA with State/Central/CPSE Utilities, CIL signed supplementary agreement for 416.1 MTPA covering 99.1%.

3.6 Coal Beneficiation:

Presently CIL is operating 15 Coal Washeries with a total coal washing capacity of 36.8 million tonnes per year, of which 11 are coking and the rest are non-coking with capacity of 20.58 and 16.22 MTY respectively. The total washed coal production from these existing washeries for the year 2017-18 has been 12.45 Million Tonnes.

In addition to above, CIL has planned to set up 18 new Washeries with state-of-the-art technologies in the field of coal beneficiation with an aggregate throughput capacity of 95.6 MTY#.

Out of these washeries, 9 are planned to wash coking coal with a cumulative capacity of 28.10 Mty, and the other 9 are being set up to wash non-coking coal with an aggregate capacity of 67.5 Mty#

The major bottlenecks for setting up of these washeries are mainly availability of Land, Forest, Environmental and other Statutory Clearances, Failure of L1 bidders to comply to tender requirements, etc, in addition to the absence of firm commitment from the intended customers regarding acceptance of washed coal at value added prices.

Ashoka Non-coking coal Washery capacity is being planned to be enhanced by 2 Mty. Presently it is planned to be a 2 Mty. Washery.

3.7 Stock of Coal

The stock of coal (net of provisions) at the close of the year 2017-18 was ₹ 4979.09 Crores (earlier year ₹ 7412.79 crores), which was equivalent to 0.73 month value of net sales (previous year 1.18 months). The company-wise position of stock held on 31st March 2018 & on 31st March 2017 are given in **Annexure 10**.

3.8 Trade Receivables

Trade Receivables i.e. net coal sales dues outstanding as on 31.03.2018, after providing ₹ 1778.37 crores (previous year ₹ 2013.99 crores) for bad and doubtful debts, was ₹ 8689.16 crores (previous year ₹ 12476.27 crores) which is equivalent to 0.82 months gross sales of CIL as a whole (previous year 1.05 months). Subsidiary-wise break-up of trade receivables outstanding as on 31st March 2018 as against 31st March 2017 are shown in **Annexure 11**.

3.9 Payment of Royalty, Cess, Sales Tax, Stowing Excise Duty, Central Excise Duty, Clean Energy Cess, Entry Tax & Others

During the year 2017-18, CIL and its Subsidiaries paid/adjusted ₹ 44,046.57 crores (previous year ₹ 44068.28 crores) towards Royalty, Cess, Sales Tax and other levies as detailed below:-

Figures in ₹ Crores

Particulars	2017-18	2016-17
Royalty	9,993.84	8,745.84
<i>Additional Royalty (MMDR Act):</i>		
-DMF	2,982.26	3,964.47
-NMET	204.14	221.16
<i>Goods and Service Tax :</i>		
-CGST	891.43	-
-SGST	892.92	-
-IGST	903.67	-
GST Compensation Cess	16,631.78	-
Cess on Coal	1,631.63	1,706.37
State Sales Tax / VAT	903.66	2,787.91
Central Sales Tax	204.51	1200.09
Stowing Excise Duty	217.47	538.00
Central Excise Duty	512.64	2,617.56
Clean Energy Cess	7,099.73	21,062.06
Entry Tax	77.80	283.82
Others	899.09	941.00
Total	44,046.57	44,068.28

Subsidiary-wise State wise details are given in **Annexure 12**.



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4. COAL PRODUCTION & FUTURE OUTLOOK

Raw coal production and production from underground and opencast mines.

Production of raw coal was 567.36 Mill Te during 2017-18 compared to 554.14 Mill Te during 2016-17. Coal production from underground mines in 2017-18 was 30.54 Mill Te compared to 31.48 Mill Te during 2016-17. Production from opencast mines during 2017-18 was 94.62% of total raw coal production. Subsidiary wise production, production from underground and opencast mines and coking and non-coking production is disclosed under **Annexure 13**.

Reasons for less production than the target 2017-18 :

Despite best and consistent efforts, constraints that have impeded the growth in coal production are as under:

- (i) Issue of Land acquisition, physical possession of land, demand of compensation beyond company norms and R&R affected production in many of the subsidiaries of CIL.
- (ii) Delay in grant of enhanced EC capacity and forestry clearance also played a major role in loss of production.
- (iii) Law and Order problem by local leaders and villagers in almost all the subsidiaries specially ECL, BCCL, CCL and MCL.
- (iv) Sudden stoppage of Dhanbad-Chandrapura railway line affected production in BCCL.
- (v) Evacuation constraint at Magadh and Amrapali OCP due to non-completion of Tori-Shibpur railway track affected coal production in CCL.
- (vi) Accumulation of high coal stock at many of the cost plus OC mines due to less lifting by consumer affected production in WCL.

Washed Coal (Coking) Production

Subsidiary-wise production of Washed Coal (Coking) is given in **Annexure 13A**.

Overburden Removal

Company-wise overburden removal is disclosed in **Annexure 13B**.

FUTURE OUTLOOK

With continued commitment to play major role in achieving nation's energy security, CIL is poised to set an ambitious target of 610 Mt. in the FY 2018-19 with an annualized growth of about 7.52 % over the production of 567.36 Mt. achieved in 17-18.

As per **one Billion** tonne document prepared in 2014-15, CIL was mandated to produce 908.01 Mt by the year 2019-20, subject to timely grant of EC & FC, land acquisition/possession and associated R & R, coal evacuation facilities, allocation of coal blocks & other relevant issues.

Meanwhile, consequent upon the outcome of Paris Protocol on climate change and changes in the environmental paradigm and coal demand, there was an urgent need of revisiting the 1 Bt. programme. Ministry of Coal is now in the process of finalizing the Vision 2030 document for coal sector through a reputed consultant in which projection for likely demand of coal in the country are being assessed under different scenarios considering the views of Ministry of Power & Scenario emerged due to Paris protocol etc. The document is likely to be finalized shortly.

In view of above, roadmap for coal production beyond 2018-19 along with other related issues would be relooked on the basis of that demand forecast. In the light of Paris Protocol and consequent upon changes in world energy sector scenario, CIL is looking forward to diversify its operations towards Renewable energy like Solar Power and Clean Energy sources like CMM, CBM, CTL, UCG etc following the directives of Gov. Following to that mission, MoC/CIL is in the process of finalising '**Vision Document 2030**' to decide on future course of operation for sustainable entity in the nation's energy sector.

The capital expenditure for the year 2018-19 has been set at ₹ 9500 crores. Further, CIL has planned to invest substantial amount in various other projects viz. Ultra Mega Power Project (UMPP), Solar Power, Revival of Fertilizer Plants, acquiring coking coal assets in Australia and Canada, Coal Gasification, CBM etc. during 2018-19.

5. POPULATION OF EQUIPMENT

The Population of Major Opencast Equipment (Heavy Earth Moving Machinery) as on 1.4.2018 and as on 1.4.2017 alongwith their Performance in terms of Availability & Utilization expressed as percentage of CMPDI Norm is disclosed in **Annexure 14**.

There are increase of 37 nos. of Shovel in ECL, BCCL, NCL & WCL on receipt of New Equipment ordered. CIL is planning to procure 6 nos. Dragline valued approximately ₹ 1176 Crores, 77 nos. Shovel valued approximately ₹ 2344 Crores, 342 nos. Dumper valued approximately ₹ 4213 Crores, 119 nos. Dozer valued approximately ₹ 419 Crores and 33 nos. Drill valued approximately ₹ 50 Crores in the next 3 years.

Performance of HEC Shovel at MCL was not satisfactory, which affected availability and utilization. Matter has been taken up with M/s HEC for improvement. Dragline of Sonepur Bazari Project, ECL has been commissioned in December 2017, which was under long breakdown since June 2016 due to non-supply of imported spares.

Land Problem, Rehabilitation problem, shortage of working face were major reason for less HEMM Utilization in ECL, BCCL & CCL and exhaustion of coal reserve in some of the mines at SECL & WCL were the major hindrance of HEMM Utilization. Efforts are being made to improve the utilization.

6. CAPACITY UTILIZATION

The overall system capacity utilisation for the year 2017-18 was 83.30% against 84.51% in 2016-17. Subsidiary wise reasons for less achievement in capacity utilisation are as under :-



ECL : Both production and offtake of Rajmahal OC suffered due to R&R issues in respect to Bhadutola village involving shifting of villagers which could be resolved in the month of Jun'17 and completed in Feb'18. Other major issues are-delay in Stage-II FC in Chitra OC, R&R problem in New Kenda mines, R&R issue in Khottadih OC for shifting of Bilpahar village etc.

BCCL : Sudden stoppage of Dhanbad-Chadrapura railway line for safety reasons on short notice had affected coal dispatch and consequently both production and offtake was slowed down from Kusunda, Sijua, Katras and Govindpur areas.

CCL : Delay in grant of enhancement of EC capacity for Karo OC and Selected Dhori OC resulting into stoppages of those mines from Nov'17, evacuation problem in Magadh & Amrapali OC contributed lower overall capacity utilisation of CCL.

NCL : Under performance of one of the contractor engaged at Bina Project for OB removal working.

WCL : Less lifting of coal from cost plus mines of Bhatadih, Urdhan, R&R issues at Pauni 2&3, underperformance of contractor of Dinesh, MKD 1 etc.

SECL : Delay in grant in EC at Gevra, Kusmunda, delay in possession of land in Batura, Bijari mines.

MCL : FC issues in Ananta & Hingula, Land and R&R issues in Kaniha, Balaram, Hingula, Bharatpur mines. Delay in grant of EC at Kulda, Bhubaneswari, Lakhanpur under special dispensation.

Subsidiary wise details for the year 2017-18 vis-à-vis 2016-17 are disclosed in **Annexure 15**.

7. PROJECT FORMULATION

7.1 Project Implementation:

a) Projects Completed During the year 2017-18:

10 coal projects with an ultimate capacity of 41.39 Mty with sanctioned capital of ₹ 1524.27 Crores have been completed during the year 2017-18. The subsidiary-wise details of project completed during 2017-18 are disclosed in **Annexure 16**.

b) Projects started Production during the Year 2017-18: NIL

c) Status of Ongoing Projects:

114 coal projects costing ₹ 20 Crores and above are in different stages of implementation. Out of 114 coal projects, 55 projects are running on schedule and 59 are delayed.

Status of Ongoing Projects Costing ₹ 20 Crores and above

Projects	Total Projects	Projects On Schedule	Projects Delayed
Mining	114	55	59

Reasons for the Delay :

59 projects are delayed due reasons as furnished below:

Reasons of Delay	No of delayed projects
ISSUES IN EXECUTION OF TENDERS	12
GRANT OF FC	18
FC, LAND & R&R	2
LAND & R&R	13
RECAST PR UNDER FINALIZATION	7
EVACUATION FACILITY	3
R&R	1
OTHERS	3
TOTAL	59

7.2 Projects Sanctioned (Costing ₹ 20 Crores & above):

a) Projects sanctioned by CIL Board

4 coal mining projects for an ultimate capacity of 24.60 Mty with a total capital investment of ₹ 4155.46 Crores have been sanctioned by CIL Board during the year 2017-18. The details are disclosed in **Annexure 16**.

b) Non Mining Projects Sanctioned by CIL Board:

Only one Non-mining project has been sanctioned by CIL Board during the year 2017-18. The details are disclosed in **Annexure 16**.

c) Projects Sanctioned by Subsidiary Company Boards: NIL

d) Non Mining Projects sanctioned by Subsidiary Boards

6 Non mining projects with a capital of ₹ 1473.32 Crores. have been sanctioned by subsidiary Boards during the year 2017-18. The details are disclosed in **Annexure 16**.



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7.3 Revised Project/RCE Sanctioned by CIL Board:

a) RCE/RPR/UCE sanctioned by the CIL Board during the year 2017 - 18 was as under: -

Project	Subsidiary	Date of Approval	Sanctioned Capacity (Mty)	Sanctioned Capital (Rs. Crores)
RCE of Lekhapani OCP	NEC/CIL	05-10-2017	0.25	109.44
TOTAL			0.25	109.44

b) RCE/RPR/UCE sanctioned by the Subsidiary Coal Companies during the year 2017-2018: - NIL

7.4 Key Strategies:

(i) Critical Railway Links:

In order to achieve the planned growth in production and evacuation in future, CIL has undertaken major Railway Infrastructure Projects, implemented either by Railways or JV Companies formed with IRCON representing Railways, Subsidiary Company representing CIL and concerned State Government.

The following lines have been completed during 2017-18 and commissioned as indicated:

- The Tori-Shivpur Single line upto Bukru commissioned on 09.03.2018.
- The Jharsuguda Barpali Line has been commissioned on 05.04.2018

13 projects for coal evacuation have been identified:

- 3 funded by coal companies.
- 4 funded through SPVs.
- 6 Railway funded projects.

On deposit Basis by CIL (3 Nos)

1. Tori - Shivpur (Double BG Line).
2. Jharsuguda - Barpalli Sardega Rail link (SECR) - Commissioned on 05.04.2018.
3. Rail Connectivity Lingaraj Silo with existing Deulbeda siding at Talcher Coalfields of MCL.

To be taken up by Railways (2 Nos)

1. Singrauli to Shaktinagar via Karaila Road (Doubling of the line) (EC Railways).
2. 4th line in Jharsuguda to Bilaspur (SECR).

Through JVs/SPVs by CIL (1 No)

1. Angul- Balram rail link (through MCRL).

The balance 7 rail lines that are likely to facilitate coal evacuation are envisaged to come up in the future as detailed below:

Through JVs/SPVs by CIL (3 Nos)

1. Shivpur-Kathautia Railway Line.
2. East Corridor through CERL.
3. East-West Corridor through CEWRL.

To be taken up by Railways (4 Nos)

1. Third line Barkakana-Barwadih-Garhwa Road.
2. Fourth line Jharsuguda to Bilaspur.
3. DFC- Dadri to Sonenagar & extension upto Koderma.
4. Third and fourth lines from Talcher to Budhapunk (10 km) & Third line from Budhapunk to Rajatgarh (62 km).

(ii) Acquisition and Possession of land:

In all subsidiaries of Coal India, the major portion of land is acquired under the Coal Bearing Areas (Acquisition & Development) Act, 1957. During 2017-18, notification under section 9(1) has been issued for 10688.904 Ha and notification under section 11(1) has been issued for 11899.112 Ha.

During 2017-18, 3687.61 Ha of land has been taken in possession in different subsidiaries of Coal India.

(iii) WEB Based Online Monitoring System:

Monitoring of 69 coal mining projects costing more than ₹ 150 Crores with Project monitoring software MS Project have been started in Coal India limited during the year 2016-17. Regular interactions with subsidiaries is being done. Regular workshops are also being organised to train the executives in MS Project software.

Project Monitoring Division of CIL in association with CMPDI recently launched a portal MDMS (Mine Data Base Management System) to monitor the ongoing projects costing ₹ 20 Crores and above in CIL.



Crucial issues are also being uploaded by CIL and its subsidiary companies on the MOC e-CPMP portal and MOC is vigorously following up with the state governments and other associated ministries by holding meetings with concerned officials to expedite EC & FC approvals.

7.5 One Billion Coal Production Programme

Ministry of Coal is preparing Vision 2030 document for coal sector through a reputed consultant in which projection for likely demand of coal in the country are being assessed under different scenarios considering the views of Ministry of Power & Scenario emerged due to Paris protocol. The document will be finalized shortly. In view of above roadmap for coal production beyond 2018-19 along with other related issues would be relooked on the basis of that demand forecast.

Based upon the studies of the consultant, it has been envisaged to match the coal production plan of CIL as per emerging market scenario which requires CIL to augment coal production of 1 Bt. by FY 2025-26 for which conceptual planning is underway at different level.

8. CONSERVATION OF ENERGY

Conservation of energy always remains a priority area and CIL/Subsidiaries have extensively exercised various measures towards reduction in specific energy consumption. Even though Coal Production has increased by 2.4% in 2017-18 compared to 2016-17, electricity consumption has reduced to 4605.70 Million Units vis-à-vis 4886.83 Million Units during 2016-17, a reduction of 5.75% in absolute terms. In terms of total coal production Electricity Consumption during 2017-18 was 8.11 kWh/T vis-à-vis 8.82 kWh/T during 2016-17 with a reduction of 8.05%. However, in terms of composite production, Specific Energy Consumption (kWh/CuM) during 2017-18 was 2.99 kWh/CuM vis-à-vis 3.19 kWh/CuM during 2016-17 a reduction of 6.27% from previous year.

Some of the salient measures taken by CIL/Subsidiaries for energy conservation are stated below :-

- CMPDIL has undertaken energy conservation studies in 2017-18 and carried out Diesel Audit & Benchmarking of specific diesel consumption as well as Electrical Audit & Benchmarking of specific electrical energy consumption in various opencast and underground mines situated in different subsidiaries of Coal India Limited by BEE (Bureau of Energy Efficiency) accredited Energy Auditors.
Diesel Audit and Benchmarking carried out by CMPDIL in 91 opencast mines in different subsidiary companies of CIL revealed an aggregate saving potential of 17173 kilo litres/year in diesel consumption.
Electrical Audit and Benchmarking carried out in 04 mines (03 opencast mines and 01 underground mine) revealed an aggregate saving potential of 42.4 million units/year.
- MoU has been signed between CIL and EESL (Energy Efficiency Services Limited) on 08.02.2016 for implementation of Energy Efficiency Projects in CIL and its Subsidiaries.
Accordingly, high watt luminaries/conventional light fittings are being replaced with low power consuming LEDs of appropriate wattage in majority of the places for street lighting, office and other work places, townships etc., thereby creating huge saving potential in electricity consumption.
- Power capacitors of appropriate kVAR rating have been installed to maintain higher power factor and avail maximum benefit on power factor incentive from power supply agencies as well as reduction in Maximum Demand. Almost all the areas of the subsidiaries companies have maintained Power Factor as high as 95% during 2017-18.
- Air Conditioners (AC) and Refrigerators of 5 Star Rating have been procured against replacement of old conventional ACs and Refrigerators in different areas of subsidiaries.
- Energy audit of selected projects have been conducted by CMPDIL
- In addition to above, some additional measures are being taken by CIL / Subsidiaries for conservation of energy, some of which are as follows:
 - ❖ Auto timer based on-off switches in most of the street lighting, CHPs and township areas to ensure avoiding unnecessary power consumption during odd hours.
 - ❖ Construction of strata bunkers in underground (UG) mines to eliminate idle running of belt conveyors, thereby saving electricity.
 - ❖ Re-organization of LT (Low Tension) overhead line by Aerial Bunched Cable to avoid unauthorized power tapping.
 - ❖ Monitoring of load pattern and demand side management of supply points limiting maximum demand wherever practicable by staggering avoidable load from peak hours to off-peak hours.
 - ❖ Re-organizing of dewatering pipelines and reduction of stage pumping as far as practicable.
 - ❖ Re-organization of power distribution system to minimize distribution loss.
 - ❖ Laying of cables directly through bore holes for power supply to underground mines to reduce overall length wherever feasible.

The above measures taken for energy conservation are indicative only and not exhaustive.

In addition to above, CIL / Subsidiary Companies are also pursuing use of alternative energy sources. Various steps have been taken for utilizing solar power as alternate sources of energy, some of which are as stated below :

- In kilo-watt scale, roof top solar plants are in successful operation at various places since their commissioning. Some of these operating plants are at Corporate Office of Coal India Ltd, New town, Kolkata (160 kWp), CMPDIL HQ and regional institute (351kWp), different areas of ECL (148kWp), Nagpur and Ballarpur area of WCL (140kWp), HQ office building and Barkakana of CCL (425kWp) etc.
- In megawatt scale, one ground-mounted solar power plant (2.016 MWp) is in operation at MCL HQ since it's commissioning on 13.10.2014.



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9. CAPITAL EXPENDITURE

Overall Capital Expenditure during 2017-18 was ₹ 9334.55 crores as against ₹ 7,700.06 crores in previous year. Capital Expenditure incurred during 2017-18 is 121.23% of BE (99.16% in 2016-17). Subsidiary-wise details of which are given in **Annexure 17**.

10. CAPITAL STRUCTURE

The authorized share capital of the company as on 31.03.2018 was Rs. 8904.18 crores, distributed between Equity and Non-cumulative redeemable preference shares as under:

800,00,00,000 Equity Shares of ₹ 10/- each (Previous Year 800,00,00,000 Equity Shares of ₹10/- each)	₹ 8000.00 crores
90,41,800 Non-cumulative 10% redeemable Preference Shares of ₹ 1000/- each (Previous Year 90,41,800 Non-cumulative 10% Redeemable Preference Shares of ₹ 1000/- each)	₹ 904.18 crores
Total	₹ 8904.18 crores

Listing of shares of Coal India Limited in Stock Exchanges:

The shares of Coal India Ltd. is listed in two major stock exchanges of India, viz. Bombay Stock Exchange and National Stock Exchange on and from 4th November, 2010.

Post buy-back on 28.10.2016, the number of fully paid equity shares as on date stands at 6,20,74,09,177. During the year, there is no change in number of shares.

The details of disinvestment of shares by Govt. of India is furnished below:

Sl. No.	Financial Year of Disinvestment	% of shares disinvested	No. of shares disinvested	Mode
1	2010-11	10.00%	63,16,36,440	IPO
2	2013-14	0.35%	2,20,37,834	CPSE-ETF
3	2014-15	10.00%	63,16,36,440	OFS
4	2015-16	0.001%	83,104	CPSE-ETF
5	2016-17	1.248%	7,88,42,816	Buyback
6	2016-17	0.92%	5,71,56,437	CPSE-ETF
7	2017-18	0.31%	1,92,99,613	Bharat 22-ETF

Hence, the number of shares held by Govt. of India as on 31.03.2018 stood at 4,87,56,71,716 i.e.78.546% of the total 6,20,74,09,177 number of shares (earlier year 4,89,49,71,329 i.e. 78.857% of total number of shares). Pursuant to above, the shareholding pattern in CIL stood as follows:

Particulars	As on 31.03.2018		As on 31.03.2017	
	Shareholding Pattern (%)	Share Capital (₹ Crore)	Shareholding Pattern (%)	Share Capital (₹ Crore)
Government of India	78.546 %	4875.67	78.857 %	4894.97
Other Investors	21.454%	1331.74	21.143%	1312.44
Total	100.000%	6207.41	100.000%	6207.41

11. BORROWINGS

Aggregate borrowings of CIL (including Current and Non-Current) stood at ₹ 1061.18 crores in 2017-18 from ₹ 410.77 crores in 2016-17, as detailed below.

Figures in ₹ Crores

Particulars	2017-18	2016-17
Foreign Loans including deferred credits		
EDC Canada	161.20	167.2
Banque Nationale De Paris and Natexis Banque, France	7.09	6.64
Term loan from other Banks	838.86	-
IRCON International Ltd.	39.01	171.44
Chattisgarh State Infrastructure Development Corpn Ltd.	15.02	65.41
TOTAL	1061.18	410.69



In addition to the above Short term Borrowings of CIL stood at ₹ 476.54 crores in 2017-18 from ₹ 2603.78 crores in 2016-17, as detailed below.

