

JHANJRA PROJECT COLLIERY

A PRODIGY

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INDIA vs WORLD

- 5th Largest reserves of Coal in the World of over 315 BT of coal as per latest GSI Reports
- 3rd Largest Producer of Coal in the World approx. 730.223 MT in 2018-19 (CIL: 606.905 MT, SCCL: 64.416 MT, Captive: 49.721 MT, Others: 9.181 MT)
- With total global production of 7.8 billion tonnes, the share of China, USA & India are 51%, 15% and 9% respectively.
- Coal accounts for 55% of the country's energy need
- The current per capita commercial primary energy consumption in India is about 350 kgoe/year which is well below that of developed countries.
- Considering the limited reserve potentiality of petroleum & natural gas, eco-conservation restriction on hydel project and geo-political perception of nuclear power, coal will continue to occupy centre-stage of India 's energy scenario.
- Hard coal deposit spread over 27 major coalfields, are mainly confined to eastern and south central parts of the the country

COAL INDIA vs INDIA

- Produces around 84% of India's overall coal production WITH 606.9 MT with a growth of 6.9% over last year
- In India where approximately 55% of primary commercial energy is coal dependent, CIL alone meets to the tune of 40% of primary commercial energy requirement
- Commands nearly 74% of the Indian coal market
- Feeds 98 out of 101 coal based thermal power plants in India
- Accounts for 76% of total thermal power generating capacity of the Utility sector
- Supplies coal at prices discounted to international prices
- Insulates Indian coal consumers against price volatility
- Makes the end user industry globally competitive

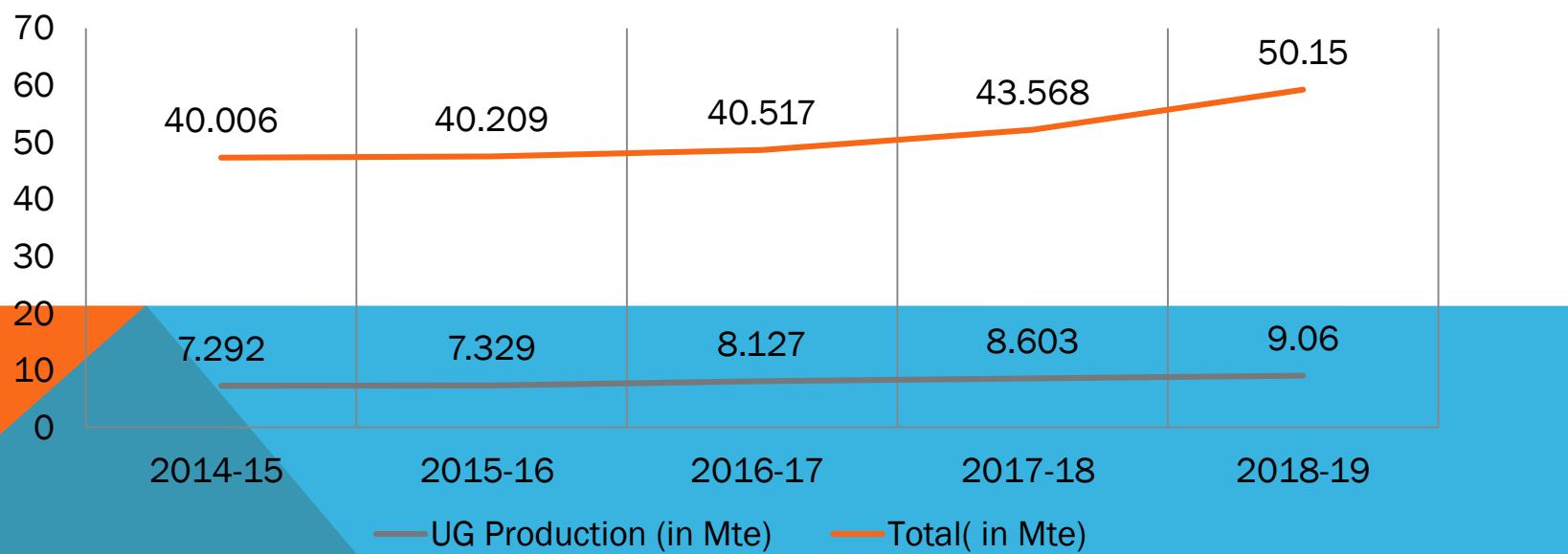
Thus, plays a key role in "India Growth Story" and making India incorporate globally competitive