Particulars	2017-18	2016-17
Loan repayable on demand		
- From Banks	150.00	2603.78
- From Other Parties	-	-
Other Loans	326.54	-
TOTAL	476.54	2603.78

The debt servicing has been duly met in case of the loans / deferred credits whenever due.

The subsidiary companies of SECL M/s Chattisgarh East Railway Limited (CERL) & M/s Chattisgarh East-West Railway Limited (CEWRL) have taken loan from IRCON International Ltd and Chattisgarh State Infrastructure Development Corpn Ltd. with repayment period of 5 years excluding moratorium period not exceeding 5 years from the date of signing of Loan Agreement.

12. INTERNATIONAL CO-OPERATION

Coal India is envisaged for foreign collaboration with a view to:

- Bring in proven and advanced technologies and management skills for exploiting UG and OC mines, coal preparation, coal utilization, protection of environment and related activities.
- Exploration and exploitation of Methane from Coal bed, abandoned mine, ventilation air, shale gas, coal gasification, etc.
- Locating overseas countries interested in Joint Venture in the field of coal mining with special thrust on coking coal mining.

The priority areas included acquisition of modern and high productive underground mining technology, introduction of high productive opencast mining technology, improvement in working in underground in difficult geological conditions, fire control and mine safety, coal preparation, application of 3D seismic survey for exploration, extraction of coal bed methane, coal gasification, application of Geographical Information System (GIS), satellite surveillance, subsidence monitoring, environmental control, overseas ventures in coal mining.

CIL aims to acquire suitable technology through international bidding. Bi-lateral cooperation is also being encouraged for locating availability of cost effective and latest technologies in the aforesaid areas. CIL, therefore, has been following both the routes.

Following are the details of activities that took place with various countries during 2017-18.

FOREIGN COLLABORATION

Indo-US Collaboration:

Status of On-going Projects:

a) Development of Coal Preparation Plant Simulator

The identified US consultant M/s Sharpe International LLC, USA (SI) was awarded the work in October 2009 for development of a Coal Preparation Plant Simulator. Total work was split into 18 activities out of which 11 activities were completed and payment to the tune of 40% value (USD 150,000) had been released in line with provision of the contract. Later in October 2013, SI expressed their inability to complete the work. US representatives were requested to take up the matter with Mr. Mark Sharpe of SI for a meaningful conclusion of the project. US side had advised to contact Mr. Carl Jacobson in this regard.

Consequently, Mr. Carl Jacobson was contacted for submission of a proposal for execution of the project within the framework of existing agreement. From the perusal of the proposal submitted by him, it was noted that M/s CoalSim was responsible for the development of software based on the mining engineering expertise provided by Mr. Mark Sharpe.

Further, Mr. Manoj Mohanty from Southern Illinois University (SIU) Carbondale, USA vide his email dated 08.01.2016 expressed desire "to complete the project that SI could not complete". Mr. Mohanty was requested to submit his proposal through US DoE and MoC, as the project was identified under Indo-US Coal Working Group work plan. Subsequently, a Proposal from Mr. Mohanty was received through US DoE and MoC, Govt. of India. Comments of CMPDI in this regard were sent to Advisor (Projects), MoC on 03.10.16 and also to Mr. Smouse Scott of DoE on 27.10.2016. In response to the queries raised by Dr. Mohanty of SIU (vide e-mail dated 07.11.2016 forwarded by Dr. Scott Smouse of US DOE), suitable reply was sent on 23.11.2016.

On 22.12.2016, Dr. Scott Smouse of US DOE sent the reply as mailed to him by Dr. Mohanty indicating the project direct cost for the subject assignment with Power Plant economics increased substantially to US\$ 3,50,000 + additional 47.5% charge on the project direct cost as research overhead expenses.

CMPDI vide email dated 09.01.2017 requested Dr. Scott Smouse to look into the matter and asked Dr. Mohanty to respond accordingly so that the final proposal can be prepared and submitted at the earliest with due consideration to fund limitation as the balance fund left in the project is US\$ 225,000. Meanwhile, with special initiative of Dr. Scott Smouse, discussion between the expert team of CMPDI and Dr. Mohanty was held on 11.05.17 on various technical issues for formulation of the revised project proposal. Dr. Mohanty opined that he would submit a revised proposal in Sept. 2017 with revised project cost to Dr. Scott Smouse of US DOE for his review. The outcome of the meeting is to be discussed during the next Indo-US CWG meeting.



In reply to the query on the status of project submission (vide e-mail 25.08.2017), Dr. Mohanty has shown his eagerness (vide e-mail dated 31.08.2017) and desired to involve IIT-ISM, Dhanbad in the project. Further, Dr. Mohanty vide his email dated 12.09.2017 communicated that the project cost would be USD 400,000 + 44% overhead cost and also suggested to find somebody else who can complete the project within the recommended budget.

In reply to the above, CMPDI once again requested Dr. Mohanty vide email dated 25.09.2017 and 20.12.2017 to submit the project proposal as per the prescribed format (incorporating the observations of CMPDI on the earlier project proposal as communicated to him vide email dated 07.09.2017) to complete the remaining activities of the project utilizing the balance fund available (i.e. USD 225,000) in the project. On confirmation from Dr. Mohanty, appropriate decision can be taken in this regard. In reply, Dr. Scott Smouse of US, DoE vide his email dated 20.12.2017 suggested some possibilities for further continuation of the project. The same is under consideration.

b) Cost Effective Technology for Beneficiation and Recovery of Fine Coal

US DOE had identified Virginia Tech University (VTU) for establishing an efficient technique for beneficiation & dewatering of Indian coking coal fines through the testing of coal samples in lab and pilot plants at VTU for identification of state-of-the-art technologies based on which a demonstration plant was to be installed in Sudamdih Washery in BCCL. A joint project proposal was drawn and approved by CIL R&D Board in June, 2008. The VTU, however, expressed its inability to sign an international agreement and as such the project could not be started.

During the 10th Indo-US CWG meeting in New Delhi on 10.03.2014, US representatives were requested to take up the matter with VTU for meaningful conclusion of the project. US side had advised to contact Dr. Roe Hoan Yoon of Virginia Tech for further discussion in this regard. Subsequently the issue was taken up with Dr. Roe Hoan Yoon to obtain methodology for execution of the assignment. Dr. Yoon informed that VTU had developed a Hydrophobic-Hydrophilic Separation (HHS) process for fine Coal Cleaning and would be submitting a proposal on the same. However, since the project was identified under Indo-US Coal Working Group work plan, Dr. Yoon was requested to route his proposal through US DoE and MoC.

Meanwhile, Shri R. B. Mathur, President, Business Development & Mining Strategy, Virginia Mining Resources Pvt. Ltd. (VMR), submitted, vide his email dated 09.05.2016, that VMR was a sister concern of Minerals Refining Company (MRC) which is associated with Dr. Yoon in development of HHS Technology. He expressed to undertake a pilot project on HHS Technology under S&T Programme in India. He was requested to submit a proposal with details of the HHS Technology, its availability and cost, etc. for initiating appropriate action.

Subsequently, a Proposal titled "Application of the Hydrophobic-Hydrophilic Separation (HHS) Process for the Beneficiation of Indian Coals" from M/s MRC was received through US DoE and MoC, Govt. of India. Comments of CMPDI on the proposal was sent to Advisor (Projects), MoC on 07.10.16 and also to Mr. Smouse Scott of DoE on 27.10.2016. Further, Shri R.B. Mathur submitted a revised proposal on 21.11.2016 with incorporation of the PROPOSED BUDGET BY TASK, i.e. the total cost of involvement of US side is USD 1,508,312 as indicated earlier, has been split into different tasks which is related to lab scale testing and consultancy services by the project proponent. CMPDI informed Dr. Scott Smouse on 02.12.2016 that the indicated cost mentioned above was towards Laboratory tests on coal samples (to be transported by CMPDI to Virginia Tech Laboratory in USA), detailed characterization for pilot design, design of a POC-scale plant, conceptual design of a Demonstration Plant and developing a flowsheet to Retrofit in existing plant only. It does not include any supply item, not even the cost towards HHS set up required for POC-scale plant, without which the objective of the HHS scheme cannot be accomplished. Accordingly, Dr. Scott Smouse vide email dated 23.03.2017 submitted a revised proposal as received from Virginia Minerals Refining Corp.

On 18.04.2017, CMPDI responded to Dr. Scott Smouse that Laboratory Tests and Detailed Characterization might be done in India through reputed NABL accredited or Council of Scientific and Industrial Research (CSIR) laboratories to reduce foreign exchange component and each element of POC Scale Design needed suitable justification with detailed elaboration as the cost appeared to be on higher side. The "Estimate for Building a POC Plant" in the United States also needs to be discussed with US proponent. During discussion with the expert team of CMPDI on 02.05.17, Prof. Roe Hoan Yoon of Virginia Tech University, USA, stressed that initially Indian coal samples were to be tested on HHS installation in USA to assess the suitability of HHS technology and for this purpose 5 drum fine coal samples are required to be transported to USA. It was clarified that transporting the coal samples to USA and getting tests done at VTU would incur cost, which will be difficult to arrange before approval of the project by CIL.

Based on further discussions, Mr. Scott Smouse of US DoE & Prof. Yoon of VTU were requested (vide email dated 21.08.2017) to submit the revised project proposal incorporating the observation /comments of CMPDI and as per the "Guidelines for implementing coal research projects" issued by MoC. In response, Mr. Scout Smouse vide mail dated 13.09.2017 proposed to restrict the Stage-I of the project up to laboratory test work to reduce the project cost. CMPDI, vide email dated 25.09.2017, indicated that limiting the scope of work to laboratory tests of coal samples would not meet the objective to introduce a state-of-the-art technology in India under Indo-US bilateral cooperation.

Moreover, it was learnt that M/s Hendricks of USA has developed a 'unique patented technology that refines coal and coal waste into pure hydrocarbon, removing substantially all the mineral matter and water in a novel and exclusive low cost process' and a commercial plant is expected to be commissioned in USA by May 2018. Necessary clarification in this regard has been sought from Virginia Tech University (VTU), USA by CMPDI to indicate the difference between the above concept and the methodology proposed by VTU as the above concept appears to be similar with the method proposed by VTU. Dr. Yoon, vide email dated 27.09.2017, suggested to contact M/s Hendricks directly to know the technology they are using.

Meanwhile, technical discussion was held at CMPDI Ranchi on 09.11.17 with President (Business Development & Mining Strategy), Virginia Mining Resources Private Ltd. wherein CMPDI communicated its requirement of a revised proposal as per S&T guidelines. Mr. Scott Smouse of US DoE & Prof. Yoon of VTU were requested to submit revised proposal after incorporating the decisions of the discussion held on 09.11.2017. Reply from Prof. Yoon of VTU is awaited.



New Areas of Collaboration

- a) **Underground Coal Gasification (UCG):** UCG is one of the key areas under Indo-US collaboration. A project brief for capacity building in the field of UCG development was sent to MoC for consideration in India-US Coal Working Group Meeting held on 16th Sept. 2015 at Washington, USA for the development of UCG in CIL command area. Initially, DoE indicated to approach UC-CIEE (California Institute for Energy and Env.) and thereafter, Lawrence Livermore National Laboratory requested to be associated. US DoE agreed to identify US Experts and inform the Indian side for further course of direct action. Response from DoE is awaited.
- b) **Coal Mine Methane (CMM):** CMM blocks have been identified in Raniganj Coalfield (ECL command Area) and Jharia Coalfield (BCCL command Area) of CIL for commercial exploitation of methane. US Experts may be requested to suggest suitable technology providers for commercial extraction of CMM & its utilization.
- c) **Mine Rehabilitation & Reclamation of Indian coal mines:** Projects on 'Sustainable mine closure activities and mining wasteland to be utilized as a source of livelihood for local community' were proposed to be carried out with the help of US agencies. In this regard, a proposal was received from M/s Norwest Corporation on 15th Dec. 2015.

After many deliberations on the proposal, CMPDI advised to route the proposal through Indo-US CWG platform prior to its submission to R&D Nodal Agency (i.e. CMPDI) for funding under CIL. Subsequently, a meeting was held at CMPDI with officials from M/s Norwest Corporation on 20th July 2016 and a decision was taken to formulate the proposal in two phases i.e. 'Study & Capacity Building (Phase-I)' and 'Implementation in one of the selected OC mines in CCL (Phase-II)' (CCL has given consent for study and implementation of the proposal in Amrapali OCP). M/s Norwest Corporation sent the revised draft proposal to CMPDI (Implementing Agency) on 06.09.2016 for scrutiny. In the meantime, CMPDI incorporated the duly filled Annexures of the proposal and forwarded the same to M/s Norwest Corporation vide email dated 28.11.2016 for incorporating their input in the Annexures before submission of the proposal.

Mr. Pat Akers, representative of M/s Norwest Corporation, after detailed discussions with CMPDI officials submitted revised draft proposal on 10th January 2017. The revised proposal after incorporating comments of CMPDI was received through email dated 04.07.2017. CCL has been requested for association in the project as a sub-implementing agency. After getting the consent from CCL, the same along with other observations will be sent to M/s Norwest Corporation, USA for resubmitting the proposal to MoC through Indo-US CWG platform for funding under CIL. The consent from CCL is awaited.

Indo-Australian Collaboration

Status of On-going Projects:

CMPDI has a Memorandum of Understanding (MoU) with Commonwealth Scientific and Industrial Research Organisation (CSIRO) signed on 12th June, 2013 for a period of five years for furthering scientific cooperation. A team from CMPDI visited CSIRO, Australia in July 2015 for identifying possible collaborative areas in the field of clean coal technologies. During the visit of Secretary (Coal) in June, 2017 it was suggested to identify more areas for scientific cooperation.

a) Capacity Building for CMPDI Lab

- CMPDI has established a state of the art Coal Bed Methane (CBM) lab that can carry out parametric studies for resource estimation and reservoir characterization for CBM and Shale gas.
- In March 2016, S&T Project titled "Capacity building for extraction of CMM Resource within CIL Command areas" was approved by Ministry of Coal (MoC) under Govt. of India S&T funding which is jointly implemented by CMPDI and CSIRO. The project is of three (03) years project duration. A Collaborative Understanding agreement for execution of the Project has been signed between CSIRO and CMPDI on 22nd December, 2016.
- CSIRO Project Team visited CMPDI, Moonidih Mine of BCCL and Chinakuri Mine of ECL during 9th -19th May, 2017. During visit, the team interacted with the project personnel on gassiness issues. CSIRO team assisted CMPDI to draw the required technical specification of laboratory equipment to be procured by CMPDI for this S&T project. These equipment are being procured under the S&T funding. Project personnel were training by CSIRO during 11th - 16th March, 2018 at CMPDI.

b) Ventilation Air Methane (VAM)

- CMPDI has formulated a project jointly with CSIRO titled "Abatement and utilization of Ventilation Air Methane (VAM) from working underground degree-III coal mine in India". The implementing agencies for the project will be CSIRO and CMPDI with BCCL as a sub-implementing agency. Identified project mine is Moonidih Underground Mine in Jharia coalfield of Bharat Coking Coal Ltd. (BCCL).
- CIL R&D Board has approved the project in principle with 100% retroactive funding at present and in due course 40% should be reimbursed from National Clean Energy Fund (NCEF) with directive to reduce duration of project from 42 to 30 months in consultation with CSIRO. CSIRO has agreed to reduce the project duration to 36 months.
- The revised proposal was placed in the 26th Meeting of R&D Board of CIL held on 27th Dec, 2016 and the Board advised to place the proposal before the Apex Committee with certain modification.
- As per direction of the 26th Meeting of R&D Board of CIL held on 27th Dec, 2016, draft collaborative agreement was submitted by CSIRO which was sent to BCCL on 19th May 2017 for their comments. The comments received from BCCL was forwarded to CSIRO, Australia vide email dated 22.09.2017 which responded to all the queries made by BCCL.
- BCCL, vide letter dated 01.12.2017, informed that there was no methane gas collection in any well at CBM site, Moonidih. Locating the VAM test unit at CBM site will require long pipe line to take the VAM to test site. As such, mine site would have been advantageous over the CBM site. However, exact location of the VAM test unit is to be identified by CSIRO.



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- In reply, vide email dated 04.12.2017, CSIRO stated that 0.2% methane in mine air exhaust may not be sufficient for the study. CSIRO also proposed to use CNG to increase the VAM concentration for site trial of VAM test unit. Amount of required CNG will be determined based on the VAM concentration and technology selected. The same has been communicated to BCCL. Further action on the project proposal will be taken after receipt of the comments from BCCL.

c) Other collaborative initiatives

- Taking forward the joint statement made by the Honorable Prime Ministers of India and Australia on 18.11.2014, agreeing to cooperate on Energy and Clean Coal Technologies and exploring opportunities for partnership between Australian institutions and Indian School of Mines, Dhanbad, MoUs were signed between IIT (ISM) Dhanbad, India and six universities and two research organizations of Australia, viz. Curtin University of Technology, University of New South Wales, University of New Castle, University of Wollongong, University of Western Sydney, University of Queensland, SIMTARS, and CSIRO; for research and academic collaborations in the areas of Energy, Clean Coal Technologies and Mines Safety.
- Australia - India Center for Clean Coal and Energy Technologies (AICCET) has been established at IIT (ISM) Dhanbad and Curtin University, Perth for conducting joint research in the areas of Energy and Clean Coal Technologies. In the realm of this center, two major research activities have been initiated by IIT (ISM), Dhanbad and Coal India Limited (CIL) with Australian collaborations, which are (i) conversion of high ash low rank Indian coal to chemicals and (ii) design of improved flow sheets for high ash coal washing to reduce the percentage of ash in feed coal of different industries.
- The Centre of Excellence in Mining Technology (CEMT) has also been established at IIT (ISM), Dhanbad in collaboration with Australian institutions and research organizations for conducting research in the areas of Advanced Mining Technology and Mines Safety. Under this Research Centre, a Virtual Reality Mine Simulator (VRMS) is being established at IIT(ISM), Dhanbad by SIMTARS, Department of Natural Resources, Govt. of Queensland, Australia for simulating advanced mining technology and hazardous coal mine environment with support from CIL. VRMS will be used for imparting necessary training to executives and operational people for improving safety in Indian coal mines. After successful establishment of this facility at IIT(ISM), the same will be replicated at three different locations in CIL. In addition, the research activities jointly being undertaken by IIT (ISM), Dhanbad and CIL with Australian institutions, have progressed in the areas of segregate blasting, reducing the potential of mine fire and explosion in coal mines for improvement of production, productivity and safety. IIT (ISM) had approached Coal India Limited (CIL) with an R&D proposal on VRMS in May 2017. After getting approval from R&D Board of CIL, the project has been commenced w.e.f. 01.09.2017.
- The cooperation between the two countries will attain new heights in future through such collaborative initiatives between Australian Institutions and IIT (ISM), Dhanbad in the frontier areas of Energy, Clean Coal Technologies, Advanced Mining Technology and Mines Safety.
- To expedite the co-operation, a Technology Mission headed by Secretary, Ministry of Coal visited Australia from 17th to 24th June, 2017. During the visit, the team had a discussion with Department of Industry, Innovation and Science, Govt. of Australia regarding Research & Development/Innovation in the field of coal mining, mine safety management, mine closure and reclamation and acquisition of coking coal assets in Australia by Coal India Limited (CIL). During the Visit to CSIRO, Brisbane, certain areas were identified for collaborative studies by CIL/CMPDI with CSIRO viz. 3D Seismic Survey, Hydro-Geological Modelling and Longwall Top Coal Caving (LTCC). It was also decided that increased emphasis will be laid on the ongoing R&D project on CBM/CMM by CMPDI/CIL to explore the prospects of commercial utilization of methane through power generation. Capabilities of mine scheduling software XPAC and the Virtual Reality Training tools for mine workers were also demonstrated during the visit at RUNGEE PINCOCK MINARCO (RPM), Brisbane. Further, during visit to University of New South Wales, Sydney, it was decided to collaborate in the area of setting up of a Virtual Reality based Training Centre in India, Drone based subsidence monitoring in overlying areas of underground goaves, etc.

New Areas of Collaboration

- Underground Coal Gasification (UCG):** In the India - Australia Energy Security Dialogues held during 8th - 11th February 2016 at Brisbane, for the development of Underground Coal Gasification (UCG), Australian companies like M/s Carbon Energy Limited was asked to look forward for the opportunities coming up in India in view of the recent UCG policy of Government of India. A meeting was organized by Austrade / Delhi on 31st May 2016 where M/s Carbon Energy Ltd. shared their outcome of Key Seam UCG Technology developed at the Bloodwood Creek UCG Trial Project at QLD in Australia. It was agreed that in view of constitution of Inter-Ministerial Committee (IMC) for the development of UCG blocks, the proponent might approach the developer for extending technology to them after the award of blocks.
- CBM/CMM Development in CIL Command Area:** In the India - Australia Energy Security Dialogues held during 8th - 11th February 2016 at Brisbane the Australian technology providers and experts from the Australian Universities came forward for participation in developing CBM/CMM areas under the leasehold of CIL in view of new policy of Government of India permitting CIL to explore and exploit CBM/CMM on commercial lines. University of New South Wales (UNSW) has been requested to provide list of experts and technology providers. The status of ongoing R&D project on CBM/CMM was reviewed during visit of Secretary (Coal), Govt. of India to CSIRO, Australia in June, 2017.

Indo-Poland Collaboration

New Areas of Collaboration

Secretary, Ministry of Coal (MoC), Govt. of India led a delegation to Poland during 6th-9th June, 2016 to understand the energy policy of Republic of Poland with particular reference to development of coal, coal mining technologies, reclamation of mined-out areas, capture and uses of Coal Mine Methane (CMM) and technologies for development of underground (UG) mines, etc.



A team of Polish Experts including manufacturers visited MoC, CIL, ECL, BCCL and CMPDI during 4th-7th July 2016 in sequel of the visit made by an Indian delegation led by the Secretary (Coal), MoC, Govt. of India to Poland. In view of the above, a Poland Technology Group (PTG) has been constituted and some of the areas were identified, such as, Slope stability of overburden dump (using advanced modelling technique), Dry Coal beneficiation, Extraction of remnant coal pillars with surface protection, Pre-drainage of coal mine methane (CMM) and commercial recovery of coal bed methane (CBM) and Control measures for mine fires of Jharia for obtaining the solutions from Polish side. A detailed discussion was held on the identified areas at CMPDI (HQ), Ranchi between Polish Experts and Officials of PTG & other officials of MoC, CIL/ CMPDI, wherein technical co-operation was sought on the identified areas from Polish Experts. A data dossier on the identified areas were prepared by CMPDI with necessary technical help from different subsidiaries of CIL and the matter is being taken up at CIL level.