EASTERN COALFIELDS LTD. VS COAL INDIA

- ECL produces around 8.2% of Total Production of Coal India Ltd. keeping in lieu the technological constraints and history of Mining.
- ECL has achieved the highest ever coal production of 50.16 MT with a growth of 15% over last year
- ECL has also achieved highest ever coal offtake of 50.195 MT during 2018-19 with a growth of 15% over last year.
- The UG production has recorded a substantial growth of 5.86% over last year.
- ECL is the only subsidiary of CIL which had growth in underground coal production for last six consecutive years.
- Committed to produce more than **63.7 MT** coal during 2019-20 out of which **10.259 Mte** from Underground and confident that ECL will march ahead in the times to come.
- Thus, plays a key role in "India Growth Story" and making India incorporate globally competitive

Coal Production from UG Mines of ECL

Year	UG Production (in Mte)	Total(in Mte)
2018-19	9.06	50.15
2017-18	8.603	43.568
2016-17	8.127	40.517
2015-16	7.329	40.209
2014-15	7.292	40.006



Jhanjra Project Colliery vs Eastern Coalfields Ltd.

- Jhanjra Project Colliery produces around **7% of Total Production of Eastern Coalfields Ltd.** keeping in lieu the technological constraints and history of Mining.
- Jhanjra Project Colliery produced **3.376 MTe of Coal** which out of **9.06 Mte of Total UG Production of Eastern Coalfields Ltd. in FY 18-19**
- JPC being a single mine produced **38% of Total UG Coal Production of 55 UG Mines of ECL** in the Financial Year 2018-19
- PRIDE OF Eastern Coalfields Ltd.
- Other UG Mines with production near to JPC
 - Adriyala, SCCL: 17,34,388 Tes
 - Charcha, SECL: 16,41,000 Tes

Journey of Mechanized underground mine development in India

- Most of the underground coal mines in India are conventional Bord & Pillar with SDL/LHD loading.
- For mechanized mass production through UG, prevailing technologies adopted till now in Indian mines are:
 - Powered Support Longwall Technology – 3 nos.
 - Continuous Miner Technology (Bord/Room & Pillar) – 20 nos.
 - Bolter Miner – 3 nos.



SAFETY AND CONSERVATION

Brief of Safety Standards adopted at Jhanjra Project Colliery - Exemption

- Underground Mechanized transportation of men by deployment of Free Steered Diesel Operated Drift Runner
- Underground Mechanized transportation of materials from Surface to Underground by deployment of Free Steered Diesel Operated Multi Utility Vehicles
- Mass Production Technology requiring less manpower and high OMS.
- Ventilation Efficiency Quotient (Ve_q) of 86.2%
- Enhanced Safety Standards at par with International Standards

DEGREE OF GASSINESS

- Presently, in the lease hold area of Jhanjra UG mine, seams R-7, R-7A, R-6 and R- 5 have been worked. These seams are classified as Degree-I gassiness.

GENERAL SAFETY MEASURES

- All precautions stipulated under CMR, 2017 and circulars issued by DGMS from time to time are strictly complied with, for the maintenance of safe working condition in the mine.

ANTICIPATED DANGERS AND PREVENTIVE MEASURES

- 1. Spontaneous heating**
- 2. Noxious Gases and Inflammable Gases**
- 3. Dust**
- 4. Strata Control and parting between Two Sections**
- 5. Surface Structures**
- 6. Subsidence**
- 7. Blasting**
- 8. Scientific Study**
- 9. Permission/relaxation from DGMS**

PRECAUTION AGAINST FIRE AND SPONTANEOUS HEATINGS

The anticipated main source of fire and spontaneous within the proposed underground is

- a) **Loss of coal in the goaf** due to percentage of extraction, roof coal wherever the thickness of coal seam is more than the proposed thickness of extraction and
- b) **Loss of parting coal between two sections:** While extracting two section along the roof and floor of the seam, part of the coal is left in the parting between two sections. This fall of coal in the goaf may be the potential source of spontaneous heating and fire.
- c) **Spontaneous heating of coal in coal stock.**