In continuation of the collaborative studies, a team of 4 officers (2 from CMPDI and 1 each from CCL & BCCL) visited Poland from 13th -17th February, 2017 to enhance skill in the field of methane extraction and dry coal beneficiation.

The fifth session of the India-Poland Joint Commission on Economic Cooperation (JCEC) was held in New Delhi on 27.11.2017. Input in this regard had been sent to CIL/MoC on 13.11.2017. Further information is awaited.

A Polish delegation involving representatives from M/s JSW, M/s PeBeKa and Central Mining Institute, Poland visited India during January, 2018 and a meeting was held on 16.01.2018 with the Indian representatives involving officials from CIL & SAIL. Capabilities of the above institutes/ organization of Poland were presented and views exchanged for further collaboration in different mining activities including participation in tender for CMM Drainage in Moonidih Mine of BCCL for which Global Bid is likely to be published. CIL also presented about the brief activities done during the last few fiscal and the short-listed areas identified under PTG for collaboration. The data dossier which was earlier sent to Polish group was again handed over to the Dy. Director General of the Central Mining Institute, Poland.

India-Indonesia Collaboration

The 4th meeting of the Joint Working Group on coal between the Ministry of Energy and Mineral Resources (MEMR), Indonesia and the Ministry of Coal, India was held on 20.04.2017 in Jakarta. Both side agreed that technology and science were crucial in mining industry in order to have sustainable, scientific, safe and environmental friendly mining. Both side agreed for future cooperation in "Geological exploration between CMPDI and Geological agency of Indonesia" related to coking coal characterization, capacity building for CBM laboratory analysis, geophysical exploration for coal and building geological models based on geological data. It was also agreed to exchange best practices in the areas of coal mining like mine planning and design, satellite monitoring of mined out areas for reclamation, IT enabled solutions for vehicle movement monitoring and environmental management of coal mines.

Capacity building between HRD agency of MEMR of Indonesia and Indian Institutes like IIT-ISM, Dhanbad, IIT, Kharagpur and IIT, BHU was also agreed. It was also decided that lab to lab cooperation between Central Institute of Mining and Fuel Research (CIMFR), Dhanbad of India and R&D agency of MEMR of Indonesia to conduct research on coal gasification, mine water treatment technology and clinker formation as a result of blending.

A 6-member Indonesian delegation visited CMPDI, Ranchi, CIMFR, Dhanbad and MoC New Delhi during 3rd- 5th May, 2017. During their visit to CMPDI on 03.05.2017, capabilities of CMPDI were presented to the Indonesian team on the identified areas as discussed in the 4th meeting of the Joint Working Group on coal between the two countries. Indonesian delegates also visited CIMFR laboratories in Dhanbad on 04.05.2017 and different research programme and other activities being carried out by CIMFR were briefed to the delegation. Another team visited Piparwar Opencast Mine of CCL on 04.05.2017.

Following points were agreed by the Indonesian team during the meeting held on 05.05.17 at MoC:

- Geological agency of Government of Indonesia and CMPDI will explore the possibility of cooperation in preliminary exploration/ geological mapping of coking coal deposits in Indonesia.
- After establishing potential of coking coal deposits, the Government owned companies of the two countries namely Coal India Limited & PT. BUKIT ASAM / Local Government Company will explore the possibility of forming an SPV for exploration, development and operation of coking coal assets in Indonesia. The Government of Indonesia will facilitate exploration license/ mining license to the SPV(s) as per the extant laws of the country.
- Govt. of India and Govt. of Indonesia will facilitate B2B cooperation between private coal companies of Indonesia and CMPDI in exploration and related laboratory services.

As a follow up action and after an invitation obtained in July 2017 from Indonesian side, CMPDI team visited Indonesia during 28.08.17 to 01.09.17. During the visit, Center for Mineral, Coal and Geothermal Resources (CMCGR), Indonesia showed interest to have capacity building in coking coal characterization and preliminary exploration/geological mapping in West Kalimantan area. CMPDI proposed the cooperation on forming a Special Purpose Vehicle (SPV) for exploration development and operation of coking coal assets in Indonesia with Indonesian Coal State owned company as well as cooperation in exploration and laboratory services with Indonesian Private Company, as per the agreed points of the meeting held on 05.07.2017 in New Delhi. Upon the proposal, the CMCGR side expressed their need to have further consultation and coordination with concerned authorities/parties.

Both parties agreed on the initial draft Scope of Project and will take further internal consultation with the relevant parties in order to finalize the draft. One coal block in West Kalimantan has been identified for prospecting which will be decided after field visit to the proposed project area in April 2018. CMCGR, Indonesia have requested for funding of all the activities in scope of work by Govt. of India. A Ministerial level meeting of both the countries along with their technical and business representatives needs to be carried out for finalizing the agreement of the above work to arrive at the cost involved in the entire project. Govt. of India and Govt. of Indonesia will facilitate B2B cooperation between private coal companies of Indonesia and CMPDI in exploration and related laboratory services. MoC has been requested to take view on it.



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India-Finland Collaboration

A team of officials of M/s Valmet of Finland along with Mr Mikko Postonen, Counselor, Embassy of Finland met CIL Chairman, Director (Tech) and other officials of CIL at Kolkata to promote their Technology for utilization of Coal Washery Rejects (CWR) for generation of thermal power. The delegation informed CIL that Valmet had a licence for designing Power Plant Boiler to burn washery rejects coal having ash% upto 77% with GCV of 1100 Kcal/Kg. It was agreed that solution from Boiler to Generator (B2G) based on CWR as feed was required.

Based on a request forwarded through MoC dated 5th Sept.'17, a Video conferencing was organized between CIL, CMPDI and the delegation from Valmet and Finnish Embassy for a discussion on the issue of prospects of CWR in CIL's subsidiaries. During the meeting, it was agreed to undertake a scoping study on the prospects of establishment of Coal Washery Reject based TPP utilizing Valmet's technology. It was also agreed to involve NTPC/Power Producing companies and BHEL during the scoping study.

Representatives of Valmet along with Mr Postonen, Counselor Embassy of Finland had a meeting with CIL Chairman, Director (Tech) and other CIL officials on 5.10.2017 at New Delhi to continue discussion on how to carry forward the scoping study. It was agreed to take up the desk-top scoping study at a site located centrally to a group of washeries in operation at one of the subsidiaries of CIL. However, it was agreed that prior to this study, since this technology is to be utilized in a Thermal Power Plant, it would be prudent to include a Power Producing company, namely, NTPC and a manufacturer of Boiler-Generator, namely, BHEL in the study.

The Finnish side informed that the Embassy of Finland shall co-ordinate with NTPC and BHEL to bring them onto the Board to have a synergy on the prospective study and CIL shall provide the required inputs for study. It was agreed that the scoping study shall be a self-sponsored without any financial impact on either side on account of the group study. The above decision has been communicated to Valmet Chennai Pvt. Ltd at Chennai. A meeting was held on 20.11.17 at Scope complex, New Delhi among the officials from CIL, Valmet, Embassy of Finland, BHEL, where various modalities of the project were discussed. Another meeting was held on 15.03.18 among Finnish officials, Valmet and CIL officials at CMPDI, Ranchi on this matter. The minutes of this meeting are awaited.

India-Bangladesh Collaboration

A meeting was held on 05.10.2016 between State Minister, Ministry of Power Energy and Mineral resources, Govt. of Bangladesh and Minister of State with independent charge for Power, New and renewable energy and Mines, Govt. of India. In the meeting, Bangladesh requested assistance of Government of India to develop the coal reserves in Bangladesh. In response to this, India agreed to send a technical team from CMPDI to study the techno-economic feasibility of the mining of coal on the basis of available geological/geo-mining data.

Accordingly, a technical team of CMPDI visited Bangladesh during 20th -24th Aug.'17 to study techno-economic feasibility of coal mining on the basis of Geological/Geo-mining data. During the visit, CMPDI team interacted with Senior Officials from Indian High Commission of Bangladesh, M/s Petrobangla, M/s Barapukuria Coal Mining Company Ltd. (a company of Petrobangla) and Geological Survey of Bangladesh. The Bangladesh side had shown interest in development of Barapukuria, Khalashpir and Jamalgunj areas. The existing geological data generated so far in these areas will be required for understanding the regional geology and generation of further data. The promising areas can be explored further for feasibility studies. An initial request has been made to Barapukuria Coal Mine Company in this regard.

Indo-Russian Collaboration

The 21st Meeting of India-Russia Joint Working Group on Energy and Energy Efficiency was held on 7th September, 2016 at New Delhi. Indian side expressed its interest in technical cooperation with Russian companies in the field of Underground Coal Gasification (UCG) and resource assessment of Coalbed Methane (CBM) in distressed conditions. Russian side agreed to pass on the information to concerned Russian companies.

The 6th meeting of India-Russia Sub-group on Mining of the working group on Modernization and industrial cooperation held on 15th September, 2017 at Moscow, Russia and a protocol has been signed between two countries.

Both side showed mutual interest in developing the long term and mutually beneficial cooperation in the field of metallurgical, mining and processing mechanical engineering, ferrous and non-ferrous metallurgy, mining, coal industry and aluminium industry. Both side also showed mutual interest in promoting investment in these sectors by encouraging both public sector and private sector companies.

Indo-Japan Collaboration

New Areas of Collaboration

- Dry Coal Beneficiation:** M/s Nagata Engg. Co. Ltd. has been requested to provide the detail technology including specification and performance data, commercial availability of the separator and cost thereof with other supports (if any). The response is awaited.
- Slope Stability Monitoring:** Dr. Hideki Shimanda of Kyushu University, Japan has been requested to share their technical expertise and valued opinion for Indian geo-mining conditions. Reply is awaited.
- Subsidence Measurement & monitoring using DINSAR Technology:** J-Coal delegation led by Mr Masafumi Uehara, Asst. Sect. General, Resource Development Department, J-Coal, Japan visited CMPDI in August 2016 and presented the possible use of DinSAR technology for subsidence monitoring in Jharia Coalfield. The delegation also visited the subsidence sites at BCCL. On query whether a real time monitoring and subsidence prediction was possible through this technology, Mr. Uehara informed that real time monitoring, at present, was not possible through this study as the minimum interval for this study can be one and half months, which is the re-visit time of the satellite to acquire the data and moreover they do not have expertise in subsidence prediction presently. Under such circumstances, the project is kept in abeyance. Inputs on the above possible areas of collaboration with Japan has been communicated to CIL/ MoC on 29.11.2017. Further information is yet to be communicated.



India-Afghanistan Collaboration

As per the Article No. 7 of the MoU signed between Ministry of Mines, Govt. of Islamic Republic of Afghanistan and Ministry of Coal, Govt. of India, a joint Working Group from Indian side has been constituted by Ministry of Coal on 21.02.2013. Further information is yet to be communicated.

Indo-Belarus Collaboration

Two proposals regarding trial run of 350 Tonne dump trucks of Belaz make and technology for North Eastern Coalfields by M/s NIVA of Belarus were received from Ministry of Coal through CIL on 14.03.2017. Necessary comments of CMPDI on the above proposals have been sent on 20.03.2017 for onward communication.

The 8th protocol of India-Belarus Inter Governmental Commission (IGC) on Trade, Economic, Scientific, Technological and Cultural Cooperation has been signed on 04.07.2017 in New Delhi. Both side reviewed the progress of bilateral cooperation and explored further potential of cooperation between the two countries in order to strengthen and widen bilateral relations. Updated status on the points pertaining to CMPDI have been sent to MoC on 20.07.2017. The further status is yet to be communicated.

Further, Mr. Vladimir I. Semashko, Deputy Prime Minister of the Republic of Belarus along with business delegation attended the 'India-Belarus business forum' on 11.09.2017 in New Delhi and presented the capabilities of Belarus companies. A high-powered delegation from Belarus was scheduled on 12.09.2017 in India to discuss issues on bi-lateral cooperation, the details of which is yet to be communicated to CMPDI.

13. COAL VIDESH DIVISION

I. INITIATIVES FOR ACQUISITION OF COAL ASSETS ABROAD

(A) Activities of Coal India Africana Limitada (CIAL), Mozambique

Post surrendering of prospecting licenses of CIAL to Government of Mozambique, CIL Board directed CIAL to implement economization of its operations at Mozambique, by shifting its registered office from Tete to Maputo. In pursuance of the directive of CIL Board, the economization measure has been implemented by shifting the registered office from Tete to Maputo.

(B) Acquisition of coking coal assets abroad

Pursuant to the directives of the Board, CIL has focused to the coking coal producing countries viz. Australia, Canada, USA etc. for acquisition of coking coal assets abroad. As a part of the preparedness towards acquisition initiatives, empanelment of Merchant Banker (MB)/Investment Banker (IB) has been done to render assistance in acquisition process.

II. REVIVAL OF FERTILIZER PROJECTS

(A) Setting up of natural gas based ammonia-urea complex at Gorakhpur, Sindri and Barauni

Hindustan Urvarak & Rasayan Limited (HURL) was incorporated as a Joint Venture Company comprising of CIL, NTPC, IOCL, FCIL and HFCL as partners to set up natural-gas based ammonia-urea complex at the premises of closed fertilizer plants of FCIL at Gorakhpur (U.P.) & Sindri (Jharkhand) and that of HFCL at Barauni (Bihar). In 2016-17, pre-feasibility studies were conducted to set up 1.27 MTPA capacity urea plant at all three locations. After pre-qualification of contractors for setting up of the plants, NIT was issued through Lump-Sum Turn Key (LSTK) mode.

Based on the evaluation of offers, the technical consultant M/s PDIL has prepared Detailed Feasibility Reports (DFRs) and the financial consultant, M/s SBI Caps has prepared the Financial Appraisal Reports (FARs) for all three fertilizer plants. In case of Gorakhpur fertilizer plant, DFR has been approved by the Boards of HURL as well as the promoting companies. After achieving successful financial closure, the investment decision has also been approved by CIL Board. The LoA has been issued to the consortium of M/s Toyo Engineering, Japan and M/s Toyo Engineering, India. In case of Sindri and Barauni fertilizer plants also, the DFRs have been approved by CIL Board. LoA has been issued to consortium of M/s Technip France and L & T Hydrocarbons Engineering Limited, India.

All the pre-project activities have been completed at all three sites. MoEF has granted Environmental Clearance for setting up of Ammonia-Urea plants at all three locations. Term-sheet has also been signed with M/s GAIL for supply of Natural Gas for the three proposed plants through their upcoming Jagdishpur-Haldia-Bokaro-Dharma Natural Gas pipeline (JHBDPL). All three plants are scheduled to come in operation by 2020-21.

(B) Setting up of coal based ammonia-urea complex at Talcher

Talcher Fertilizers Limited (TFL) was incorporated as a Joint Venture company comprising RCF, CIL, GAIL and FCIL as the partners, for setting up of a coal based ammonia-urea complex at the premises of the defunct fertilizer plant of FCIL at Talcher. Low CV, high ash coal from nearby Talcher coalfields blended with pet-coke upto 25% shall be gasified to produce syngas, which shall be converted into Ammonia and subsequently Urea.

TFL Board has approved coal gasification technology of M/s Shell for the proposed plant. Based on techno-economic feasibility study to set up 1.27 MTPA capacity urea plant on partial LSTK mode, separate LSTK tenders have been floated for Coal Gasification Plant and Ammonia-Urea plant. Concurrently, LSTK NIT for Captive Power Plant and tender documents for other Off-sites and Utilities are under preparation by the Consultant.

MoEF has granted Environmental Clearance for setting up of integrated coal based Ammonia-Urea plants at Talcher. Ministry of Coal has accorded its in-principle approval for allotment of the northern part of North of Arkhapal coal block to TFL. An MoU has also been signed between TFL and IOCL for supply of pet-coke to the proposed plant from Paradeep Refinery.

III. DIVERSIFICATION INTO CHEMICALS SECTOR

Setting up of Coal to Methanol plant at Dankuni Coal Complex (DCC)

Govt. of India has stressed the need to reduce the crude import bill and take up the measures to cut carbon emissions. NITI Aayog has prepared an action plan to substitute 10% of crude imports by 2030, by Methanol (CH₃OH) alone. India is shortly going to implement upto 15% Methanol blending program (M15) with Petrol. Ministry of Road Transport & Highways and Shipping & Waterways has already prepared the draft notification on M15 and M100 as transport fuel and is expecting a clearance from Law Ministry to be notified officially. After announcement of this methanol blending policy, the domestic Methanol business which stood at around 2 MT in 2016-17 is projected to reach to 30 MT in 2030.



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To seize this opportunity, CIL is exploring the possibilities for diversification into Chemicals sector by setting up a new coal gasification based methanol complex in premises of Dankuni Coal Complex (DCC). This would also bring a paradigm shift in positioning of its product, particularly High CV low ash coal, from an Energy product to a chemical feedstock. Coal sourced from Raniganj coalfields shall be gasified to produce syngas which shall be subsequently converted into methanol.

As part of this exercise, potential coal gasification technologies have been shortlisted through a global EOI. The consultant, M/s PDIL was entrusted to prepare PFR. M/s PDIL has recommended to set up a coal to methanol complex of 2050 MTPD (0.676 MTPA) capacity in the available land at DCC. Currently, the project is under Pre-Feasibility Study stage.

14. MASTER PLAN FOR DEALING WITH FIRE, SUBSIDENCE AND REHABILITATION

The Master Plan for dealing with fire, subsidence and rehabilitation in the lease hold of Bharat Coking Coal Limited (BCCL) and Eastern Coalfields Limited (ECL) was approved on 12th August 2009 by Govt. of India with an estimated investment of ₹ 7, 112.11 crores for Jharia Coalfields and ₹ 2661.73 for Raniganj Coalfields. Implementation period has been delineated as 10+2 years.

High Powered Central Committee meetings were conducted under the chairmanship of the Secretary (Coal), MoC to review the activities of implementation of Master Plan. Fifteen meetings were conducted so far; last meeting was held on 10/11/2017.

Jharia Rehabilitation and Development Authority (JRDA) is the implementing agency for rehabilitation of non-BCCL people under Master Plan whereas Asansol Durgapur Development Authority (ADDA) a state Govt. organization has been identified as implementing agency for Rehabilitation of Non-ECL houses.

A. Summarized Status of Implementations of Master Plan in the lease hold of Eastern Coalfields Ltd.

Seven Surface Fires were identified in the approved Master Plan have been doused by blanketing with thick layers of earth to save the life and properties of the inhabitants.

Demographic Survey work has been completed for all 126 locations out of 141 identified locations as 10 locations having no habitation and 3 locations have only ECL population. In 2 locations survey work could not be completed due to public agitation. The final list has already been published which contains 44598 households. Photo Identity Card (PIC) has been distributed to 43087 persons out of total 44598 persons. Most of the ECL employees residing in 3 endangered locations have been shifted and remaining persons were allotted quarters and are in the process of shifting. In the 15th HPCC meeting CEO, ADDA informed that final data of Demographic survey report is yet to be published.

According to the approved Master plan, about 896.29 ha. (2214 Acres) land would be required for resettlement of non-ECL families.

In the meeting held on 24.03.2017 at Nabanna under the Chairmanship of Chief Secretary, Govt. of WB where in it was decided that ADDA, ECL & CMPDIL will jointly find out the possibilities of large chunk of land to be used for rehabilitation purpose. It was also discussed that 15% of population under rehabilitation scheme are to be accommodated in Durgapur for which Bengal Aerotropolis Limited (BAPL) land would be made available. For the rest of 85% who are to be rehabilitated in Jamuria, Raniganj, Asansol and Baraboni blocks land in big chunks has to be identified.

Construction of 160 houses has already been started from 10.03.2017. Work orders for construction of 3024 flats at Mouza Bijoynagar & 1904 flats at Mouza Namokeshia have been awarded on 19.03.2018. Finalization of Tender for Construction of 5664 flats at BAPL land and 2224 flats at Daskeary mouza are under in process.

i) Diversion of National Highway (NH-2):

As per decision of 14th HPCC meeting on 20.3.2017 at DGMS, Office Sitarampur under the Chairmanship of Dy. DG(EZ) with the representatives of ECL, CMPDIL, NHAI and ADDA where it was noted to get idea of blind backfilling and certification of action required for proper stability from CIMFR, Dhanbad.

In the 15th HPCC meeting on 10.11.2017 it was directed that in regard to 300m. stretch of NH-2 under unstable area, a committee was constituted under DG, DGMS with DDG, Central zone DDG Eastern zone to examine all available reports and reassess the danger associated and need for shifting/strengthening the road. Accordingly, a meeting was conveyed at DGMS office, Sitarampur on 21.03.2018 under the Chairmanship of DG, DGMS. DG rejected the proposed alignment of diversion due to suspected workings in the vicinity of the diversion road. It was also expressed the doubt about restoration of full proof as well as long term stabilization through back filling technique due to non-availability of any authentic mine plan of the worked out seam on the basis of which actual void area can be ascertained. Finally, after site inspection DG opined that geotechnical study of the affected stretch should be conducted afresh by other technical/research Institute of national repute to find out the best possible solution for stabilization of the unstable part of the road for long term duration.

(ii) Diversion of District Board (DB) Roads.

The diversion of DB Road at Mohanpur Colliery of Salanpur area is not required, as the proposed route is coming under mining operations. The existing road between Amdiha and Sandih via Lalgunj will serve the purpose of connection.

In the proposed diversion route of Gorangdih Begunia colliery, 3.512 acres of land is required out of which 3.040 acres is Raiyati land and 0.472 acres being WB Govt. vested land. For diversion of this DB road at Jamgram mouza under Barabani PS, public notice has been issued. The District Level Purchase Committee has taken up the issue regarding purchase of Raiyati land.

For diversion of DB road at Ratibati colliery, 4.847 acres land is required (1.207 acres of ECL land (+) 0.370 acres of Raiyati (+) 3.270 acres of DGCA land).

MoC has accorded its approval for transfer of ECL land to State Govt. for diversion work of DB Road and same was communicated to ADDA on 16.11. 2017. As per DGCA's view, ADDA to examine alternative alignment for 3.149 acres DGCA land. Joint physical verification of the alternative diversion route has been done and it was found that the land comprised in the proposed alternative alignment has been encroached by the local people and no alternative alignment is feasible.



Jt. GM(LM)-ER in his letter on dated 29.01.2018 suggested to re-submit the alignment of proposed diversion of DB road covering minimum area as well as shortest length of proposed diversion of road of AAI land at the said site.

Accordingly, a joint inspection comprising officials of ECL and ADDA was made on 28.02.2018 and an alternate alignment covering an area of 0.68 acres of AAI land at the said site was found. Proposal to transfer 0.68 acres land owned by DGCA in favour of Urban Development Dept, Govt. of WB has been sent to Regional Executive director, AAI on 15.03.2018 to consider and expedite the issuance of NOC for construction of diversion route of the concern DB road.

iii) Diversion of Railway line:

Andal-Sitarampur Railway line:

Preliminary discussion with Eastern Railway officers was held on 20.12.2017 where it was suggested by DRM, Asansol to send details of the scope of study in such stability assessment along with the plan showing the proposed route study to examine the proposal from their end.

In regard to diversion of Andal-Sitarampur Railway line and on consideration of revised FSR by Railways, CMD, ECL was asked to convene a meeting with all concerned to assess the danger associated with it and action to be taken in this matter. In a meeting held on 02.02.2018 at ECL HQ under the Chairmanship of CMD, ECL where all Functional Directors of ECL and Eastern Railway officials including DRM, Asansol were also present and it has been decided to conduct geotechnical investigation/survey of the unstable stretches beneath the Andal -Sitarampur rail track to find out the total void area below the railway track. Stability analysis of the workings and prediction of any surface subsidence based on geotechnical investigation and analytical method would also be done in this scientific study. Accordingly, three premiere technical/scientific research Institutions i.e. IIT, Kharagpur, ISM, Dhanbad & CIMFR, Dhanbad were contacted to submit their offer for carrying out the said scientific study.

Chief Scientist of CIMFR had already visited at ECL HQ on 06.03.2018 to discuss on the subject matter. On 29.03.2018, ECL again requested the above three premiere Institutes to submit their offer within a week time for taking further course of action on the above referred matter.

Diversion of Andal-Sainthia Railway Line:

Regular Monitoring is being done by ECL & Railway Authorities to check any subsidence and the speed of the trains in these locations have also been restricted.

iv) Diversion of Indian Oil Corporation Limited (IOCL) pipeline:

IOCL informed that regular monitoring is being done by them to detect any deflection of pipe line due to subsidence.

B. Summarized Status of Implementation of Master Plan in the lease hold of Bharat Coking Coal Ltd.

Reduction in Fire area: The coal mine fire survey/ study was instituted by BCCL through National Remote Sensing Centre (NRSC), ISRO, Department of Space, Hyderabad for delineation of surface coal fires in Jharia Coalfield. NRSC has submitted their report in which they have concluded that the present fire area in the coalfield is only 2.18 sq.km. which includes both over burden dump fire and active fire. In Master Plan, total surface area affected by fire described as 8.9 sq.km. NRSC has reduced these findings from the State of Art, Satellite based technology. NRSC has been requested to repeat the satellite TIR survey. NRSC has completed the survey in December 2017. Final Report of NRSC is awaited. BCCL would improvise the fire action plan for speedier liquidation of fire area.

As per Master Plan, total 54159 families in 595 nos. sites are to be surveyed. CIMFR, ISM, whiz Mantra and JRDA have completed survey of 595 sites for 91879 families of encroachers, survey of private houses are to be started.

3360 houses have been constructed in Belgoria Rehabilitation Township "JhariaVihar" in which 2048 non - BCCL families(encroachers) are shifted from affected areas. Construction of 6992 units are in progress out of which 992 units are in completion stage.

Regarding the rehabilitation of BCCL people, residing in the fire & subsidence affected area, 6668 houses constructed out of 15852 houses and 3311 BCCL families shifted till January 2018. The remaining 3357 house Construction is expected to be completed by December 2018 and shifting by December 2019.

As per Master Plan, 2730 Acres of land would be required for resettlement of non-BCCL families for which JRDA is perusing for acquisition of land and proposals are now at different stages. NOC of 86.44 acres of vacant land in Bhuli Township and 849.68 acres of non-coal bearing land in and around Belgoria Township belonging to BCCL have been given by MoC which has been communicated to JRDA along with all the required Mouza plans for developing new Townships by JRDA.

Road diversion from fire affected areas:

Repairing/ widening of Mahuda-Topchanchi road in lieu of endangered portion of NH-32 between Godhur to Putki as a short-term measure is completed. BCCL has requested NH authority for handing over the site for dealing the fire from said stretch of road in the spirit of Jharia Action Plan.

Rail Diversion from fire affected places

As per recommendation of HPCC, a Committee was formed under the Chairmanship of DGMS and its first meeting was held on 24.03.2017. As per record note of Committee "the committee feels that movement of passenger or goods train on the Dhanbad -Chandrapura Railway line of E.C Railway is to be stopped immediately in the interest of safety to human.

In the record note chaired by Principal Secretary to PM on dated 22.5.2017 "Director General of Mines Safety (DGMS) should visit the site of railway track and give certificate regarding safe/unsafe condition of track by 5th June 2017" regarding stopping Dhanbad- Chandrapura line.

As per letter by Excutive Director/Civil Engg (P) Ref; 2008/CE-II/WP/31 dated 10.06.2017 to General Manager E C Railway,Hajipur "Having considered DGMS report, Board has decided to stop operation of Passenger and good Traffic on Dhanbad Chandrapura line with affect from 15.06.2017.



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BCCL has made several communications to Railway regarding handing over the Railway acquired land of stretch of Dhanbad Chandrapura line for fire mitigation. Recently a letter has been written by the additional member (WORKS), Rail Ministry, Railway Board to the Government of Jharkhand for bearing the cost of alternative alignment of closed Dhanbad Chandrapura line.

Coal India Ltd has infused ₹432.01 crores to ECL and ₹1112.31crs to BCCL till March 2018 for implementation of Master Plan.

15. ENVIRONMENTAL MANAGEMENT

15.1 Environmental Impact Assessment (EIA)/Environmental Management Plan (EMP)

EIA/EMPs for all the new and expansion projects as per EIA Notification SO 1533 dated 14th September, 2006 of MoEF are prepared for peak and normative capacities and environmental clearance is obtained. During the year 2017-18, CMPDI has prepared a total of 20 Form-I and formulated 23 Draft EIA/EMPs. 18 environmental clearances and 6 modification in EC were also obtained from MoEF for different Projects/ Group of Mines, Washeries and Sand mining projects of CIL during the year 2017-18.

15.2 Management System Standards

CIL HQ has got certification against ISO 9001, ISO 14001 and ISO 50001 (Quality Management System, Environment Management System and Energy Management System) from Bureau of Indian Standards. As on 31st March 2018, three of our subsidiaries, ECL, NCL and MCL are certified for their companywide Integrated Management System (ISO 9001, ISO14001 and OHSAS 18001) and CCL is likely to be certified shortly. BCCL, SECL and WCL are in the process for implementation of companywide Integrated Management System (ISO 9001, ISO 14001 and OHSAS 18001). CMPDI HQ and its seven RIs are certified for ISO 9001:2015. CMPDI is in the process of implementing ISO 14001 & ISO 50001."

15.3 Pollution Control Measures and their Efficacy

Coal India has been giving utmost importance to protect environment by practicing and following sustainable mining practices so as to ensure that the mining operations has least impact on environment. Various pollution control measures and initiatives are taken up concurrently with mining operations for maintaining acceptable/permissible limits of major physical and chemical attributes of environment namely air, water, hydrogeology, ground vibrations, noise, land & nearby community.

(A) Air Pollution and its Control Measures:

To control and reduce dust generation during drilling, blasting, loading and Coal transportation, Coal India Ltd. has taken up various initiatives based on the Environmental Management Plans (EMP) which were already prepared before commencement /enhancement of production of coal mines. This EMP is prepared keeping in mind the impact on existing environment and forest due to coal mining projects through Environment Impact Assessment (EIA) study of each project.

Crushers, coal transfer points and coal stock areas are being installed. Mist spray systems have been introduced along conveyor routes, transfer points and on bunkers. Mobile water sprinkling has been provided in all the haul roads of OC mines. In addition to these, the projects are enhancing the water sprinkling through engagement of contractual water tankers. Automatic sprinklers have also been installed in CHPs. Some of the important initiatives are also mentioned below:

- a) Mobile sprinklers have been installed along haul roads to control dust generated by truck and dumpers movements.
- b) Optimum level of loading of coal in trucks and railway wagons to avoid spillage on roads and rail.
- c) To avoid spillage of coal during transport, trucks are properly covered by tarpaulin covers.
- d) Blacktopping, repairing and strengthening of haul roads are regularly and scientifically carried out.
- e) Plantation in surroundings of active mining areas and along the hauls roads are carried out to create green buffers/green belts in and around the mines.
- f) In order to reduce the dust pollution due to road transportation, eco-friendly mode of transport is being introduced. Transportation to thermal power stations, who consume more than 80% of thermal coal are carried out by rail / series of belt conveyors. Rail heads are constructed and made available nearer to mine so as to reduce road transportation. CIL have constructed / are constructing integrated CHP for rapid loading of wagons and trucks.
- g) Tube conveyors mode of transportation is also being introduced in some mines for transportation of coal to thermal power plants. The wall/sides of CHPs are also covered by side cladding with GI Sheet to control pollution at source.
- h) To contain dust emission at source itself, dust extractors / wet drilling systems are being undertaken.
- i) Controlled blasting and habitation away from the mines have been introduced as far as possible.
- j) Modern technologies like Surface Miners and Continuous Miner at different subsidiaries of CIL which generates lesser air borne pollution as compared to conventional mining have been introduced to the system. During 2017-18, CIL has produced around 48% of total coal production through surface miners and continuous miners.
- k) The quality of Ambient air in and around the mine site is being monitored fortnightly. The required and stipulated numbers of ambient air quality monitoring stations are maintained, as per environmental rules and regulations of Environment (Protection) Act, 2006, and its reports are regularly submitted to SPCBs and MoEF&CC.
- l) The concept of 'Continuous Ambient Air Quality Monitoring Stations' (CAAQMS) are being introduced and are installed / being installed in large mines of CIL. Continuous Ambient Air Quality Monitoring Stations have been installed at 4 locations in SECL and 01 location each in WCL and MCL.

**(B) Mine Water Management:**

Water which pumped out from the underground and open cast mines are being contaminated with suspended particles. Some small quantity of water being contaminated during washing and cleaning of HEMM. CIL also takes initiative by treating this water. The treated water is being supplied to the local villages after mine consumption, Quality of the final effluent is monitored in terms of the relevant Indian standards.

- Domestic Effluent Treatment Plant (DETP): The domestic effluent from major residential colonies is treated in DETP either by activated sludge method or by extended aerated lagoons.
- Mine Discharge Treatment Plants (MDTP) are installed in mines for treatment of mine water. Strata seepage water in mines first gets accumulated in the mine sump which provides for initial settlement of suspended particles. The supernatant water from the sump is then pumped out on surface and treated in surface sedimentation tank, which provides for second stage settlement. The treated mine water is then used partly within the mine premises for dust suppression, fire fighting, plantation, washing and further treated as per drinking water standard for supply to company township and nearby villages through pressure filter / RO. etc. After ensuring maximum re-use within and around mine premises the excess treated mine pumped out water is released onto local nalla / streams which is used by the surrounding local population specially for agricultural use.
- In order to assess the impact of mining activities on ground water, quarterly monitoring of ground water levels is being carried out in and around the coal mines covering the buffer zone (i.e.10 Kms radius). Further, recharging of ground water is also taken up within mine premises as well as in nearby villages through rainwater harvesting, digging of ponds/development of lagoons, de-silting of existing ponds/tanks etc.
- Regular monitoring of mine effluent, workshop effluent, and domestic effluent is carried out every fortnight as per Environment (Protection) Rule - 2006. Reports of the same are regularly submitted to SPCBs and MOEF.

(C) Noise Pollution Control Measure:

For control of noise pollution, following measures are adopted:

- i) Proper maintenance of equipment to minimize vibration
- ii) Green belt provided around the mine as well as residential area.
- iii) Controlled Blasting & blasting in only day time.
- iv) Use of Surface Miner, Continuous Miner & High Wall mining which extract coal without blasting.
- v) Ear Muff or Ear Plugs provided to Workers at highly noisy areas

(D) Land Reclamation:

Reclamation of the mined out areas and the external OB dumps is a major environmental mitigatory activity taken up by Coal India. In all new mines reclamation of mined out areas are being done as per the Environmental Management Plan and Mine closer plan which are approved by MoEF&CC. Back filling of the OB material in the mine voids is part of the mining operation cycle. Top soil preservation, storing and use in the plantation areas of the reclaimed areas are being done in the opencast mines wherever necessary. Concurrent reclamation and rehabilitation of mined out areas (subject to technical feasibility as per geo-mining conditions) are taken for gainful land use. Opencast mines are filled up with overburden extracted during the process of extraction of coal and after technical reclamation is completed plantation is carried out which is termed as biological reclamation.

- **Eco-restoration :** For effective Bio- reclamation of disturbed land, scientific studies are carried out to select suitable species of plants for each coalfield and sustainable sequence of reclamation from grass to shrubs, to trees. Forest Research Institute (FRI) have been engaged by CIL for sharing their expertise in the field of eco-restoration in the reclaimed areas. ECO restoration sites have been developed in BCCL, with technical guidance of FRI.
- **Eco-park in Reclaimed land :** Eco Parks have been developed in many of the mined out areas of CIL like Gunjan Park of ECL, Ananya Vatika of SECL, Nigahi of NCL, Saoner of WCL, Kayakalp Vatika, Rajarappa Eco Park in CCL etc.
- **Tree plantation :** Green belt is developed through extensive tree plantation programme every year by the subsidiaries of Coal India Ltd. Avenue plantation, plantation on the OB dumps, plantation around mines, residential colonies, and available government land is undertaken in existing as well as new projects. Since inception, subsidiary companies of CIL have planted 96 million plants covering an area over 38378 Ha. till March 2018.
- **Monitoring of Reclamation :** CIL introduced state-of-the-art Satellite Surveillance to monitor land reclamation and restoration for all opencast projects. The land reclamation and rehabilitation operations are being monitored by Satellite Surveillance. 50 major OCPs excavating more than 5 Mm³ (Coal + OB) per annum are being monitored every year while remaining OCPs excavating less than 5 Mm³ (Coal + OB) per annum are being monitored every 3rd year. This gives a clear picture of reclamation, which otherwise is difficult to accurately estimate. The study during 2017-18 shows that all the major OCPs (excavating > 5 Mm³ (Coal + OB) per annum) have reclaimed area of 61.96% and active mining area is only 38.04% of the total excavated area. In addition, CIL is conducting vegetation cover mapping through satellite surveillance in every 3 years.
- **Mine Closure Plan (MCP) :** MCP is an integral part of the project report prepared by CMPDIL for Coalmines. This progressive mine closure plan also forms a part of the EIA/EMP prepared and submitted to MOEF for Environmental Clearance. The progressive reclamation of mined out areas by inbuilt in the project cost and is implemented accordingly. After exhaustion of reserves, statutory obligations in respect of closure are also followed. CIL is practicing mine closure very effectively. CIL is committed for restoration of abandoned / mined out areas in a socially acceptable & environment friendly manner. As on March 2018, out of 453 identified mines, MCPs have already been prepared for all the mines, 445 MCPs have been approved by concern Subsidiary Board and total amount of ₹ 6075.44 Crores has been deposited in 425 numbers of Escrow accounts.



- **Strive for continual improvement in environmental performance by setting targets, measuring progress and taking corrective action.**

CIL has engaged Indian Council of Forestry Research & Education (ICFRE), Dehradun for Environmental Audit of 20 OC Mines of CIL which is intended for third party inspection, verification of the existing levels of pollution vis-a-vis the laid down standards and to delineate the compliance status of major projects in addition to the inspection carried out by the statutory authorities like CPCB/SPCB etc. ICFRE has submitted final draft reports of 19 mines. Furthermore, CIL has engaged ICFRE for developing approach and methodology for index rating of environmental conditions for individual mine & preparation of Environmental Performance Index in respect of the EC conditions and third party mine auditing of 35 mines of CIL pertaining to Environmental Compliance.

(E) Solar Energy/ Energy efficient Initiative by Coal India Ltd:

CIL has signed MoU with Energy Efficiency Services Limited (EESL) to promote energy efficiency provisions in CIL and its subsidiary companies. CIL has taken steps for using LED lights substituting CFL lights. All the electrical fittings of CIL's HQ at Rajarhat, Kolkata have been replaced by energy efficient LED fittings.

To promote, Green Initiatives taken by GoI, CIL has submitted Green Energy Commitment letter to MNRE for developing 1000 MW Solar Power Projects. For implementation of these projects, CIL has signed MoU with Solar Energy Corporation of India (SECI).

In the 1st phase, tender was floated for setting up of 2x100 MW Solar PV Project in the state of Madhya Pradesh. But, due to downward trend in prices of solar projects and availability of land in Madhya Pradesh Solar park, the tenders were cancelled and SECI is in the process of retendering the same in the state solar park of Madhya Pradesh.

CIL's initiatives had resulted in installation of more than 3 MW capacity in CIL HQ and its Subsidiary Companies.

15.4 Assessment of Impact of Coal Mining in different coalfields

CMPDI has introduced satellite surveillance for land reclamation monitoring of all the opencast mines from the year 2008-09. Land reclamation monitoring of 50 opencast projects having more than 5 million cu.m. capacity (coal+OB) and 42 OC projects producing less than 5 million cu.m. (coal+OB) have been completed based on high resolution satellite data during the year 2017-18. Monitoring of land reclamation status in larger capacity mines (> 5 million cubic metre) are carried out regularly on annual basis and smaller mines (< 5 million cubic metre) at three years interval.

During 2017-18, seven coalfields, viz. Rajmahal, Raniganj, Ib-Valley, Mand Raigarh, Sohagpur, Umrer and Pench-Kanhan have been studied for assessing the regional impact of coal mining on land use/vegetation cover. Land use/cover mapping of core and buffer zone of 20 projects have been completed during the year for generating baseline information for Environmental Management Plan. Monitoring of coal mine fire in Jharia, Raniganj, Karanpura and Bokaro coalfield, based on Thermal Remote Sensing data, has also been done for the year 2017-18.

16. COAL BED METHANE (CBM) / COAL MINE METHANE (CMM)

16.1 Collaborative commercial development of CBM in Jharia & Raniganj coalfields by the consortium of CIL & ONGC.

The Govt. has allotted two CBM blocks in 2002 namely Raniganj North CBM Block in Raniganj Coalfield and Jharia CBM Block in Jharia Coalfield to the consortium of ONGC-CIL on nomination basis for commercial development of CBM. ONGC is the Operator for both CBM blocks and carrying out the jobs as per contractual agreement with the Govt. of India and CMPDI provides technical support to CIL in this regard. On completion of CIL part of work programme by CMPDI and supplemented by appraisal activity by ONGC has resulted in formulation of Field Development Plan (FDP) by the Operator i.e. ONGC.

Government of India had approved the FDPs for both the CBM blocks in July, ' 2013. Petroleum Mining Lease (PML) for Jharia CBM block has been granted by Govt. of Jharkhand in July' 2015 whereas Environmental Clearance has been granted in April, 2017. FDPs are under revision as per the directive of MoP&NG considering the overlapping issues.

Model Co-development Agreement for Simultaneous Coal Mining and Coal bed Methane (CBM) Operations in the Overlapping Areas was issued by MoP&NG in February, 2017. Matter of Co-development agreement in regard to Jharia CBM Block in Parbatpur Central Coal Block for optimum exploitation of coal by SAIL and CBM by ONGC (operator of the CBM block) has been finalized and agreed by DGMS. SAIL has conveyed to ONGC to defer the execution of Co-Development Agreement till Mining Lease (ML) is granted to SAIL. ONGC through MoP&NG sought intervention for early execution of Co-Development Agreement. In pursuance to the Steering Committee meeting held on 30th March, 2017 at DGH Revised FDP and cost estimate taking in account all constraints have been prepared by ONGC and accordingly techno-economics has been done by ONGC. FR is under examination at ONGC.

In February, 2018, DGMS has communicated to ONGC that Directorate does not have any objections regarding resumption of CBM activities in the overlapping area between Parbatpur Coal block of SAIL and Jharia coal block of ONGC provided no underground working shall made at the west side of Fault F5-F5 after starting the CBM drilling operations. Thereafter, Hydro-Fracturing job has been undertaken in Well No. JH14 on 14th March, 2018 considering DGMS no objection.

16.2 CBM and Shale gas related studies under Promotional Exploration during 2017-2018:

16.2.1 CBM related studies:

CMPDI is carrying out studies related to "Assessment of Coalbed Methane Gas-in-Place Resource of Indian Coalfields/Lignite fields" through boreholes drilled during exploration. CBM specific data has been generated from eight boreholes during the year and achieved the target. This study will create the data base for assessment of CBM potentiality and facilitate delineation of more blocks for CBM development.

A report based on CBM related studies on Patratu ABC Block, South Karanpura Coalfield, Jharkhand has been prepared.



16.2.2 Shale gas related studies:

CMPDI is carrying out studies related to "Assessment of Shale Gas-in-Place Resource of Indian Coalfields/Lignite fields" through boreholes drilled during exploration. This study will create the data base for assessment of shale gas potentiality and facilitate delineation of more blocks for Shale Gas development. During the year 2017-18, studies in five boreholes have been completed.

16.2.3 Activities taken up by CBM Laboratory:

Relevant studies like Adsorption Isotherm (AI) studies for 78 numbers of coal samples, Total Organic Carbon (ToC) analysis for 51 number of Shale samples have been completed in addition to CBM studies in 8 boreholes and Shale gas studies in 5 boreholes. Further, analysis of 971 mine air samples received from different collieries of CCL have been completed and results submitted.

16.3 Commercial development of Coal Mine Methane (CMM)

Ministry of Coal vide Office Memorandum dated 29th July, 2015 has permitted CIL to explore and exploit CBM from its areas under coal mining lease allotted to Coal India Limited (CIL). Earlier MoC had made CMPDI the Nodal Agency for development of CMM in India. MoP&NG vide notification dated 3rd November, 2015 has issued guidelines for exploration and exploitation of CBM by Coal India Limited (CIL) and its subsidiaries from areas under coal mining lease allotted to CIL.

MoC has requested MoP&NG to issue modified guidelines considering exemption of applicability of the ORD Act and PNG Rules within coal mining leasehold areas, exemption of penalty in delay in submission of FDP & Production and permission to engage experienced technical developers or service contractor from India or abroad as third party for CBM exploitation, etc. CCEA has given its approval on 11th April, 2018 for issuing a notification amending clause 3(xiii).