UNDERGROUND MEASURES TO PREVENT THE DANGERS

- a) Nitrogen Flushing
- b) Determination of Crossing Point Temperature
- c) Regular and Rapid advances of Coal Faces
- d) Detailed Geological Investigation
- e) Isolation Stopping
- f) Hydraulic fluid and Fire Resistant material

SURFACE MEASURES TO PREVENT THE DANGERS

- Surface Cracks to be filled with Non-combustible material to prevent air leakage
- Rapid Loading System of coal with silo to minimize coal stock

PRECAUTIONS AGAINST NOXIOUS GASES AND INFLAMMABLE GASES

- The degree of gassiness of other underlying seams of R6 seam are not known , it should be determined and all the precautions specified in CMR 2017 together with the statutes
- Regular monitoring of mine atmosphere
- Blind heading where ever present and working faces should be ventilated with the auxiliary fans.
- Only approved type fuel should be used below ground for FSV (Free Steered Vehicle), Multi Utility Vehicle and Shield Hauler should be used

SIGNALING AND LIGHTING

Sufficient lighting as per standards should be provided at all the required places i.e. at all coal transfer points, loading points, working faces, along trunk and gate belts, feeder breaker, switch gear and maintenance area.

Good communication between face, conveyor drives, key points in underground, surface control rooms, offices, workshop etc., is essential for efficient operations.

PRECAUTION AGAINST DUST

- All the work force present at the working face and the individual district should be provided with mask.
- It is suggested that regular and systematic sampling of air-borne dust is to be made for control of air bore dust to safe concentration level.
- It is suggested that regular and systematic sampling of air-borne dust is to be made for control of air borne dust to safe concentration level.
- Adequate provisions have been made in this report for supply of water from surface for dust suppression in all the working panel.

PRECAUTION FOR STRATA CONTROL AND PARTING BETWEEN TWO SECTIONS

- estimation of capacity of powered support
- Adequate no. of convergence recorder, load cells etc.
- Record of local fall and main fall should be properly maintained and analyzed.
- strata-monitoring cell should be established at the project level
- Depillaring of panels in lower seam / section should not be done unless goaf of overlying panel is settled / consolidated at least for three years. Liquidation plan has been prepared accordingly.

CONSERVATION

For the conservation of coal, the following measures have been adopted:

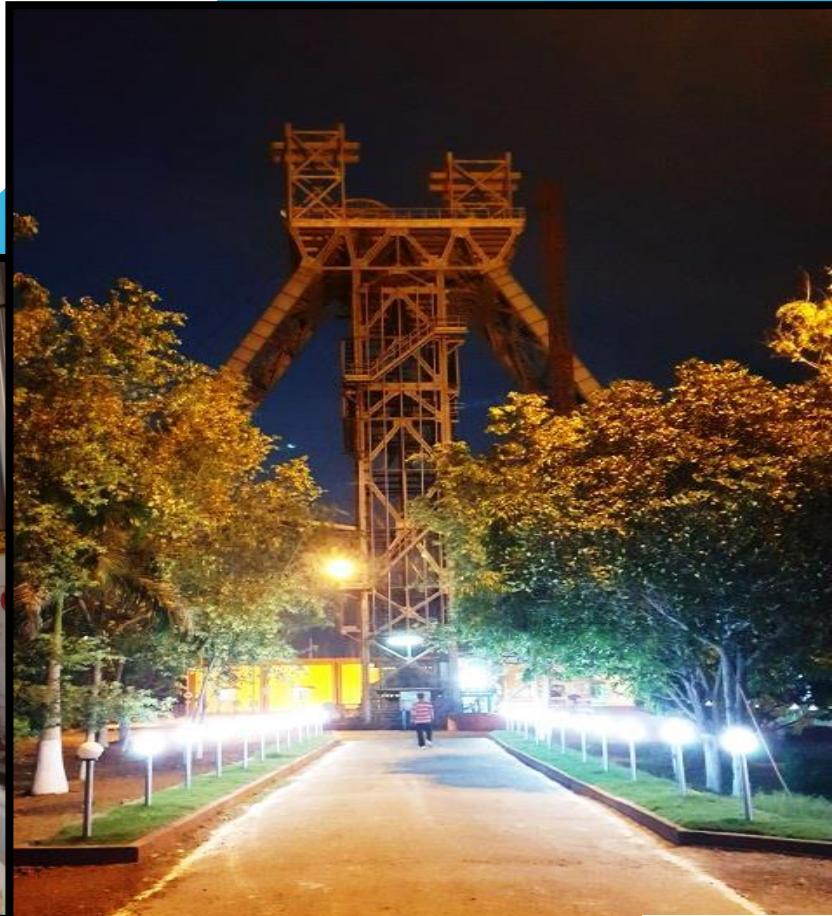
- Long wall technology has been proposed to minimize the coal loss.
- Shifting of surface features are proposed wherever possible to avoid the loss of depillaring reserve below surface features.
- Faults have been made where ever possible as panel barrier to minimize the loss of reserve against faults.