Considering Govt. of India permission to CIL in July, 2015 to explore and exploit CBM from its areas under coal mining lease allotted to CIL, steps have been taken up by CMPDI/CIL for identification of potential areas initially in Damodar Valley coalfields within CIL mining leasehold which appears to hold comparatively better potential for CBM. Accordingly, one block each in Jharia coalfield (in BCCL command area) and in Raniganj coalfield (ECL command area) have been identified as prospective CBM/CMM blocks:

- 1) **Jharia CMM Block (BCCL Area):** A block of about 24.32 sq km clubbing Kapuria, Moonidih, Jarma and Singra blocks has been delineated for commercial development in the mining leasehold area of BCCL having CMM resource of 25.22 BCM. Project feasibility report has been prepared based on Reservoir Modelling & Techno-Economic studies and submitted to BCCL for further perusal.
- 2) **Pre-drainage of coal mine methane at Moonidih mine (BCCL), Jharia Coalfield:** Pre-drainage of methane at Moonidih mine (BCCL) in working Seam XVI has been proposed to recover methane to enhance production and safety and recovered gas may also be gainfully utilized. In this regard, a Pre-feasibility report on Pre-drainage of CMM from Moonidih UG mine in Jharia Coalfield has been prepared and submitted to BCCL for competent approval to incorporate Scope of Work for the Global Bid.

An Expression of Interest (EoI) was floated by CMPDI to identify suitable organization to undertake pre-drainage of methane from Moonidih mine of BCCL in Jharia Coalfield. 15 responses to the offers were received against this EoI. Bidder's meet was held on 10th May, 2017 at CMPDI, Ranchi in which 11 respondents of EoI participated which includes Service Provider/Developer from Australia, USA and Poland. Based on their inputs a draft Tender Specification Document (TSD) was prepared for selection of the suitable experienced developer/service provider through global e-Tendering for carrying out the first pilot project in India. Draft TSD was circulated to respondents and deliberated in the Pre-NIT meeting held on 7th Sept.'17 at CMPDI, Ranchi.

Accordingly, Global Bid Document has been prepared for "Pre-drainage of Coal Mine Methane (CMM) from Moonidih UG Mine". The draft Global Bid Document has been sent to DGH for "Peer Review" also. DGH suggested that E&P of CBM in Moonidih mine can be done pursuant to extant Govt. of India notification dated 3rd Nov.'15 in this regard and CBM/CMM should be sold under the domain of ORD Act 1948. BCCL may enter into an agreement with Govt. of India on lines similar to the CBM contracts, on a nomination basis because it already holds the coal mining lease. It was also pointed out for methane drainage at Moonidih UG mine permission from MoP&NG is required in pursuant to extant Govt. of India notification dated 3rd Nov.'15. On approval of the BCCL Board, NIT will be published to invite Global e-tender for selection of the suitable experienced developer/service provider.

- 3) **Raniganj CMM Block (ECL Area):** An area of about 57 sq km under mining leaseholds of Sripur, Satgram and Kunustoria Areas of ECL in Raniganj Coalfield has been delineated for commercial development of CMM having CBM resource of 3.93 BCM. Project feasibility report has been prepared based on Reservoir Modelling & Techno-Economic studies and submitted to ECL for further perusal. Considering constraints like Mining lease below Damodar river, limited access of free land & high cost of land required for acquisition, overlapping with GEECL, extensive old working above potential coal seam for CBM etc. it appears that the identified area may be technologically challenging for CBM/CMM extraction.

16.4 CMM/CBM Clearinghouse in India

A CMM/CBM clearinghouse was established at CMPDI, Ranchi under the aegis of Ministry of Coal and USEPA on 17th November, 2008. The clearinghouse is functioning as the nodal agency for collection and sharing of information on CMM/CBM related data of the country and help in the commercial development of CMM Projects in India by public/private participation, technological collaboration and bringing financial investment opportunities.

The clearinghouse has been established with financial support from Coal India Ltd. on behalf of Ministry of Coal and US EPA. The website of India Clearinghouse, <http://www.cmmclearinghouse.cmpdi.co.in>, encompasses all the important information viz. EoI notifications, newsletters in addition to information regarding opportunities existing for development of CMM, VAM, etc. After completion of initial three years term it was extended for another three years thereafter. USEPA had further extended support for additional term i.e. three years upto 2017. US EPA is intended to extend their support for 2018-21 (3 Yrs).



17. Commercial development of Underground Coal Gasification (UCG)

MoC has constituted Inter Ministerial Committee (IMC) for identification of areas for UCG on the line broadly similar to the existing policy of CBM development. Potential blocks in coal (7) and lignite (7) were identified and considered in the IMC for the commercial development of UCG preferably by PSUs. Identified Coal blocks for UCG development are in Wardha Valley Coalfield (Jogapur-Sirsi), Sohagpur Coalfield (Maiki (North)-Maiki-Merkhi, Pathora, Chainpa), Tatapani-Ramkola Coalfield (Reonti-West), Godavari Coalfield (Yelendu) and Singrauli Coalfield (Bandha).

Model Bid Document & Model Contract Document for Development of UCG has been submitted to MoC for consideration. A coal block (Kasta West) in Raniganj Coalfield under ECL Command area has also been identified to undertake Pilot Scale UCG Project under R&D model in association with ECL/CMPDI/CIL.

18 S&T and R&D Projects

18.1 Projects on Coalbed Methane

18.1.1 S&T Project on "CBM Reserve Estimation for Indian coalfields"

A S&T project on "CBM Reserve Estimation for Indian coalfields" is under implementation where IEST, Shibpur is the main implementing agency and NGRI, Hyderabad, CMPDI and TCE, Kolkata are sub implanting agencies. This project is approved under EoI of Coal S&T project of MoC. The project is of 3 years duration with the revised completion schedule of March, 2019. Draft report of 2D Seismic survey conducted in South Karanpura Coalfield has been submitted by NGRI where 5 sq km area has been delineated for 3D seismic survey which is likely to be undertaken by NGRI by December, 2018.

18.1.2 S&T Project on "Capacity Building for Extraction of CMM Resource within CIL Command Areas"

A S&T project on "Capacity Building for Extraction of CMM Resource within CIL Command Areas" has been approved under Coal S&T project of MoC and is under implementation. CMPDI is the implementing agency and CSIRO, Australia is sub-implementing agency. The project completion schedule is March, 2019. The technical specification for laboratory equipment have been finalized in association with CSIRO and equipment are under procurement. Training of CBM Personnel and CBM Lab Personnel took place by CSIRO on laboratory procedures and field testing protocols.

18.2 Project on Shale Gas

18.2.1 S&T Project on "Shale gas potentiality of Damodar Valley basins of India"

A S&T project on "Shale gas potentiality of Damodar basin of India" under S&T plan of Ministry of Coal (MoC) is under implementation. The project objective is to evaluate Damodar basin for their shale gas potentiality through integrated geophysical, geological, geo-chemical and petro-physical investigations. The revised completion schedule is November, 2018.

NGRI along with CMPDI & CIMFR selected Rangamati B block (Tumni & Kanchanpur Sector), Raniganj Coalfield and 3D seismic survey in 2.4 sq km out of total 3.2 sq km area has been completed. Four boreholes have been proposed by NGRI for validation of interpretation. 3D seismic survey has started in Radhanagar block, Jharia Coalfield. On completion of 3D Seismic Survey findings, CMPDI will take up its part of committed activities i.e. drilling of deep boreholes.

18.3 Project on VAM

18.3.1 CMPDI has formulated a project jointly with CSIRO titled "Abatement and utilization of Ventilation Air Methane (VAM) from working underground degree - III coal mine in India". The implementing agencies for the project will be CSIRO and CMPDI with BCCL as a sub-implementing agency. Identified project mine is Moonidih Underground Mine in Jharia Coalfield of Bharat Coking Coal Ltd. (BCCL). CIL R&D Board has approved, in principle, the project with 100% retroactive funding at present and in due course 40% should be reimbursed from National Clean Energy & Environment Fund (NCEEF) for project duration of 36 months. CSIRO was requested to prepare a draft collaborative agreement which is to be signed between CMPDI and CSIRO.

19. GEOLOGICAL EXPLORATION & DRILLING

CMPDI has substantially improved the capacity of drilling during XI & XII plan period. As against the achievement of 2.09 lakh metre in 2007-08, CMPDI has achieved 5.63 lakh metre in 2012-13, 11.26 lakh metre in 2016-17 and 13.66 lakh metre achieved in 2017-18 (Growth of 21% over 2016-17) through departmental resources and outsourcing.

19.1 Drilling Performance in 2017-18

CMPDI deployed its departmental resources for detailed exploration of CIL/Non-CIL blocks whereas State Govts. of MP and Odisha deployed resources in CIL blocks only. Besides, eight other contractual agencies have also deployed resources for detailed drilling/exploration in CIL/Non-CIL blocks. A total of 140 to 160 drills were deployed in 2017-18 out of which 66 were departmental drills.

Apart from it, CMPDI continued the technical supervision of Promotional/NMET Exploration work undertaken by MECL in Coal Sector (CIL Areas) in 8 blocks. Apart from it, DGM(Nagaland) has also undertaken Promotional Exploration in 1 block & CMPDI in 2 blocks in Coal Sector on behalf of Ministry of Coal. Promotional/NMET Exploration work were undertaken by MECL in Lignite Sector in 5 blocks & GSI in 1 block. A total of 1.35 lakh metre of Promotional (Regional) drilling was carried out in Coal (0.93 lakh metre) & Lignite (0.42 lakh metre) during 2017-18 through CMPDI.

In 2017-18, CMPDI and its contractual agencies took up exploratory drilling in 118 blocks/mines of 18 coalfields situated in 6 States. Out of 118 blocks/mines, 42 were Non-CIL/Captive blocks and 76 CIL blocks/mines. Departmental drills of CMPDI took up exploratory drilling in 50 blocks/mines whereas contractual agencies drilled in 68 blocks/mines.



19.2 Geological Reports:

In 2017-18, 23 Geological Reports were prepared on the basis of detailed exploration conducted in previous years. The prepared Geological Reports have upgraded about 5.0 Billion Tonnes of additional coal resources to 'Proved' category.

Under Promotional Exploration Programme, GSI and MECL have submitted 3 Geological Reports on coal blocks, established about 0.89 Billion Tonnes of coal resources, in 'Indicated' & Inferred categories, above specified thickness.

19.3 Hydrogeology

Hydrogeological studies of a number of mining projects/mines were taken up for preparation of 'Groundwater Clearance Application' for CGWA approval and EMP clearance. Hydrogeological studies for 18 mining projects were completed during the year and studies for 7 mining projects were in progress.

49 nos. of Hydrogeological studies on GR/PR and others have been completed during this period. 7 nos. of Hydrogeological reports on Location and Design of Piezometers have been prepared and submitted. Hydrogeological studies in 9 projects have been carried out for water supply arrangement to mines, colony and villages.

19 nos. of Groundwater Applications have been prepared and submitted online for WCL. Hydrogeological investigation for slope failure of benches at Juna-Kunada OCM, WCL was also carried out.

CMPDI is carrying out groundwater monitoring of MOEF cleared projects (74 nos. of mines of WCL area and 15 nos. Cluster of mines in BCCL area). Water level monitoring in other areas of ECL, CCL, SECL, NCL and MCL were also carried out.

19.4 Geophysical survey

Geophysical Logging: Boreholes drilled for exploration purposes were geophysically logged to get the in-situ information of different strata encountered in the boreholes. During the year 2017-18, a total of 3,41,422 metre of geophysical logging has been carried out for this purpose in CIL and Non-CIL projects with multi-parametric geophysical logging equipment. Out of this, 1,33,674 metre depth of logging was done by 6 departmental geophysical logging units and 2,07,748 metre depth of logging was carried out by contractual agencies.

Surface Geophysical Surveys: CMPDI has also undertaken Electrical Resistivity & Magnetic Survey in CIL and Non-CIL blocks for delineation of In-crop of coal seams, delineation of dykes and ground water investigation. A total of 272.1 line km of Resistivity profiling, 207 Vertical Electrical Sounding (VES) and 126.26 line km of Magnetic survey have been carried out in 2017-18 for such purpose. With the 48-Channel signal enhancement Seismographs, a total of 122 line km of High Resolution Shallow Seismic (HRSS) survey has been carried out in Bartara block, Sohagpur Coalfield, Gautamdhara and Block-IV blocks in Ib valley Coalfield and Sakhigopal-A block, Talcher Coalfield.

The State of the art PARADIGM software for processing and interpretation of 2D Seismic data has been installed at CMPDI and all the Seismic reports henceforth will be prepared by utilizing this programme.

Reports : A total of 23 Geophysical reports have been submitted during the year 2017-18. It includes five reports on geophysical logging, twelve on resistivity survey, and four on magnetic survey. In addition, two number of reports on HRSS survey in Kewai and Baheraband blocks of Sohagpur Coalfield were also submitted in 2017-18.

20. OUTSIDE-CIL CONSULTANCY SERVICES

During the year 2017-18, 41 outside-CIL consultancy jobs were successfully completed by CMPDI for 31 organisations outside CIL. Some of the major clients/organizations are NTPC Ltd., MOIL Ltd., Maharashtra State Power Generation Co. Ltd. (MAHAGENCO), THDC India Ltd., Odisha Coal and Power Limited (OCPL), Gujarat State Electricity Corporation Limited (GSECL), Madhya Pradesh Power Generating Co. Ltd. (MPPGCL), etc.

Presently, 29 outside-CIL consultancy jobs are being executed by CMPDI for 16 organisations like OCPL, NALCO, NTPC Ltd., SAIL, NLC India, THDC India Ltd., National Mineral Development Corporation (NMDC), Jharkhand State Mineral Development Corporation (JSMDC), Odisha Mining Corporation Ltd. (OMC), PFC Consulting Limited (PFCL), HINDALCO, Talcher Fertilizers Ltd., etc.

During the year 2017-18, 47 outside-CIL consultancy jobs worth ₹ 66.77 crores were procured by CMPDI from 27 organizations which includes consultancy jobs from Ministry of Coal, PSUs/Govt. Organizations and Private Companies.

21. RESEARCH & DEVELOPMENT PROJECTS

21.1 R&D Projects under S&T Grant of Ministry of Coal

The Research & Development (R&D) activity in Coal Sector is administered through an Apex Body namely, Standing Scientific Research Committee (SSRC) with Secretary (Coal) as its Chairman. The other members of this Apex Body include Chairman of Coal India Limited (CIL), CMDs of Central Mine Planning & Design Institute Limited (CMPDI), Singareni Collieries Company Limited (SCCL) and NLC India Limited (NLCIL), Director General (DG) of Directorate General of Mines Safety (DGMS), Director General of Council of Scientific & Industrial Research (CSIR), representatives from Department of Science & Technology; Adviser Energy, NITI Aayog; Director, CMIFR, Dhanbad and Director, TERI. The main functions of SSRC are to plan, program, budget, approve new research projects, oversee their implementations and seek application of the R&D findings in actual field condition.

The SSRC is assisted by a Technical sub-committee headed by CMD, CMPDI. This sub-committee deals with new research proposals related to production, productivity and safety in coal mines, coal beneficiation and utilization, clean coal technologies, protection of environment and ecology, etc.



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CMPDI acts as the Nodal Agency for co-ordination of research activities in the coal sector, which involves identification of Thrust Areas for research activities, identification of agencies which can take up the research work in the identified fields, scrutiny and processing the proposals for Government approval, preparation of budget estimates for research activities, disbursement of fund to implementing agencies based on the progress of the project and monitoring the progress of the projects, etc.

- Total no. of S&T projects taken up (till 31.03.2018) - 396 nos.
- Total no. of S&T projects completed (till 31.03.2018) - 321 nos.

21.1.1 Physical performance

The status of Coal S&T projects during 2017-18 is as under:

(in nos.)

i)	Projects on-going as on 1.4.2017	13
ii)	Projects approved by SSRC	6
iii)	Projects completed	2
iv)	Projects on-going as on 01.4.2018	17

21.1.2 Following coal S&T projects were approved during 2017-18:

1. Indigenous development of early warning radar system for predicting failures/slope instabilities in open cast mines - SAMEER, Mumbai; ARDE, Pune; CSRE; IIT, Mumbai; CMPDI, Ranchi and NCL, Singrauli.
2. Design of water network to optimize water consumption in coal washeries for removal of impurities from coal - IIT, Roorkee; CMPDI, Ranchi & CCL, Ranchi.
3. Electronification of ground water control and conveyor systems in mines - NLC India Ltd., Neyveli and NITT, Tamil Nadu.
4. Design and Stability of Pillars/Arrays of Pillars for Different Mining Methods in Coal Mine Workings - CIMFR, Dhanbad; IIT-ISM, Dhanbad; CMPDI, Ranchi; SECL, Bilaspur; BCCL, Dhanbad and SCCL, Kothagudem.
5. Hybrid PRESRIX process for simultaneous remediation of acid mine drainage and recovery of individual metal sulphides - IIT, Roorkee; NEC, Margherita and SCCL, Kothagudem.
6. Reclamation of coal mined land of North Eastern Coalfields, Assam through soil amendment and revegetation with native plant species using integrated biological approach - Rain Forest Research Institute (RFRI), Jorhat and NEC, Margherita.

21.1.3 Following Coal S&T projects were completed during 2017-18:

1. Development of an on-line coal washability analyser - CIMFR, Dhanbad and M/s Ardee Hitech Pvt. Ltd., Vishakhapatnam.
2. Sustainable livelihood activities on reclaimed open cast coal mines: a technology enabled integrated approach in Indian coal sector - TERI / TERI University, New Delhi; CMPDI, Ranchi and BCCL, Dhanbad.

21.1.4 Financial Status :

Budget provisions vis-à-vis actual fund disbursement during the period are given below:

(in ₹ Crores)

2016 -17		2017 -18	
BE	Actual	BE	Actual
10.0 (Including NER - 1.0)	10.38	10.0 (Including NER - 1.0)	11.50

21.2 CIL R&D Projects

R&D Board of CIL, headed by Chairman, CIL is responsible for in-house R&D activities of CIL. The R&D Board is assisted by an Apex Committee headed by Director (Tech.), CIL. CMPDI acts as the Nodal Agency for preparation of budget estimates for research activities, evaluation of new project proposal, disbursement of fund to implementing agencies based on the progress of the project and monitoring the progress of the projects till their completion, etc.

In order to enhance R&D base in command areas of CIL, the CIL Board in its meeting held on 24th March 2008 has delegated substantial powers to CIL R&D Board and also to the Apex Committee of the R&D Board. The Apex Committee is empowered to sanction individual R&D project upto ₹ 5.0 Crore value with a limit of ₹ 25.0 Crore per annum considering all the projects together whereas CIL R&D Board is empowered to sanction individual R&D project up to ₹ 50.0 Crore with a limit of ₹ 500.0 crore in a year.

So far, 86 projects have been taken up under the fund of CIL R&D Board, out of which 62 projects have been completed till March, 2018.

The status of CIL R&D Board Projects during 2017-18 is as follows:

- | | | | |
|-------|---------------------------------------|---|----|
| (i) | Projects on-going as on 1.4.2017 | - | 14 |
| (ii) | Projects approved by R&D Board of CIL | - | 7 |
| (iii) | Projects on-going as on 1.4.2018 | - | 21 |



21.2.1 Following new R&D projects were approved during 2017-18:

1. Design of cost effective process flowsheet for improved washing efficiency of Indian Coking and Non-coking coals - IIT-ISM, Dhanbad; CMPDI, Ranchi and BCCL, Dhanbad (Technical collaboration with University of Newcastle (NIER Centre), Newcastle, Australia).
2. Development of Guidelines for increasing the height of overburden dumps at opencast coal mines in India - IIT-ISM, Dhanbad and CMPDI, Ranchi (Technical Participation - University of Queensland, Brisbane, Australia).
3. High ash coal gasification and associated upstream and downstream processes (Coal to Chemicals, CTC) - IIT-ISM, Dhanbad; IIT-Roorkee; CMPDI, Ranchi; MCL, Sambalpur; ECL, Sanctoria and CCL, Ranchi (Technical collaboration of IIT-ISM, Dhanbad with Australian Universities viz. i) Curtin University, Perth, Western Australia, ii) University of Melbourne, Melbourne, Victoria and iii) Monash University, Clayton, Victoria).
4. Assessment of applicability and performance of Ground based Interferometry Synthetic Aperture Radar (GInSAR) in safety zoning of surface mining slopes - IIT, Kharagpur and ECL, Sanctoria.
5. Optical fiber based solar illumination of pit bottom and underground mine roadways and working face - IIT, Kharagpur and ECL, Sanctoria.
6. Development of Virtual Reality Mine Simulator (VRMS) for improving safety and productivity in coal mines - IIT-ISM, Dhanbad; CMPDI, Ranchi; BCCL, Dhanbad; NCL, Singrauli and SIMTARS, Australia.
7. Dry Beneficiation of High Ash Indian Thermal Coal - National Metallurgical Laboratory (NML), Jamshedpur; CMPDI, Ranchi and MCL, Sambalpur.

21.2.2 The disbursement of fund for CIL R&D projects during 2017-18 was ₹ 59.24 Crore.

21.2.3 New initiatives:

Application of drone technology was tested for the first time in CIL on pilot scale. Drone based sensors were used in two projects of CCL namely, Rajrappa and Topa for monitoring of land reclamation and identification of sites of illegal mining, respectively. In NCL, drone based sensors were used in four projects namely, Jayant, Nigahi, Dudhichua and Amlohri for generation of ortho-photo, contours, DTM and computation of stockpile volume. The results in all the above cases were very encouraging and would lead to adoption of this technology for regular use after the Govt. of India's policy on drone/UAV is released.

22. INFORMATION AND COMMUNICATION TECHNOLOGY IN CIL

CIL and its subsidiaries have utilized Information and communication technology to achieve faster strategic decision making and optimal utilization of available resources for enhancing production and productivity. Systems have been introduced to minimize pilferage of coal and also to increase transparency for the satisfaction of its stakeholders. In this regard, the following key initiatives have been taken:

1. E-office application for CIL and its Subsidiaries is implemented. The project intends to enhance the business process management of the organization and aims to improve production, productivity, and increase transparency by replacing the old manual process with an electronic file system. WAFA (Work Anytime from Anywhere) has also been implemented to provide access to users of E-office from any location beyond the office hours.
2. Coal India has digitized more than 80 Lakhs of documents at its corporate Hq to create a knowledge base under the project DDMA (Document digitization and Archival Management).
3. The subsidiaries have CoalNet and other Information systems in place for obligatory accounting, finance, payroll, material management system and other business functions.
4. CIL has introduced mobile Apps like SEVA, GSKV for the benefit of its regular customers as well as Power sector customers.
5. CIL has introduced an e-portal for Coal quality monitoring also for its customers.
6. Coal India is also in the process of implementation of ERP at CIL and Pilot subsidiaries. Tender for selection of the Service Integrator for the ERP has been floated and in the process of finalization.
7. GPS based Operator Independent Truck Dispatch System (OITDS) with high speed Data and Voice communication is implemented in the targeted eleven Open cast projects to optimize operation of HEMM to enhance the production and productivity of the mine.
8. GPS/GPRS based Vehicle Tracking System across all major mines of Coal India has been implemented at different subsidiaries along with Geo-fencing, boom barriers and RF-ID system to monitor coal transportation and to minimize pilferages.
9. Electronic Surveillance through CCTV at weighbridges, workshops, coal dumps and other strategic locations has been implemented and process has been initiated to cover all projects.
10. Coal India has introduced an e-portal on Contract Labour Information system to keep an eye on fair payment to Contract workers deployed at various locations.
11. Biometric attendance system has been introduced in most parts of CIL and its subsidiaries.
12. In order to improve coal dispatch, electronic weighbridges are connected with Central Servers of respective subsidiaries and initiatives have been taken up for implementing online generation of Challans/invoices.
13. E-Auction of coal, E-procurement and Reverse auction systems for all goods, works and services have been implemented to speed up procurement process and to achieve transparency in the system.



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14. E-payment to employees and vendors, E-filing of grievances are in operation to embark upon the business process through IT initiatives.
15. Corporate Mail Messaging System is in place for corporate email IDs to all the officers of Coal India and its Subsidiaries.
16. In order to meet the demanding business process, state-of-art IP based EPABX with support of convergent technology for voice and data, Radio communication System and UG communication system at different locations of Coal India and its subsidiary companies are operational.
17. The Web Portal of Coal India is in place in English and Hindi encompassing the features like Tender publication, Vigilance corner, Investor center, Customer corner, etc. to facilitate all stake holders.
18. Multi-Protocol Layered Switching (MPLS) based Video Conferencing between CIL, Subsidiaries, CIL HQ, CIL Office, Delhi and MoC for enhancement of decision making process for better production and productivity has been successfully implemented. CIL and subsidiaries have also implemented Video Conferencing connectivity with External agencies across the globe.
19. CIL has implemented in-house online portals for Performance evaluation, quality analysis, Vigilance clearance, Land Information System, filing of Annual Property Return through web enabled system.
20. State-of-art Tier-III Data Center has been established in New building of the corporate office of Coal India Limited for facilitating future IT applications.

23. MINES SAFETY

23.1: Statutory Frame-work for safety in coal mines:

Coal mining, world over, is highly regulated industry due to presence of many inherent, operational and occupational hazards and associated risks. Coal Mine Safety Legislation in India is one of the most comprehensive and pervasive statutory framework for ensuring occupational health and safety (OHS). Compliance of these safety statutes is mandatory.

In India, the operations in coalmines are regulated by the Mines Act- 1952, Mines Rules -1955, Coal Mines Regulations-2017 and several other statutes framed thereunder. Directorate-General of Mines Safety (DGMS) under the Union Ministry of Labour & Employment (MOL&E) is entrusted to administer these statutes. The following are the statutes that are applicable in coal mines for occupational health and safety (OHS).

SN	Statute
1	The Mines Act -1952
2	The Mines Rules -1955
3	The Coal Mines Regulations - 2017
4	The Mines Rescue Rules -1985
5	The Electricity Act- 2003
6	Central Electricity Authority (measures rel. to safety & supply) Regulations - 2010
7	The Mines Vocational Training Rules -1966
8	The Mines Crèche Rules -1966
9	Indian Explosive Act, 1884
10	The Explosive Rules - 2008
11	Indian Boiler Act, 1923
12	Mines Maternity Benefit Act & Rules -1963
13	The Workmen Compensation Act - 2009
14	The Factories Act - 1948 Chapter -III & IV

23.2 : Safety Policy of CIL : Safety is always given prime importance in the operations of CIL as embodied in the mission statement of CIL. CIL has formulated a well-defined Safety Policy for ensuring safety in mines and implementation of the same is closely monitored at several levels.

- 1) Operations and systems will be planned and designed to eliminate or materially reduce mining hazards;
- 2) Implement Statutory Rules and Regulations and strenuous efforts made for achieving superior standards of safety;
- 3) To bring about improvement in working conditions by suitable changes in technology;
- 4) Provide material and monetary resources needed for the smooth and efficient execution of Safety Plans;
- 5) Deploy safety personnel wholly for accident prevention work;
- 6) Organize appropriate forums with employees' representatives for joint consultations on safety matters and secure their motivation and commitment in Safety Management;
- 7) Prepare annual Safety Plan and long term Safety Plan at beginning of every calendar year, unit-wise and for the company, to effect improved safety in operations as per prevailing geo-mining conditions to prepare the units for onset of monsoon, to fulfill implementation of decisions taken by Committee on Safety in Mines and Safety Conferences and to take measures for overcoming accident proneness as may be reflected through study of accident analysis, keeping priority in sensitive areas of roof-falls, haulage, explosives, machinery etc.



- 8) Set up a frame work for execution of the Safety Policy and Plans through the General Managers of Areas, Agents, Managers and other safety personnel of the units;
- 9) Multi-level monitoring of the implementation of the Safety Plans through Internal Safety Organization at the Company Headquarters and Area Safety Officers at area level;
- 10) All senior executives at all levels of management will continue to inculcate safety consciousness and develop involvement in practicing safety towards accident prevention in their functioning;
- 11) Institute continuous education, training and retraining of all employees with the emphasis laid on development of safety oriented skills;
- 12) Continue efforts to better the living conditions and help all the employees both in and outside the mines.

To implement CIL Safety Policy, the following are provided:

1. Provision of adequate funds for safety.
2. Deployment of adequate numbers of trained manpower for ensuring safety in mining operations.
3. A well-structured and multi-disciplinary Internal Safety Organization (ISO) established in all the subsidiaries of CIL to monitor implementation of CIL's Safety Policy.
4. Continuous and sustained improvement in technological inputs for mining operation.
5. Support of scientific planning and R&D activities made available through in-house expertise of CMPDIL and in collaboration with the other scientific agencies and reputed educational institutes.
6. Ensuring workers' participation in every forum for monitoring safety in mines.

23.3: Accident Statistics

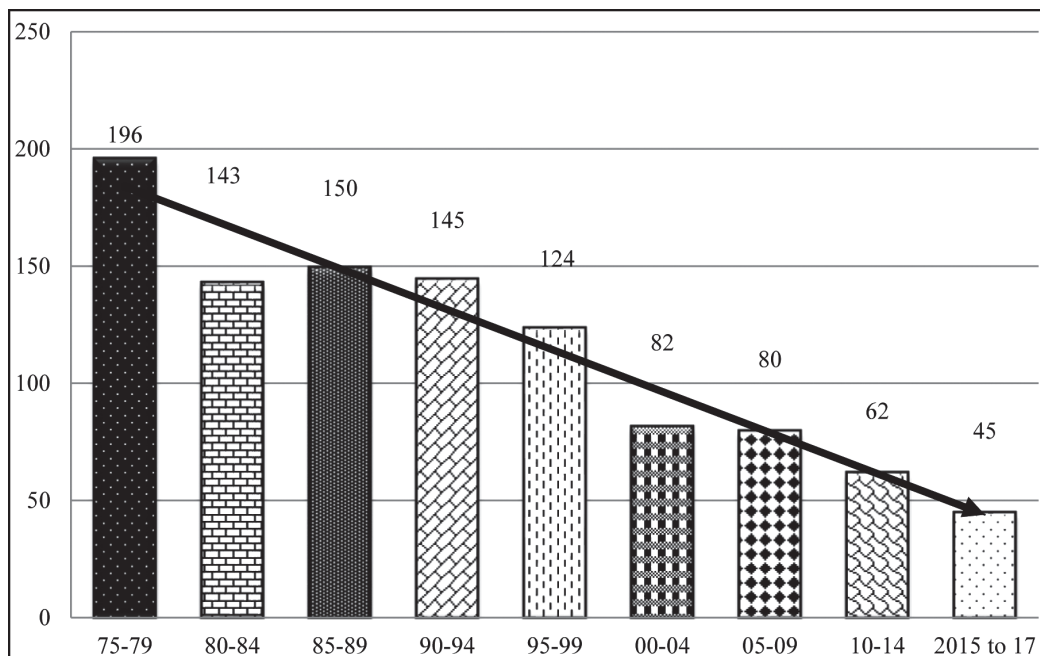
Analysis of Accident Statistics in CIL - Accidents statistics is the relative indicator for safety status in mines. Over the years, the safety performance of CIL has improved significantly.

This improvement in mine safety in CIL is attributed to the following factors:

- Collective commitment and synergetic collaboration of the Management, Employees, the regulator (DGMS) and Trade Unions.
- Use of state-of-the-art technology in the field of Mining Methods, Mining Machineries and Safety Monitoring Mechanism.
- Continuous improvement in knowledge, skill and responsiveness of workforce through imparting excellence safety training and persistent safety awareness drives.
- Constant vigil, round-the-clock supervision and supports from various agencies.

Salient features of continuous and sustained improvement in CIL's safety performance is disclosed in **Annexure 18**.

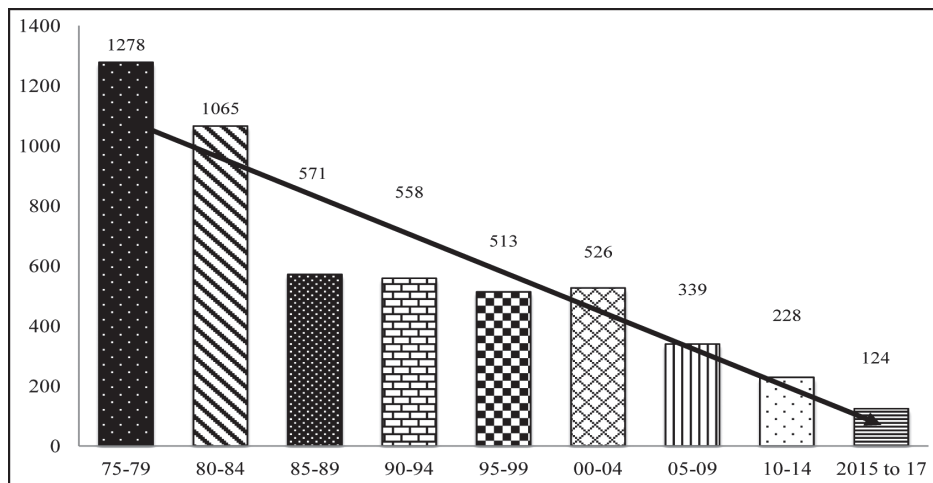
Graph -1 - Trend of 5 Yearly Average of fatalities in CIL since 1975





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23.4 Major Job Activities for Safety & Rescue Division of CIL:

1. Appraising the higher authority regarding any matter pertaining to mine safety.
2. Monitoring implementation of Safety Policy of CIL in different subsidiaries through ISO.
3. Regular inspection to monitor safety status of mines.
4. Conduct preliminary inquiry into incidences such as mine fire, in-rush of water, slope failure etc. as well as all fatal accidents.
5. Monitor the safety related to MOU performance of all subsidiaries as well as CIL.
6. Organizing CIL Safety Board meeting and National Dust Prevention Committee (NDPC) meeting at corporate level and monitoring the implementation of recommendations made during these meetings.
7. Imparting advanced and specialized training (on preparation of risk based Safety Management Plan) to unit level and Area level executives of different subsidiaries with help of the executives who are accredited by SIMTARS (Safety in Mines, Testing and Research Station), Australia.
8. Liaison with MOC, DGMS, National Safety Council (NSC), Bureau of India Standards (BIS) and different educational and research/scientific institutes.
9. Issuance of internal technical circulars and guidelines related to different safety issues and monitoring their implementation.
10. Prepare safety aspects for the Annual Report of Board of Directors and MOC.
11. Prepare Agenda Notes related to mine safety for meeting of CMDs, FDs and Board of Directors of CIL.
12. Maintenance of Accidents Statistics / Database.
13. Reply of different parliamentary questions related to mine safety.
14. Reply to different queries on mine safety raised by different standing committees such as standing committee on Coal & Steel, Standing Committee on Energy, Standing committee on Labour, PCCM as well as questions raised by COPU, MOC, CA&G and VIPs from time to time.
15. Initiate and monitor safety related R&D projects in CIL.
16. Monitoring Rescue Infrastructure and their preparedness.
17. To monitor implementation status of recommendation of different court of inquiries constituted under section 24 of the Mines Act- 1952.
18. To monitor implementation status of recommendation of National Safety Conferences.
19. To co-ordinate with all Internal Safety Organisation (ISO)s on various matters related to safety.
20. Quarterly publication of Safety Bulletin for disseminating and sharing of knowledge in order to promote safety awareness and inculcate better safety culture.
21. Instant sharing of incidences/accidents amongst subsidiary personnel for immediate corrective action and prevention.
22. Intense awareness drive during "Meri Company Mera Gaurav" celebrations in all subsidiaries.
23. One day workshop on Mine safety at area and subsidiary level in the month of February 2018.

23.5 Measures for improvement of Mine Safety in 2017-18.

CIL has vigorously pursued several measures in the year 2017 alongwith on-going safety related initiatives, apart from compliance of statutory requirements for enhancing safety standard in mines of CIL and its Subsidiaries, which are given below:

- **Conducting Safety Audit:** Safety Audit of all operating mines of CIL has been conducted through multi-disciplinary Inter-Company Safety Audit teams in 2017 for assessing safety status of mines and violations pointed out during the said safety audits are being rectified as per the stipulated timeline.



- **Online Safety Monitoring System:** Online Centralized Safety Monitoring System "CIL Safety Information System (CSIS)" has been developed and uploaded in CIL website. Relevant safety related information from each mine is being uploaded in the same system on continual basis for better safety management.
- **Imparting Special Training by SIMTARS, Australia accredited Trainers:** Executives who had undergone specialized training on Risk Assessment from SIMTARS, Australia are engaged in imparting training and upgrading the knowledge of Mine level executives as well as Members of Safety Committees of individual mines to identify the hazards and evaluate the associated Risks in the mines so as to prepare Risk assessment based Safety Management Plans (SMPs), Principal Hazards Management Plans (PHMPs) and Standard Operating Procedures (SOPs).
- **Establishment of Geo-Technical Cell in all subsidiaries -** Geo-Technical cells have been established in all subsidiary HQ headed by a senior level officer of Mining Discipline and assisted by adequate number of Multi - Disciplinary technical experts including Geologist.
- **Safety Management Plans (SMPs) -** Site-specific risk assessment based SMPs has been prepared for each mine of CIL by involving mine officials and workmen and the same are being updated on continual basis. The process of Risk Assessment in mines is continuous and on-going for improving Safety Standards of Mines on real time basis. All SMPs are being monitored through ISO of each subsidiary.
- **Principal Hazards Management Plans (PHMPs):** Principal Hazards Management Plans (PHMP) are also being formulated as a part of Safety Management Plan (SMP) to avert any mine disaster or major mine accident. Recommended control measures thereof in form of Trigger Action Response Plan (TARP) are being implemented to safety deal with emergency, if any.
- **Standard Operating Procedures (SOPs):** Site-specific, Risk Assessment based Standard Operating Procedures (SOPs) for all Mining and Allied operations are framed and implemented. The same are being updated on continual basis to cater to the changing mine dynamics.
- **Conducting Special Safety Drives on different Safety Issues:** Special Safety drives on different safety matters are being organized to improve safety standard of mines and enhance safety awareness amongst employees.
- **OB dump Stability Study:** Assessment of OB Dumps and Benches have been conducted thoroughly by using expertise of CMPDIL and multi-disciplinary ISO teams in most of the opencast mines. Corrective actions are being taken based on the findings of aforesaid assessment.
- **Guidelines on corrective measures:** Several directives / guidelines on corrective measures for prevention of recurrence of similar type of accidents/incidences in future are being issued by the Safety & Rescue Division of CIL, after analysis of fatal accidents.

Apart from the above specific actions, the following are on-going measures for improving safety standards:

1. **Emphasis on adoption of the state-of-the art technology in suitable geo-mining locales.**
 - a. Adoption of Mass Production Technology (MPT) in more number of UG mines.
 - b. Deployment of more number of Surface Miners to eliminate blasting operation in OCPs.
 - c. Deployment of relatively higher capacity HEMM in more number of OCPs.
 - d. Mechanization of UG drilling.
 - e. Phasing out manual loading in UG mines.
2. **Adoption of the state-of-the art mechanism for Strata Management**
 - a. Scientifically determined Rock Mass Rating (RMR) based Strata Support System.
 - b. Strata Control Cell for monitoring efficacy of strata support system.
 - c. Mechanized Drilling for Roof bolting.
 - d. Use of Resin Capsules in place of Cement capsules.
 - e. Use of modern Strata Monitoring Instruments.
 - f. Imparting quality training to support crews & front-line mine officials, supervisors & grass root level workmen.
3. **Mechanism for monitoring of mine environment:**
 - a. Detection of mine gases by using Methanometer, CO-detector, Multi-gas detector etc.
 - b. Continuous monitoring of mine environment by installing Environmental Tele Monitoring System (ETMS) & Local Methane Detectors (LMD) etc.
 - c. Regular Mine Air Sampling and Analysis by Gas Chromatograph.
 - d. Personal Dust Sampler (PDS).
 - e. Use of Continuous Ambient Air Quality Monitoring System (CAAQMS) in large OCPs to assess the ambient dust concentration and take suitable mitigative measures.
4. **Strengthening Water Danger Management:**
 - a. Conducting Check Survey & Joint Survey to eliminate errors in mine survey.
 - b. Preparation and maintenance of seam-wise Water Danger Plan.
 - c. Preparation and implementation of Monsoon Action Plan.
 - d. Adequate Pumping Facilities with adequate capacity of Sumps.
 - e. Liaison with the State Meteorological Dept. & Dam Authority.
 - f. Construction of Embankments with proper design against water bodies.
 - g. Inter-mine joint survey between adjoining mines to prove inter-mine barriers to prevent transference of danger.



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5. Training on Mine Safety & Skill Upgradation:

- Initial and Refresher training & On-the-Job Training as per statute.
- Training on Simulators to dumper operators.
- Skill up-gradation of frontline mining supervisors / officials on continual basis.
- Specific training of all employees including Members of Safety Committees and contractual workmen on continual basis.

6. Mine Safety Inspection:

- Round-the-clock Supervision of all mining operations by adequate number of competent & statutory Supervisors and mine Officials.
- Periodic mine Inspections by Head Quarter and Area level senior officials.
- Surprise back shift mine Inspections by mine and area level officials.
- Regular Inspection by Workmen Inspectors appointed in each mine.
- Regular mine Inspection by officials of Internal Safety Organization of respective subsidiary and CIL.

7. Steps for prevention accidents in OCPs:

- Formulation and Implementation of Mine-specific Traffic Rules.
- Code of Practices for HEMM Operators, Maintenance staff & others.
- Special training of Contractor's Workmen involved in contractual jobs.
- Training imparted to dumper operators on Simulators.
- Lighting arrangement using high mast towers for enhancement of illumination as per stipulated guidelines.
- Eco-friendly Surface Miners for blast free mining and avoidance of associated risks.
- Dumpers fitted with Proximity Warning Devices, Rear view mirrors and camera, Audio-Visual Alarm (AVA), Automatic Fire Detection & Suppression System (AFDSS) etc.
- Ergonomically designed seats & AC Cabins for operators' comfort.
- Wet Drilling & water Sprinklers for dust suppression.
- GPS based Operator Independent Truck Dispatch System (OITDS) in large OCPs for tracking movement of HEMMs inside OC mine.

8. Mine Emergency Response System:

- Emergency Action Plans has been prepared as per statute for each mine.
- Mock Rehearsals for examining the efficacy of Emergency Action Plan.
- Demarcating Emergency Escape Routes in below ground.
- Check list prepared for dealing with an emergency in mine.
- Flow Chart prepared for transmission of information regarding crisis / disaster in mines from site of accident to the Ministry of Coal, New Delhi.

24. Mine Rescue Services in CIL:

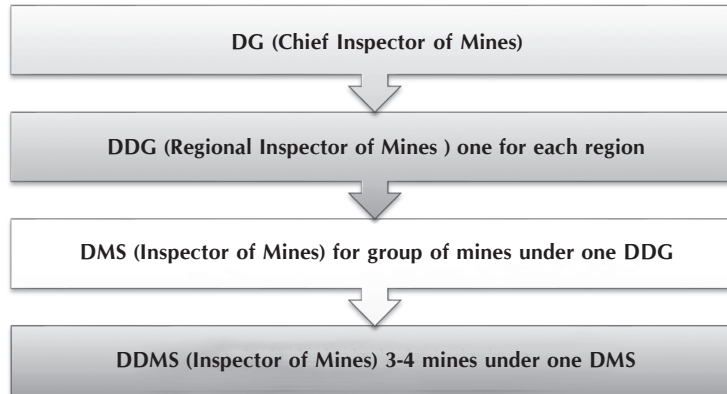
- CIL is maintaining a well establishment Rescue Organization comprising of 6 Mine Rescue Stations (MRS), 13 Rescue Rooms-with-Refresher Training facilities (RRRT) and 17 Rescue Rooms (RR).
- All Rescue Stations / Rescue Rooms are fully equipped with adequate numbers of rescue apparatus as per the Mine Rescue Rules (MRR) - 1985.
- This Rescue Organization is staffed with adequate numbers of Rescue Trained Personnel (RTP) as per the MRR-1985.
- All RTP are being periodically re-trained to conduct rescue operations in hot, humid and irrespirable atmospheres in modern training galleries as well as in mines.
- CIL employs Permanent Brigade Members and RTPs who are on call 24x7.
- The Mine Rescue Station and Rescue Rooms are established at strategic locations spreading across different Subsidiaries to cater to the emergencies in their command area. The details are as under:

Company	Rescue establishment presently operating		
	Mine Rescue Station (MRS)	Rescue room with Refreshers Training (RRRT)	Rescue Room (RR)
ECL	Sitarampur	Kenda	Jhanjra ,Kalidaspur,Mugma
BCCL	Dhansar	-	Moonidih, Madhuband, Sudamdih
CCL	Ramgarh	Kathara & Churi	Dhori, Kedla & Urimari
SECL	Manindragarh Bisrampur, Baikunthpur	Sohagpur, Kumdanda, Johilla, & Kotma, korba	Chirimiri, Raigarh, Bhatgaon, Jamuna
WCL	Nagpur	Parasia, Pathakhera,Tadali	Damua , New Majri & Sasti
MCL	Brajraj Nagar	Talcher,	-
NEC	-	Tipong	-
Total	6	13	17

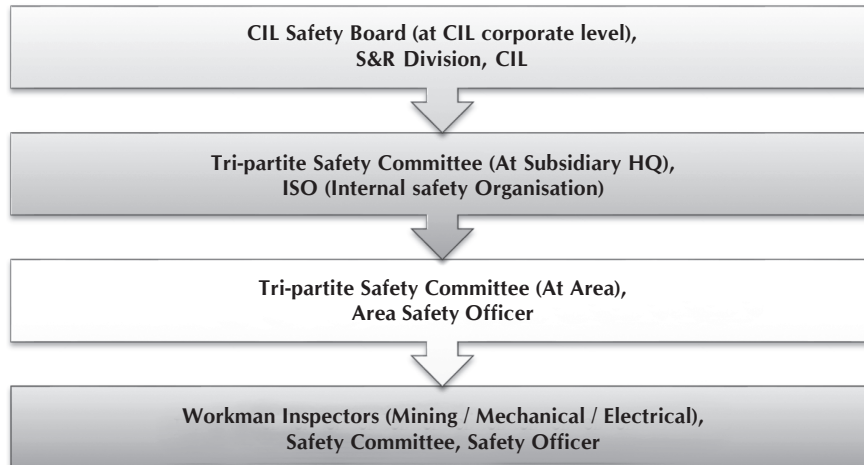


25. Safety Monitoring Mechanism in CIL:

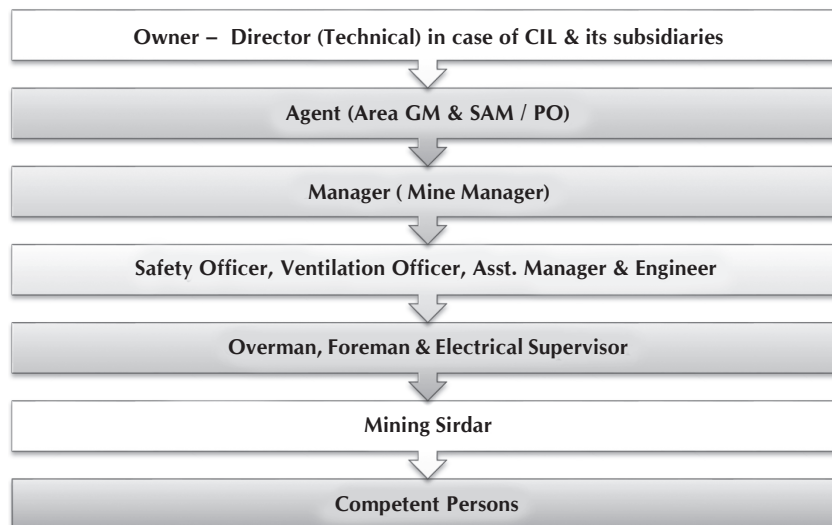
- **Statutory Regulator for Mine Safety** - The Directorate General of Mine Safety (DGMS) is vested with the responsibility to ensure compliance of provisions under the Mines Act- 1952 and Rules & Regulations made there under for improvement in standard of safety in mines. The structure of DGMS is as follows:



- **Safety Monitoring Agencies in CIL -**



- **Safety Implementation in CIL:** Organizational hierarchy for implementation of Safety Policy in mines of CIL is as under:





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26. HUMAN RESOURCE DEVELOPMENT

Coal India Limited has an ambitious target of achieving its coal production of 1 billion ton in coming years. For achieving this goal, Coal India Ltd is geared up for the development of its Human Resources to prepare them for technological advances and skill requirements for future to fulfill the growing demands of production along with diversification into different areas.