SCIENTIFIC STUDY

The following scientific study for the project is necessarily required:

- Determination of Roof strength and support design
- Determination of degree of gassiness, cavability index, Physico-Mechanical properties of the strata above the coal seams.
- Stability of parting between Seams or between two sections.
- Impact of goaf of upper seam on the workings of lower seam.
- In-seam seismic survey of the seams having low borehole density.
- Geo-physical survey of the coal seams
- Ventilation Study

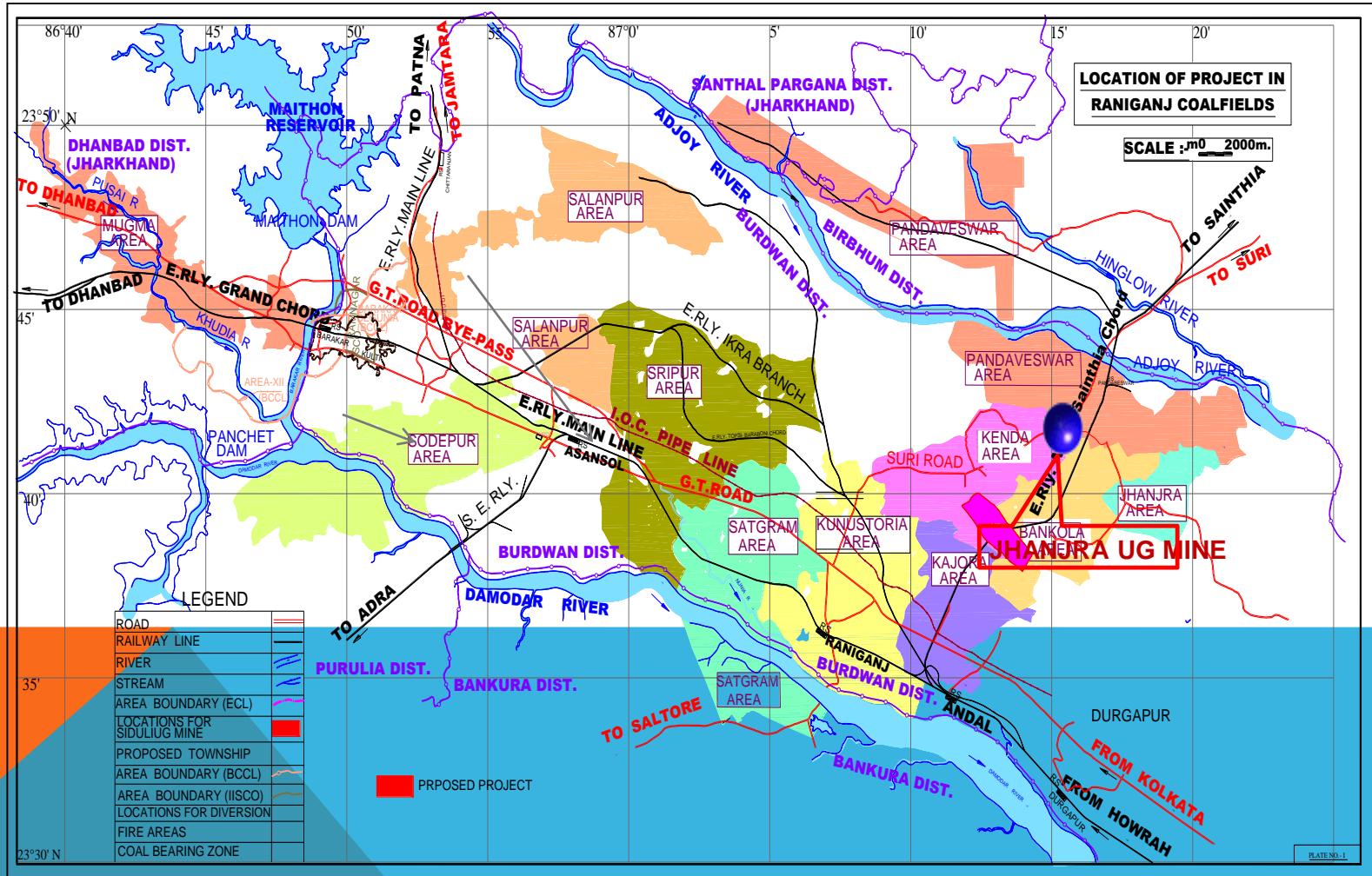
JHANJRA PROJECT COLLIERY



Jhanjra Area, Eastern Coalfields Ltd.
(A subsidiary of Coal India Ltd.)