During 2017-18, different training programs were organized at subsidiary HQs, Training Centers, Vocational Training Centers (VTCs) and also at CIL's own in-house advance training facility viz Indian Institute of Coal Management (IICM), Ranchi. These training programs were organized after assessing the training needs in the respective category of employees.

In addition to in-house training, employees were trained at reputed training institutes within the country and abroad, in their respective field of operations for supplementing our in-house training efforts.

The total manpower of the CIL as on 01.04.2017 was 3,10,016 which has become 2,98,757 as on 31/03/2018. Employees were given training for skill development and acquisition of knowledge and skill in existing and future technology, as well as on safety. During the year more than 6,02,300 training man-days were achieved for these employees including executives & non-executives and excluding contract workers.

26.1 Special Initiatives:-

- 5 weeks intensive training for 89 Assistant Managers/Management Trainees was organized at IIT(ISM), Dhanbad.
- 125 middle level executives were exposed to two weeks training on General Management at Administrative College of India (ASCI), Hyderabad to equip them to take up higher responsibilities.
- 179 E4/ E5 level executives were sent for two weeks training programme on Executive Development at Indian Institute of Management (IIM), Lucknow.
- 160 participants have attended a specially designed program on "Ethics in Public Governance" through IC Centre for governance in Panchgani, Maharashtra.
- 2 weeks training on land acquisition and R&R was imparted to 37 participants under the LARR program organized by Administrative Staff College of India (ASCI), Hyderabad.
- 44 senior executives attended training programs on "Developing Strategic Attributes in Evolving Business Scenario" at LBSNAA, Mussoorie.

26.2 Skill India Mission of Govt. of India:-

CIL is also committed to support the Skill India Mission of Govt. of India. Achievements till date in this area are given below:-

- Training and assessment have been done for 35,253 own employees of CIL to bring them in line with NSDC Qualifications.
- 4700 contract workers engaged in CIL operations have been trained and certified by NSDC.
- 574 newly inducted employees of WCL were imparted training in line with NSDC Qualification and are currently engaged in WCL
- Fresh Skilling, under NSQF aligned training programs, was imparted to 1,394 youth and women from operational areas of CIL, out of whom 706 persons have been placed in different organizations.

26.3 Recruitment

During the financial year 2017-18, CIL has inducted fresh talent into the organization at the entry level, 1143 Management Trainees were selected through direct recruitment. They have been imparted induction training and posted to different Subsidiaries based on manpower requirement.

27. MANPOWER

27.1 The total manpower of the Company including its subsidiaries as on 31.03.2018 is 2,98,757 against 3,10,016 as on 31.03.2017. Subsidiary company wise position of manpower is disclosed in **Annexure 19**.

27.2 The presidential directives for Scheduled Caste/Scheduled Tribes/OBC have been implemented in all the subsidiaries/units of Coal India Limited.

The representation of SC/ST employees in total manpower of CIL and its Subsidiary Companies as on 01.01.2016, 01.01.2017 and **01.01.2018** is given below :-

As on	Total Manpower	Scheduled Caste		Scheduled Tribe	
		Nos.	Percentage	Nos.	Percentage
1.1.2016	326032	70502	21.62	39669	12.17
1.1.2017	313809	70513	22.47	39721	12.66
1.1.2018	302006	57761	19.13	41373	13.70

28. INDUSTRIAL RELATIONS AND EMPLOYEES' PARTICIPATION IN MANAGEMENT

The Industrial Relations scenario in CIL & its subsidiaries during the financial year remained cordial. JCCs and different Bipartite Committees at Unit/Area levels and Subsidiary (HQ) levels continued to function normally. Meetings of Apex JCC were held at regular intervals at CIL.

Strikes and Bandhs:

During 2017-18, no Strike took place in the Subsidiaries of CIL. There were 6 Bandh called by regional parties in the area of operation of subsidiary companies viz. MCL, CCL & CMPDIL, where normal working was affected.

Subsidiary wise details of strikes, man-days lost and production lost and other incidents for the year 2016-17 and 2017-18 are furnished in **Annexure 19**.



The salient features of the "10th Wage Agreement for CIL and SCCL" are as follows:-

1. The periodicity of the 10th Wage Agreement shall be for 5 (five) years w.e.f. 01.07.2016
2. Minimum Guaranteed Benefit (MGB) shall be 20% of the total emolument (Basic + VDA + SDA + Attendance Bonus) as on 30.06.2016.
3. Minimum Basic enhanced from ₹ 15712.62 per Month to ₹ 26292.97 Per Month w.e.f. 01.07.2016.
4. Special Allowance shall be paid @ 4% of revised Basic as on 01.07.2016 and frozen in absolute amount for the entire period of 10th Wage Agreement.
5. Annual increment @ 3% on progressive basis.
6. Underground Allowance shall be 9% (in case of Assam-10.5%) of Revised Basic as on 01.07.2016 and amount so arrived at will be frozen for the entire period of 10th Wage Agreement.
7. Travel assistance amounting to ₹ 8000/- and ₹ 2,000/- shall be paid for visiting Home Town and 'Bharat Bhraman', respectively once in a block of 4 Years. 01.07.2016.
8. House Rent Allowance (other than Urban Areas i.e. Coalfields Areas) shall be paid @ 2% of the revised notional Basic as on 01.07.2016 and be frozen in absolute amount for the entire period of 10th Wage Agreement. The revised HRA will be paid w.e.f. 01.10.2017.
9. To sustain the corpus of CMPS 1998, JBCCI has recommended that both the employee as well as employer, shall contribute equally i.e. 7% of Revised Basic & VDA, after subsuming the existing percentage of contribution. The deduction shall be made w.e.f. 01/10/2017. It will be funded subject to the approval of BoT/CMFPO/Gol.
10. Regarding Contributory Post Retirement Medicare Scheme for Non-Executives (CPRMS-NE), an amount of ₹ 40,000/- shall be contributed by the employees on roll as on 01/07/2016 as a membership contribution and Management shall contribute ₹ 18,000/- per member w.e.f. 01/07/2016. In respect of employees, who were separated from the services prior to 01.07.2016, no contribution shall be made by the Management. However, these employees (separated prior to 01.07.2016) can join the scheme before 31.12.2017 by making a contribution of ₹ 40,000/-. The scheme will be reviewed after two years and the benefit under the scheme shall be modified, if required.

29. EMPLOYEES' WELFARE AND SOCIAL SECURITY SCHEMES

1) HOUSING :

Company has its own housing establishments with basic facilities near its mines. Presently housing satisfaction of employees has reached 100% in the mining areas.

2) WATER SUPPLY :

As against 2.27 Lakhs population consisting of employees and their families having access to potable water at the time of Nationalisation in 1973, presently a populace of 19.62 lakhs (100%) has been covered under water supply scheme.

3) MEDICAL FACILITIES :

Coal India Ltd and its subsidiaries are extending medical facilities to its employees and their families through various medical establishments, companies run Dispensary level to the Central and Apex Hospitals in different parts of the coalfields.

There are 80 Hospitals with 4938 Beds, 376 Dispensaries, 541 Ambulance and 1150 Doctors including Specialists in CIL and its subsidiaries to provide medical services to the employees. In addition, arrangements have been made for referral to reputed hospitals for treatment not available in company hospitals.

Moreover, medical facilities are also provided to the inhabitants residing in and around mines premises of the subsidiary companies of CIL.

4) EDUCATIONAL FACILITIES :

Subsidiary companies have entered into MoU with DAV, DPS, Kendriya Vidyalaya etc. to provide better educational facility to the employees wards and financial assistance by way of deficit grant and infrastructure facilities are provided to these schools.

➤ **Coal India Scholarship Scheme**

In order to encourage the children of the employees of Coal India Limited, two types of Scholarship namely Merit and General Scholarship, are being provided every year under prescribed terms and condition.

➤ In addition, facility for Reimbursement of tuition fees and Hostel Charge for studying in Government Engg. & Medical College for Financial year 2017-2018 is also extended to the children of wage board employees. The details are disclosed in **Annexure 20**.

5) Statutory Welfare Measures:-

In terms of provisions of the Mines Act 1952 and Rules and Regulations framed there-under, subsidiaries of Coal India Limited are maintaining required statutory welfare facilities like Canteens, Rest-rooms, Drinking water facility etc. at mining premises for use by both regular and contractor workers.

6) Non-statutory Welfare Measures:-

Co-operative Stores and Credit Societies:

In order to supply essential commodities and consumer goods at a lesser cost in the Collieries, 16 Central Co-operatives and 99 Primary Co-operative Stores are functioning in the Coalfield areas of CIL. In addition, 158 Co-operative Credit Societies are also functioning in the Coal Companies.



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7) Banking Facilities:-

The Management of Coal Companies are providing infrastructure facilities to the various Nationalised Banks for opening their Branches and Extension Counters in the Coalfields for the benefit of their workers. Workers are educated to draw their salaries through 427 Bank Branches and 48 Bank Extension Counters and they are also encouraged to practice thrift for the benefit of their families.

8) Sports:-

A sports policy of CIL and its subsidiaries was approved by CIL Board in its 296th Meeting held on 25th March, 2013 and accordingly Coal India Sports Promotion Association (CISPA) has been registered under West Bengal Societies Registration Act, 1961. CISPA has undertaken several sports activities at National and International Levels.

9) Welfare, Development and Empowerment of Women

The company extends active support to the forum of Women in Public Sector (WIPS). WIPS at various subsidiaries and CIL(HQ) undertake various activities which include welfare activities, training & development activities, seminars, cultural programmes, industrial awareness visits, health awareness programme etc for the WIPS members, women workers, their family members.

Coal India Ltd and its subsidiary companies are extending full fledged support and patronage to the National Conference of Forum of WIPS held every year in February. In recent years, the WIPS cell have done commendable work in reaching out to the grass root level women employees, empowering training and uplifting their morale by recognizing outstanding achievement, recognizing and honouring the exceptional talent. CIL was awarded second prize under Best Enterprise Award (Maharatna Category) in 2017-18 by WIPS

10) Special Cash Award:-

During 2017-18, an amount of ₹ 1,46,000/- has been given as Special Cash Award to 26 meritorious children of employees of CIL(Hqrs.), Kolkata Desk Offices of subsidiary companies @ ₹7,000/- for 08 (Eight) students who have secured 90% or above marks in the Class-XII Board level examination and @ ₹5,000/- for 18 (Eighteen) students who have secured 90% or above marks in the Class-X Board level examination.

11) Recreational facilities:-

At present eight Holiday homes are being maintained for the welfare of CIL employees and their families.

(a)	Puri
(b)	Digha
(c)	Goa
(d)	Manali
(e)	Katra
(f)	Ajmer
(g)	Darjeeling
(h)	Haridwar

12) CIL Welfare Board :-

Coal India Welfare Board is the decision making forum regarding welfare policies for betterment and improvement of living condition of employees of the Company.

The members of CIL welfare board comprising Central Trade Union and Managements representatives meet regularly to discuss the welfare measures and review the implementation of different welfare schemes. The meetings of the Welfare board are being conducted regularly.

30. TREE PLANTATION / AFFORESTATION

Plantation and Green belt are developed through extensive tree plantation programme every year by the subsidiaries of Coal India Ltd. Avenue plantation, plantation on the OB dumps, plantation in and around mines, residential colonies, and available government land is undertaken in the existing as well as the new projects.

The subsidiaries of CIL have planted around 19.9 lakh saplings during 2017-18 in an area covering 821.52 Ha., Since inception, subsidiary companies of CIL have planted 96 million plants covering an area over 38378 Ha. till March 2018.

Furthermore, subsidiaries of CIL have planted 3.3 lakh saplings in an area of 277.3 Ha in Government land in association with State Forest Divisions during 2017-18.

31. PROGRESSIVE USE OF HINDI.

Keeping abreast with the spirit of the constitution of India, Coal India Limited (CIL) continued its efforts to propagate and spread the progressive use of Official Language. The company is committed to implement the provisions of the Official Languages Act, Rules and Regulations. For this purpose, structured periodical meetings and reviews are done regularly by the top officials. A brief description of the works done during the year under review towards implementation of Rajbhasha is appended below:-

In total 4 Hindi workshops were organized regularly with a view to create working atmosphere for working in Rajbhasha and to combat hesitation of employees to work in Hindi. During the year, 111 employees participated in such workshops which helped to boost their knowledge in doing regular Official works in hindi.



In the presence of Hon'ble Governor Shri Kesharinath Tripathi, West Bengal, on 12.08.2017, half-yearly meeting cum Rajbhasha Conference of Town Official Language Implementation Committee (PSUs), Kolkata was successfully concluded at the auditorium of Coal India Headquarters. Along with this, in order to promote use of Hindi as Official Language, 'Babuji's Passbook' drama was successfully staged on 12.08.2017 in CIL auditorium in the presence of large number of employees and their families.

With an aim to promote Official language and to foster interest in Official Language among officers and employees, a half-yearly Hindi Magazine namely "Koyla Darpan" is being published from Coal India Headquarters. During the year 2017-18, its third and fourth issue have been published. The purpose of publishing the magazine is not only to showcase the activities of CIL but to provide a platform for nurturing creative potential of employees.

Like past years, in September 2017, with a view to create conducive atmosphere for working in Hindi and accelerating the use of Hindi as Official Language among officials, 'Hindi Fortnight' was observed in all offices of Coal India Ltd. During the fortnight various Hindi Competitions such as noting and drafting, self-writing, dictation, translation, typing and speech etc. competitions were organized where a large numbers of employees participated enthusiastically. The winners were awarded with Cash prizes & Certificates. All these events help in creating consciousness among employees to use Rajbhasha in official Work. It is notable that Regional Sales Office, CIL situated at different cities were granted sufficient fund to celebrate Hindi Diwas & Hindi week/fortnight as per the practice.

During the year as a new initiative, translation competition is being organized every two months to increase the knowledge of Hindi in the office work among the officials. Apart from this, in order to fulfill the assurances given to the Parliamentary Official Language Committee during the inspection of CIL on 18.01.2017, 1000 pages of contents available in English on CIL's website have been translated into Hindi and uploaded to the website in the 1st phase. The balance work of 2nd phase has also started and are likely to be completed by year end.

To smoothen working in hindi, supportive literature and dictionaries were provided to the departments as and when required. 'Today's Word' and 'Today's Thought' are displayed on all the signages at the New Office Complex, Rajarhat.

Coal India always lays emphasis on imparting training of Hindi Language under Hindi teaching scheme of Govt. of India by nominating the employees in Hindi **Praveen** & **Pragya** classes. During the year 2017, ten (10) employees were given training in **Hindi Praveen** and **Pragya** classes. Further, in session started from January 2018, Sixteen (16) employees have been nominated in **Hindi Praveen** class for attaining the working knowledge of Hindi.

Inspection of offices is a part of the strategy for implementation of official language in company's works. During the year, Officials of Rajbhasha department, CIL (HQ) reviewed the status of implementation of the Official Language in RSO Mumbai & Chennai, and offices of CCL, CMPDIL and NEC and suggested remedial measures.

Recognizing such praiseworthy works of CIL, during the year, CIL was conferred the following Awards:-

A) 1st Prize of TOLIC (PSUs), Kolkata : Under the Rajbhasha Award Scheme of the Govt. of India, on 12.08.2017, Honourable Governor of West Bengal Shri Kesharinath Tripathi awarded TOLIC (PSUs), Kolkata Shield - 1st Prize to Coal India Ltd. in the Corporate Offices category for best implementation of Official Language Policy of the Union.

B) Award to CIL's Hindi magazine 'Koyla Darpan' : On 12.08.2017, Coal India headquarters' Hindi magazine 'Koyla Darpan' was awarded 3rd prize in the House Magazine category by TOLIC (PSUs), Kolkata.

32. VIGILANCE SETUP

The anti-corruption activities in CIL and its Subsidiary Companies have been institutionalized by setting up Vigilance Departments headed by a Chief Vigilance Officer (CVO), appointed by the Govt. of India in consultation with Central Vigilance Commission (CVC) on tenure basis, drawn from various government services.

During the year 2017-18, 38 Intensive Examination of Works/Contracts (Major works) were undertaken by CIL(HQ) and its subsidiary companies. In addition, 302 Surprise checks were carried out. Besides, 60 Departmental Inquiries were disposed of which resulted in punitive action against 324 officials. Such examinations/investigations have resulted into initiation of various system improvement measures.

As per directives of Central Vigilance Commission, Vigilance Awareness Week - 2017 has been observed in Coal India Limited, IICM- Ranchi, North Eastern Coalfields-Margherita & Regional Sales Offices across the country besides all the Subsidiary Companies w.e.f. **30.10.2017 TO 04.11.2017** emphasizing the theme of "My Vision- Corruption Free India".

During the week, various activities in order to generate awareness, educate and discuss transparency among officials/stake holders as well as general public to arrest the root cause & threat of corruption and to promote good governance were organized.

1. Inauguration -

The Vigilance Awareness Week commenced with the administration of Pledge to the employees by Shri C K Dey, Director (Finance), CIL while inaugurating the week on 30th October 2017.

2. Wide Publicity -

- **1000 pamphlets** distributed to CIL HQ Employees, Visitors, Contractual Workers/ Drivers and Vendors with Vigilance Message and they were requested to take e-pledge. Throughout the week 6 e-posters displayed in all the digital signage in CIL HQ.
- The posters/banners/pamphlet/canter/ 2D gate specially designed for VAW-2017 and events organized during the week has been uploaded in Company's official Facebook page. Also the same has been posted in CVO, CIL and CIL official twitter account.
- **40 banners** of size 5ft x 4ft has been displayed in prominent places across Kolkata.
- **100 Posters** with Anticorruption and Vigilance Awareness message displayed across Kolkata in public places.
- **Through News Papers in 10000** Households, Shops and Offices in Salt-lake and Ultadanga Area. Also 5000 pamphlet with 2018 calendar distributed to citizens in public places and schools/colleges etc.



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- **SMS**- 19000 SMS through NIC email have been generated to employees of CIL, IICM, NEC, RSOs & subsidiaries with Vigilance quotes and with request to take e-pledge. One lakh SMS blast with anti-corruption message has been shared through BSNL across Kolkata.
- **Radio Jingle** - Two Radio Jingle both in English and Bengali telecasted in FM Rainbow, AIR in West Bengal (Kolkata and outskirts) throughout VAW-2017 (30.10.17 to 04.11.17).

3. Employees Competitions -

- Slogan Competition for Employees** of CIL HQ on TOPIC- "MY VISION CORRUPTION FREE INDIA".
- Essay Competition for Employees** of CIL HQ on TOPIC- "DIGITIZATION: A PATH TOWARDS CORRUPTION FREE INDIA".
- Quiz Competition for Employees** of CIL HQ on issues in Vigilance, CVC and other Anti-corruption Laws, Policies, manuals and guidelines of CIL.
- System Improvement/New Initiatives Competition** for Employees at CIL HQ.
- Public Speaking Competition** for Employees of CIL HQ on topic - "DEMONETIZATION: A PILL TO KILL THE DEMON OF CORRUPTION".

4. Competitions for Wards and Spouses of Employees -

- Elocution Competition for wards of Employees of CIL HQ studying in Class IX to X on topic "ETHICAL EDUCATION IS GOOD INSTRUMENT TO CURB CORRUPTION".
- Essay Competition for Spouses of Employees** of CIL HQ on TOPIC- "ROLE OF FAMILY IN ERADICATING CORRUPTION".

5. Training Program for Junior Level Managers of CIL -

A one day orientation program for newly recruited Junior Level Managers of CIL was organized in two batches focusing on Vigilance Administration in PSUs, Conduct, Discipline & Appeal Rules of CIL and Common Irregularities.

6. Workshops / Sensitization programmes -

500 Nos of Vigilance Case Studies Vol-3 unveiled during the Vigilance Awareness Week Valedictory Function for distribution across CIL & Subsidiaries. The soft copy of the book was also uploaded in CIL Website.

7. Organization website

Organization website has been used to propagate the messages of CVC and encouraging citizens to take e-pledge.

8. Stakeholders Meet -

- Stakeholders Meet organized with Vendors and Customers on 02.11.2017 at CIL HQ to redress their issue.
- Stake Holder's Online feedback survey conducted through CIL Website.