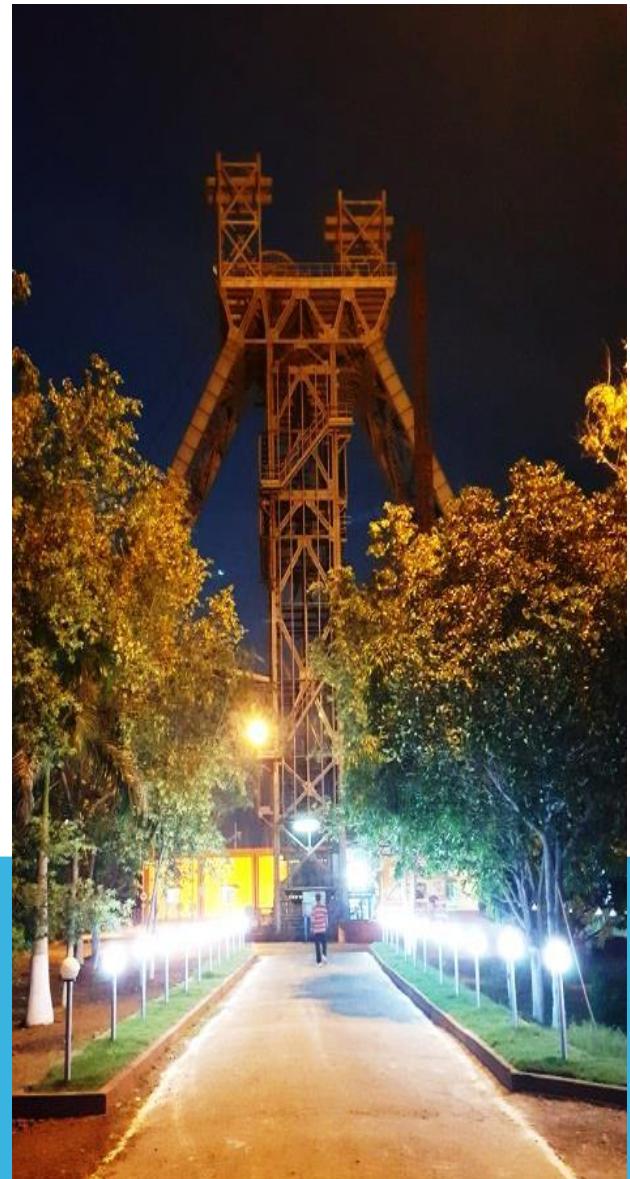


Location of Jhanjra Project in Raniganj Coalfield

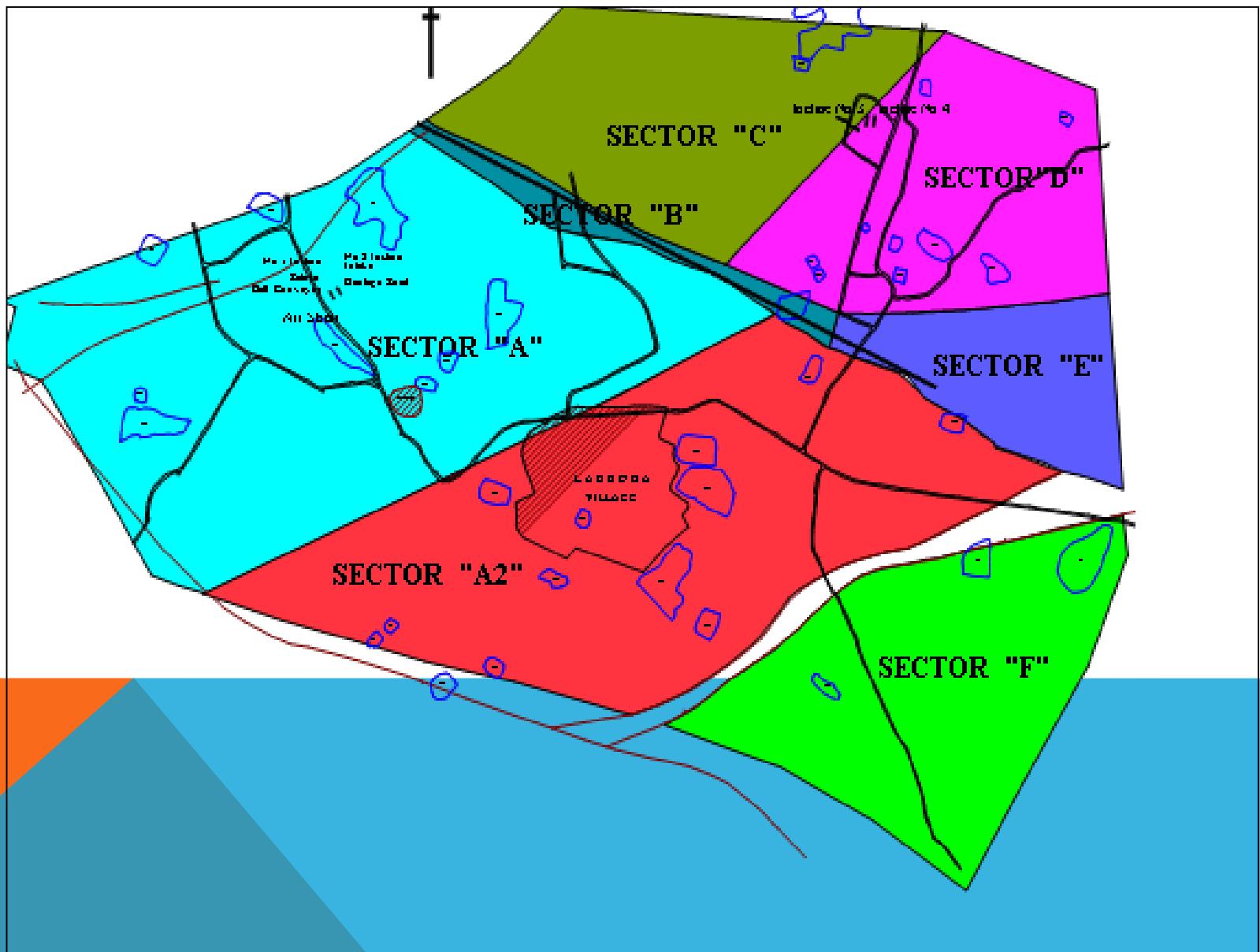


Mine Introduction

- Jhanjra Project is located in the North-Eastern part of Raniganj coalfield in the state of West Bengal. The project is about 30 km North-West of Durgapur Industrial Complex & 50 km from Asansol.
- Total block area divided into six broad sectors, i.e. Sector-A, B, C, D, E, & F. Workable coal seams i.e. R-VII, R-VIIA, R-VI, R-V, R-IV, R-V & R-IV combined, R-III, R-II and R-III/II seams are occurring in this block.
- Block area -15.10 sq.km.
- Geological Reserves of Block -395.33 MT.