9. Workshops / Sensitization programmes

- Motivational Speech of Shri P S Rathore, Motivational Speaker, Life Coach and Author** was organized on 01.11.2017 at 12 Noon. The event was attended by all employees of CIL HQ and their family members.
- Seminar on CVC theme "My Vision- Corruption Free India"**, Concluding Ceremony and Prize distribution to winners of event organized during the week on 07.11.2017.
- Morning prayer "Itni Shakti Hame Dena Data..."** was started from 30.10.2017 in the reception area. The prayer is held daily at the reception area at 9.45 AM.

Implemented Preventive Vigilance/ System Improvement

- In case of Road Sales, loading by Pay Loaders should be stopped and loading of Coal on Road Sale Vehicles through bunker/hopper to be ensured. In the existing CHPs, possibility of introducing direct truck loading to be explored and action for installation of mini CHP near suitable place for truck loading is to be ensured.
- Modification of proven-ness criteria for procurement of steel cogs/props & other fabricated items for getting competitive bidding.
- SOP for implementation of different IT initiatives issued after approval of Chairman, CIL

➤ Further System improvement suggestions :

System improvement suggestions were made in many areas:

- Formulation of a standard NIT for recruitment process through outsourced agency
- System improvement for procurement of Self Contained Breathing Apparatus.
- Rationalisation for OBR measurement & subsequent finalization of report by CMPDI and use of Drone UAV for measurement of large coal stock and OBR .
- Use of UAV & space technology for prevention of Coal pilferage & illegal mining and monitoring of environment, plantation, vegetation & water bodies.
- Issue of Penalty by DA only as specified in CDA Rules under clause no. 27.0. (Order issued by CMD, CIL vide no. CIL/CH/44/475 dt. 16.03.17.)
- In OB contracts, review of Additional Performance Security clause and specific time limit for submission of Performance Guaranty and Additional Performance Security and such other provisions may also be incorporated in manual.
- Vendor development programme may be undertaken through mechanism as laid down in Purchase Manual to increase competition.



➤ **System Improvement Studies - Studies were taken in the following areas**

Sl.	Subject of Study
1	Measurement of OB and Coal in outsourced patches
2	CSR Policy of CIL and monitoring of projects.
3	Inventory of Land Records
4	RDA initiated on CBI Reports
5	E-surveillance through VTS, CCTV, Weigh-Bridge connectivity, RFID & other IT initiatives.
6	Implementation of Bill tracking system.
7	BG receipt and verification through SMFS
8	Complaint handling System.
9	Procurement policy at CIL & subsidiaries and Standardization of NITs .
10	Recruitment process in CIL & subsidiaries.
11	Policy for compassionate appointment of medical unfit cases.

33. PARTICULARS OF EMPLOYEES

No employee received remuneration either equal to or in excess of the limits prescribed under Rule 5(2) of Companies (Appointment and Remuneration of Managerial Personnel) Rules, 2014 during 2017-18. Details of Rule 5(1) of Companies (Appointment and Remuneration of Managerial Personnel) Rules, 2014 on disclosure in the Board Report with reference to remuneration of managerial personnel of Top 10 employees are annexed to the Report. (Annexure 21).

34. BOARD OF DIRECTORS

Shri Anil Kumar Jha was appointed as Chairman cum Managing Director (CMD) w.e.f. 18.05.2018. Shri Suresh Kumar, Addl. Secretary, MoC was holding an Additional Charge of CMD from 23.04.18 till 18.05.18 and Shri Gopal Singh, CMD, CCL was holding an Additional Charge of CMD from 01.09.17 till 20.04.2018. Shri S. Bhattacharya was Chairman cum Managing Director till 31.08.17. Shri C.K. Dey Director (Finance) and Shri S.N.Prasad, Director (Marketing) were on the Board throughout the year. Shri Binay Dayal was appointed as Director (Technical) w.e.f. 11.10.2017. Shri S. Saran, CMD, CMPDIL was holding an additional charge of Director (Technical), CIL from 31.10.2016 till 10.10.2017. Shri R.P. Srivastava assumed the charge of Director (P & IR) from 31st Jan'18. Shri R.R.Mishra, CMD, WCL was holding an additional charge of Director (Personnel) from 19.06.17 till 30.01.18. Shri S N Prasad, Director (Marketing) was holding an additional charge of Director (Personnel) from 31.03.17 till 18.06.17.

Shri R.K.Sinha, Joint Secretary, MoC continued throughout the year. Mrs Reena Sinha Puri, JS & FA, MOC was appointed as an official part time Director vice Sri Vivek Bharadwaj from 9th Jun, 17 and continued during the year.

Ms. Loretta Mary Vas, Dr S.B. Agnihotri, Dr D.C. Panigrahi, Dr. Khanindra Pathak and Shri Vinod Jain were appointed as Independent Directors on the Board on 17.11.15 and continued throughout the year. Shri V.K.Thakral and Shri B.L.Gajipara were appointed Independent Directors on the Board w.e.f. 06.09.17 and 22.09.17 respectively.

Shri R.R. Mishra, CMD, WCL and Shri S. Saran, CMD, CMPDIL continued throughout the year as permanent invitees. Shri A.K.Gupta Addl. Member (Traffic transportation), Railway Board was appointed as permanent invitee from 05.08.2016 and continued till 31.01.18. On his superannuation, Shri Anurag has been appointed as permanent Invitee from 19th Jun'18.

Your Directors wish to place on record their deep sense of appreciation for the valuable guidance and services rendered by the directors during their tenure, who ceased to be the Directors during the year.

In terms of Article 39(j) of the Articles of Association of the Company, one third of retiring Directors are liable to retire by rotation shall retire at the ensuing Annual General Meeting and they are eligible for reappointment.

The Board of Directors held 22 meetings during the year 2017-18.

35. Composition of Audit Committee

CIL in pursuance of excellence in corporate governance formed an Audit Committee of its Board of Directors w.e.f. 20-07-2001 and the present Audit Committee was re-constituted by the Board in its 349th meeting held on 28th Oct'17, consisted of four Independent Directors, one Functional Director, one Government Nominee Director and one permanent invitee. Details are disclosed in Corporate Governance Report under point number 3.1.

36. Composition of CSR Committee

Details are disclosed in Corporate Governance Report under point number 3.6.

37. Declaration given by independent directors under sub-section (6) of Section 149.

The following independent directors have given their consent during 2017-18 that they meet the criteria of independence as stipulated in sub-section (6) of Section 149 of the Companies Act 2013.

- i. Ms. Loretta M Vas
- ii. Dr. S.B.Agnihotri
- iii. Dr. D.C.Panigrahi
- iv. Prof. Khanindra Pathak



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- v. Shri Vinod Jain
- vi. Shri V.K.Thakral
- vii. Shri B.L.Gajipara

38. Reappointment of Independent Directors- Section 149(10)

No Director was reappointed in terms of section 149(10) of the Companies Act 2013.

39. Recommendation of Audit Committee by the Board.

All the recommendations made by Audit Committee were accepted by the Board.

40. Company's policy on directors' appointment and remuneration including criteria for determining qualifications, positive attributes, independence of a director and other matters provided under sub-section (3) of section 178.

MCA vide Notification dated 5th June'2015 has exempted the above for Government companies.

41. Remuneration policy of directors, KMPs and Senior Management - Section 178(4).

MCA vide Notification dated 5th June'2015 has exempted the above for directors of Government companies.

42. A statement indicating the manner in which formal annual evaluation has been made by the Board of its own performance and that of its committees and individual directors.

MCA vide Notification dated 5th June'2015 has exempted the above for Government companies.

43. Contracts or Arrangements with Related Parties

Related party transactions made with the subsidiary companies and that all such transactions were exempted under Regulation 23(5)(a) and (b) of Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015 being transactions between two government companies and transactions entered between a holding and its wholly owned subsidiaries whose accounts are consolidated with holding company and placed before the shareholders at the general meeting for approval. However, the remuneration paid to Key Managerial Personnel is being disclosed separately in point no VI of **Annexure 22**.

44. Loan, guarantees or investments by a company under section 186 of the Act

Loan, guarantees and investments made by Coal India Limited in terms of Section 186 of the Companies Act 2013 is enclosed in **Annexure 23**.

45. Familiarization programme of Board Members.

Board of Directors are fully briefed on all business related matters, associated risk, new initiatives etc. of the company. The Board of directors were also briefed about the provisions of Companies Act 2013, Prohibition of Insider Trading Regulations, 2015 and SEBI (Listing Obligations and Disclosure Requirement) Regulations, 2015. As per Regulation 25 of SEBI (Listing Obligations and Disclosure Requirement) Regulations, 2015, the listed entity shall familiarize the independent directors through various programmes about the listed entity, including the following:

- (a) Nature of the industry in which the listed entity operates;
- (b) Business model of the listed entity;
- (c) Roles, rights, responsibilities of independent directors; and
- (d) Any other relevant information.

As per regulation 46 of SEBI (Listing Obligations and Disclosure Requirement) Regulations, 2015 the details of the familiarization programmes is to be disclosed on the website of the company. The same is disclosed on company's website. In addition, Independent Directors were nominated to attend the trainings programmes organized by SCOPE and DPE.

https://www.coalindia.in/DesktopModules/DocumentList/documents/Familiarization_Programmes_imparted_to_Independent_Directors_for_2017_18_04042018.pdf

46. Sexual Harassment of Women at the Workplace

The company has in Place an Anti-Sexual Harassment Policy in line with the requirements of The Sexual Harassment of Women at the Workplace (Prevention, Prohibition & Redressal) Act, 2013. Internal Complaints Committee (ICC) are working at every subsidiary and office of Coal India Limited to redress complaints regarding sexual harassment. All women employees (permanent, contractual, temporary, trainees) are covered under the said policy.

No sexual harassment complaint was received during the year 2017-18.

47. DIRECTORS' RESPONSIBILITY STATEMENT

In terms of Section 134(3)(c) of the Companies Act, 2013, read with the Significant Accounting Policies at Note-33 and Additional Notes on Accounts at Note-34 forming part of:

- 1. CIL (Standalone) Accounts
- 2. CIL (Consolidated) Accounts

It is confirmed that:

- a) In the preparation of the Annual Accounts, the applicable Accounting Standards have been followed and that no material departures have been made from the same;
- b) The Accounting Policies have been selected and applied consistently and judgements and estimates made that are reasonable and prudent so as to give a true and fair view of the state of affairs of the company at the end of the financial year and profit & loss of the company for that period;



- c) Proper and sufficient care have been taken for maintenance of adequate accounting records in accordance with the provisions of this Act for safeguarding the assets of the Company and for preventing and detecting fraud and other irregularities;
- d) The Annual Accounts have been prepared on a going concern basis;
- e) Internal Financial Controls have been laid down and that such controls are adequate and were operating effectively during the year ended 31st March'2018.
- f) Proper systems have been devised to ensure compliance with the provisions of all applicable laws and such systems were adequate and operating effectively.

For CIL (Consolidated) Accounts, such confirmation is based on confirmation obtained from eight Indian subsidiaries of CIL viz: Eastern Coalfields Limited, Bharat Coking Coal Limited, Central Coalfields Limited (consolidated), Northern Coalfields Limited, Western Coalfields Limited, Mahanadi Coalfields Limited (consolidated), South Eastern Coalfields Limited (consolidated) and Central Mine Planning & Design Institute Limited. However, for the overseas subsidiary viz. Coal India Africana Limitada, which was incorporated under Mozambique Commercial Code and for Joint Ventures viz. International Coal Ventures Private Limited, CIL NTPC Urja Private Limited, Hindustan Urvarak & Rasayan Limited and Talcher Fertilizers Limited where CIL is not the majority shareholder, such confirmation have not been obtained.

48. ACCOUNTS OF THE SUBSIDIARIES

The statement containing the salient features of the financial statements of a company's subsidiaries, associate companies and joint ventures under the first proviso to sub-section (3) of section 129 of Companies Act, 2013 is enclosed as AOC 1 in Annexure 24. In pursuance of Section 136(2) of the Companies Act, 2013, the Annual Accounts of the subsidiary companies shall be made available to the shareholders seeking such information.

49. COST AUDIT

M/s Balwinder Singh & Associates conducted the Cost Audit of your company for the year 2016-17 and the Cost Audit Report was approved by the Board of Directors in their 347th meeting held on 25th Sep 2017. The Cost Audit Report did not contain any adverse observation/comment or qualification from the Cost Auditor. The above report was filed in XBRL mode with MCA website on 25th September 2017.

M/s Balwinder Singh & Associates were reappointed as Cost auditor for CIL Standalone for the year 2017-18. E-form CRA-2 has been filed with MCA portal vide SRN G53909982 dated 25.09.2017.

50. SECRETARIAL AUDIT

In pursuance to Section 204 of Companies Act 2013, company had conducted Secretarial Audit for the year 2017-18 by a practicing Company Secretary M/s Vinod Kothari & Co, Practising Company Secretaries. Their appointment was approved in the 356th Board meeting held on 31st Jan'18. Secretarial Audit Report under Section 204 of Companies Act 2013 and the observations of Secretarial Auditor and Management Explanation are enclosed in **Annexure 25**.

51. RISK MANAGEMENT POLICY

The Board of CIL approved Risk Management Charter and Risk Register to build up a strong Risk Management Culture within CIL in achieving company's goals and objectives. The entity level Risk Assessment includes:

- i) Strategic Risk.
- ii) Operational Risk.
- iii) Financial Risk.
- iv) Compliance Risk.
- v) Project Related Risk.
- vi) Support System Risk.

As per the Risk Register, different risks were identified for CIL and its Subsidiaries and Risk Owner and Risk Mitigation Plan Owner were nominated for each risk identified to ensure continuous monitoring and mitigation thereof.

A Consulting Agency has been engaged for implementing the governance process designed in the Risk Management Framework at CIL and its Subsidiary Companies. The Consultant will cover all aspects and issues regarding Risk Management and ensure achievement of the objectives of i) Updated Risk Registers for CIL and its Subsidiaries ii) Updated Risk That Matters iii) Risk Mitigation Plan and implementation.

The Agency has completed Updated Risk Register, Prioritization of Risk, Risk that Matters for all the Subsidiaries of CIL. They had also completed the details of the Key Risks which are common across the Subsidiaries and specific to one or more Subsidiaries. Risk Mitigation Plan is under finalization.

52. WEBLINK

The following policies may be accessed on the Company's website as under:-

1. **Corporate Social Responsibility Policy:**
https://www.coalindia.in/DesktopModules/DocumentList/documents/CIL_CSR_Policy_New_Companies_Act_2013_05022016.pdf
2. **Vigil Mechanism:** https://www.coalindia.in/DesktopModules/DocumentList/documents/Office_Order_No.57_dt_08092011_-_Coal_India_Whistle_Blower_Policy_2011.pdf
3. **Policy for determining Material Subsidiary:**
https://www.coalindia.in/DesktopModules/DocumentList/documents/POLICY_FOR_DETERMINING_MATERIAL_SUBSIDIARIES_21032015.pdf



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4. **Related Party Transaction Policy:**
[https://www.coalindia.in/DesktopModules/DocumentList/documents/Related_Party_Transaction_Policy'_01122014\(1\).PDF](https://www.coalindia.in/DesktopModules/DocumentList/documents/Related_Party_Transaction_Policy'_01122014(1).PDF)
5. **Policy on determination of Materiality under SEBI(LODR) Regulations, 2015**
https://www.coalindia.in/DesktopModules/DocumentList/documents/Policy_on_determination_of%20Materiality_under_SEBI_LODR_%20Regulations_2015_03042017.PDF
6. **Policy on Preservation of documents including Archival Policy under SEBI(LODR) Regulations 2015**
https://www.coalindia.in/DesktopModules/DocumentList/documents/Policy_on_Preservation_of_documents_including_Archival_Policy_under_SEBI_LODR_Regulations_2015_17052017.pdf
7. **Dividend Distribution Policy under SEBI (LODR) Regulations 2015**
https://www.coalindia.in/DesktopModules/DocumentList/documents/Dividend_Distribution_policy_of_Coal_India_Limited_25102017.pdf

53. COMPANY CONFIRMS THE FOLLOWING:-

1. None of the Directors are disqualified for appointment as per Section 164 of the Companies Act'2013.
2. Company has not issued any Equity shares with differential voting rights, Sweat Equity shares and ESOP.
3. CIL Shares were issued in IPO in October'2010. Hence, Unclaimed IPO Refund, Unclaimed Interim Dividend of 2010-11 alongwith the Shares on which dividend have not been claimed for Seven consecutive years were transferred to IEPF Authority as stipulated in Companies Act 2013.
4. No Statutory, Secretarial, and Cost Auditors had resigned during the year 2017-18.
5. No relative of director was appointed to place of profit.
6. As per Regulation 32(4) of SEBI (Listing Obligations and Disclosure Requirement) Regulations, 2015 deviation of Proceeds of Public issue is not applicable to the company.
7. There is no deposit covered under Chapter V of Companies Act 2013.
8. There is no deposit, which is not under compliance of Chapter V of Companies Act 2013.
9. There is no change in the nature of business.
10. No Director is in receipt of any commission from the subsidiary companies in which he is a director.
11. Applicable Secretarial Standards, i.e. SS-1 and SS-2, relating to 'Meetings of the Board of Directors' and 'General Meetings', respectively, have been duly followed by the Company.

54. ADDITIONAL INFORMATION

1. **Details in respect of frauds reported by Auditors under section 143(12) other than those which are reportable to the Central Government. :**
No such reported frauds as per Audit Report of Standalone as well as Consolidated Accounts.
2. **Material changes and commitments, if any, affecting the financial position of the company which have occurred between the end of the FY and the date of the report :**
No such material changes and commitments occurred between the end of the FY and the date of the report which may affect the Standalone as well as consolidated financial position of the company.
3. **The names of companies which have become or ceased to be its subsidiaries, joint ventures or associate companies during the year.**
During the financial year no subsidiaries, Joint Ventures or associates have become or ceased to be subsidiaries/Joint Ventures or associates.

55. ACKNOWLEDGEMENT:

The Board of Directors of your Company wishes to record their deep sense of appreciation for the sincere efforts put in by the employees of the Company and Trade Unions. Your Directors also gratefully acknowledges the co-operation, support and guidance extended to the Company by various Ministries of the Government of India in general and Ministry of Coal in particular, besides the State Governments. Your Directors also acknowledge with thanks the assistance and guidance rendered by Statutory Auditors, the Comptroller and Auditor General of India and Registrar of Companies, West Bengal, Secretarial Auditor and Cost Auditor and wishes to place on record their sincere thanks to Consumers for their continued patronage.

56. ADDENDA

The following are annexed:-

- i) Pre-tax Profit of CIL & subsidiaries for 2017-18 vis-à-vis 2016-17 (**Annexure 1**).
- ii) Pre-tax Profit of CIL & subsidiaries without considering the impact of pay revision and impact of increase in Gratuity Ceiling Limit for 2017-18 vis-à-vis 2016-17 (**Annexure 1A**).
- iii) Subsidiary wise details of Dividend income of CIL Standalone (**Annexure 2**).
- iv) The comments of the Comptroller and Auditor General of India on Standalone Financial Statements of Coal India Limited (**Annexure 3**).



- v) Auditors Report on the Standalone Financial Statements for the year ended 31st March, 2018 including Report on the Internal Financial Controls under Clause (i) of Sub-section 3 of Section 143 of the Companies Act, 2013 ("the Act") **[Annexure 3(A)]**.
- vi) The comments of the Comptroller and Auditor General of India on Consolidated Financial Statements of Coal India Limited **(Annexure 4)**.
- vii) Auditors Report on the Consolidated Financial Statements for the year ended 31st March, 2018 including Report on the Internal Financial Controls under Clause (i) of Sub-section 3 of Section 143 of the Companies Act, 2013 ("the Act") **[Annexure 4(A)]**.
- viii) Observations of Auditor on Standalone Financial Statements and Management Explanation. **(Annexure 5)**
- ix) Observations of Auditors on Consolidated Financial Statements and Management Explanation **[Annexure 5(A)]**.
- x) Subsidiary wise Coal Off-take. **(Annexure 6)**
- xi) Sector-wise dispatch of coal & coal products. **(Annexure 7)**
- xii) Dispatches of coal and coal products by various modes. **(Annexure 8)**
- xiii) Wagon Loading Performance in 2017-18. **(Annexure 9)**
- xiv) Subsidiary wise details of Stock of Coal. **(Annexure 10)**
- xv) Subsidiary wise details of Trade Receivables. **(Annexure 11)**
- xvi) Subsidiary-wise payment of Royalty, Cess, Sales Tax, Stowing Excise Duty, Central Excise Duty, Clean Energy Cess, Entry Tax and Others. **(Annexure 12)**
- xvii) Subsidiary-wise Coking & Non-coking production, Production from underground and opencast mines. **(Annexure 13)**
- xviii) Subsidiary-wise Washed Coal (Coking) Production. **(Annexure 13A)**
- xix) Subsidiary wise Overburden Removal. **(Annexure 13B)**.
- xx) Population of equipment. **(Annexure 14)**
- xxi) Subsidiary wise System Capacity Utilization. **(Annexure 15)**.
- xxii) Project Implementation. **(Annexure 16)**.
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- xxiv) Salient features of continuous and sustained improvement in CIL's safety performance. **(Annexure 18)**
- xxv) Subsidiary wise position of manpower and strikes and bandhs. **(Annexure 19)**
- xxvi) Scholarship and Reimbursement of tuition fees and Hostel Charge and Grants sanctions to schools. **(Annexure 20)**
- xxvii) Disclosures under Rule 5(1) of Companies (Appointment and Remuneration of Managerial Personnel) Rules, 2014. **(Annexure 21)**.
- xxviii) The extract of the annual return as provided under sub-section (3) of Section 92 in Form No. MGT.9 **(Annexure 22)**.
- xxix) Loan and Advances, Guarantees, Investments made by the company under Section 186(4) of the Companies Act'2013 **(Annexure 23)**.
- xxx) Statement pursuant to first proviso to sub-section (3) of section 129 read with rule 5 of Companies (Accounts) Rules, 2014) as on 31st March, 2018. **(Annexure 24)**.
- xxxi) Secretarial Audit Report under Section 204 of Companies Act 2013 and Observation of Secretarial Auditor & Management Explanation **(Annexure 25)**.
- xxxii) Foreign Exchange Earning and Outgo under Rule 8 of Companies (Accounts) Rules 2014 **(Annexure 26)**.
- xxxiii) Details about Research and Development of the Company **(Annexure 27)**.
- xxxiv) Disclosure as per Section 135 of Companies Act 2013 on Corporate Social Responsibility **(Annexure 28)**.
- xxxv) Significant and Material Orders passed by the Regulators or Courts. **(Annexure 29)**.
- xxxvi) Corporate Governance Report. **(Annexure 30)**

For and on behalf of the Board of Directors

sd/-

A.K.Jha

Chairman

(DIN-06645361)

Kolkata, 7th August, 2018