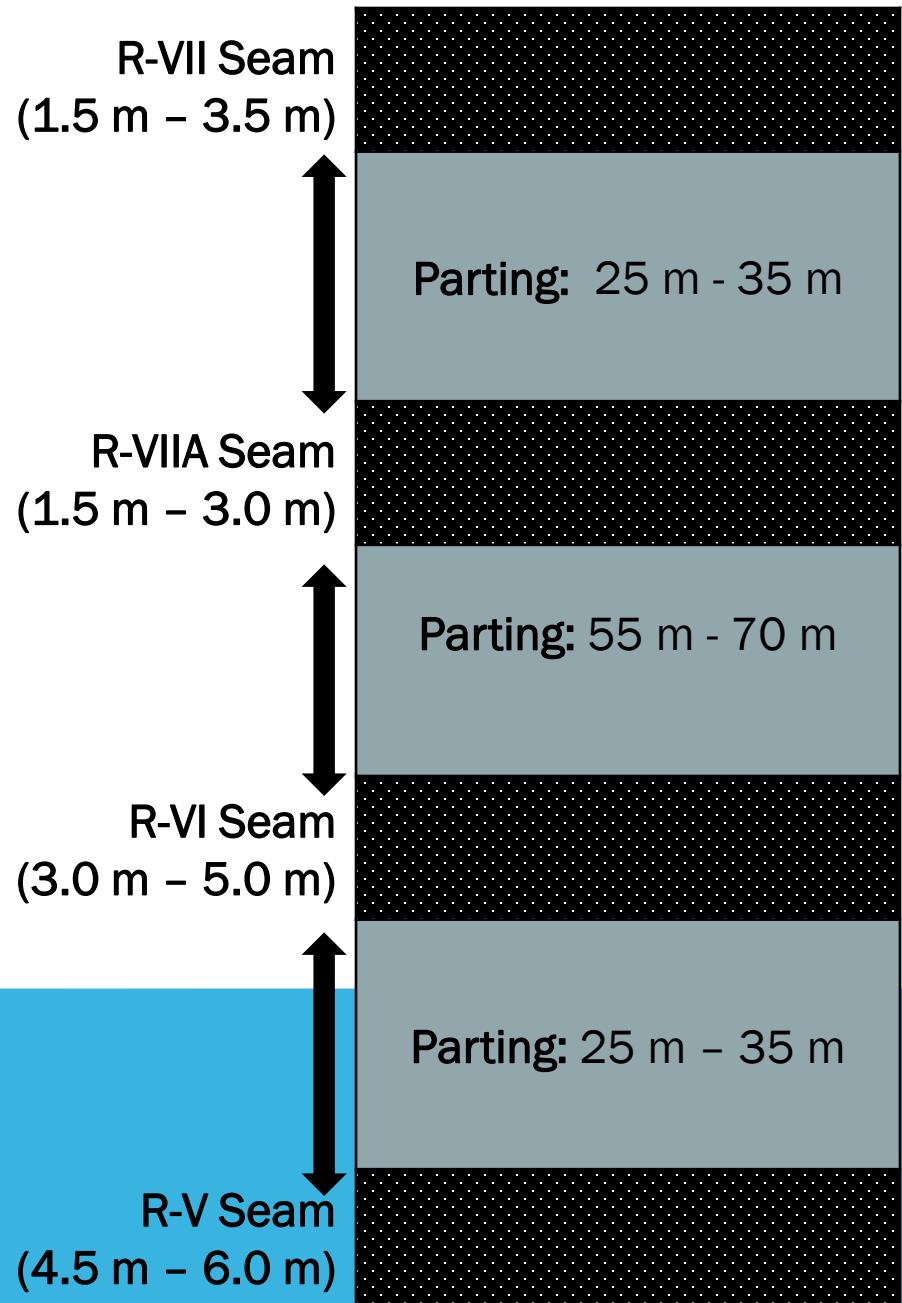
Block Plan of Jhanjra



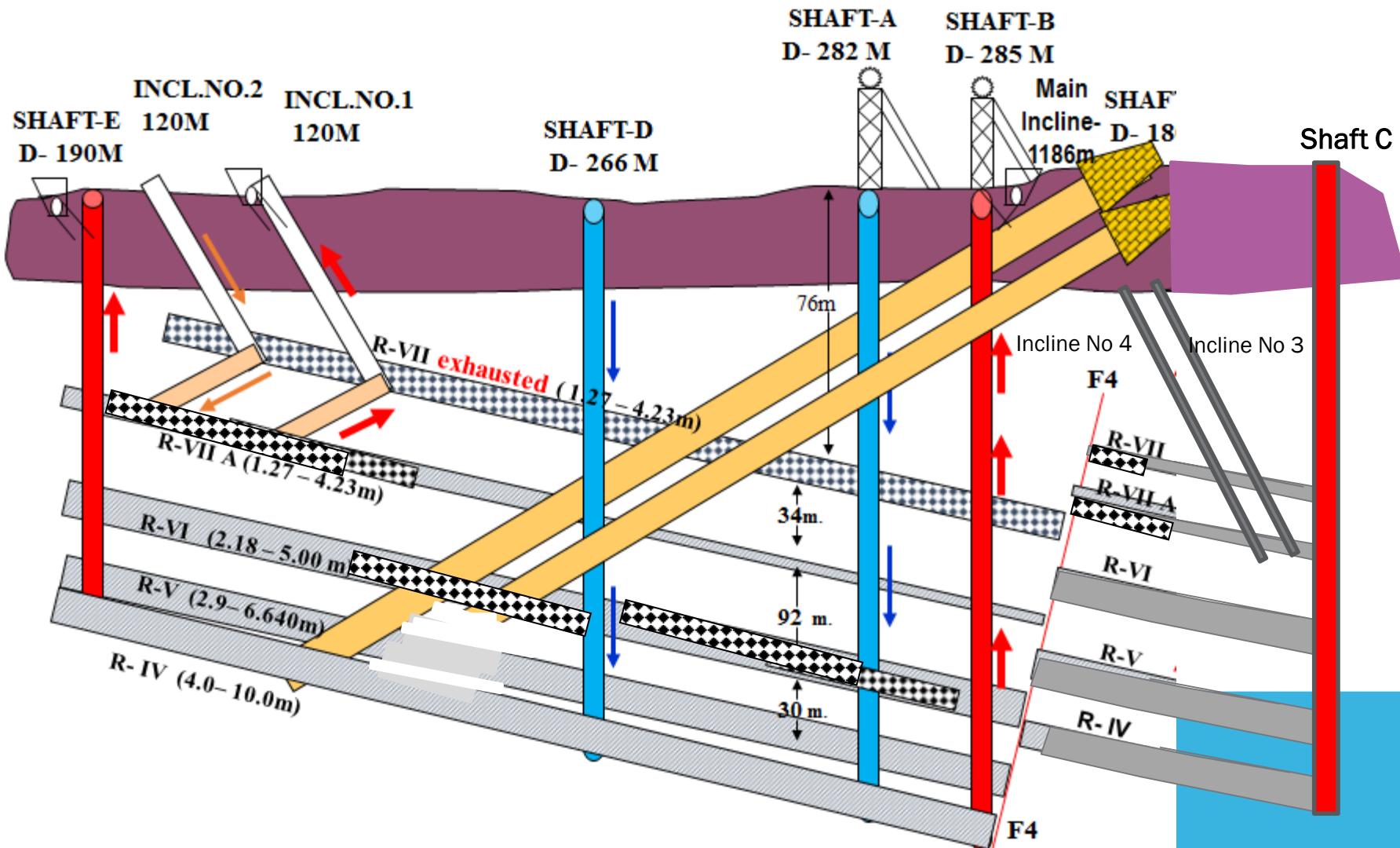
INTRODUCTION

- Presently working is concentrated in Sector A of R-VI Seam by deploying one Longwall Package and two Standard Height Continuous Miner Packages in Sector C and D R-VI Seam.
- Presently Sector A of R-VII and R-VIIA seam is being extracted through 3 & 4 Incline Unit of Jhanjra Project Colliery by deploying 2 nos of Low Height Continuous Miner
- In R-VII and R-VIIA seam is being extracted through 1 & 2 Incline Unit and 3 & 4 Incline Unit of Jhanjra Project Colliery by deploying LHDs and SDLs

Present Seam - wise Section



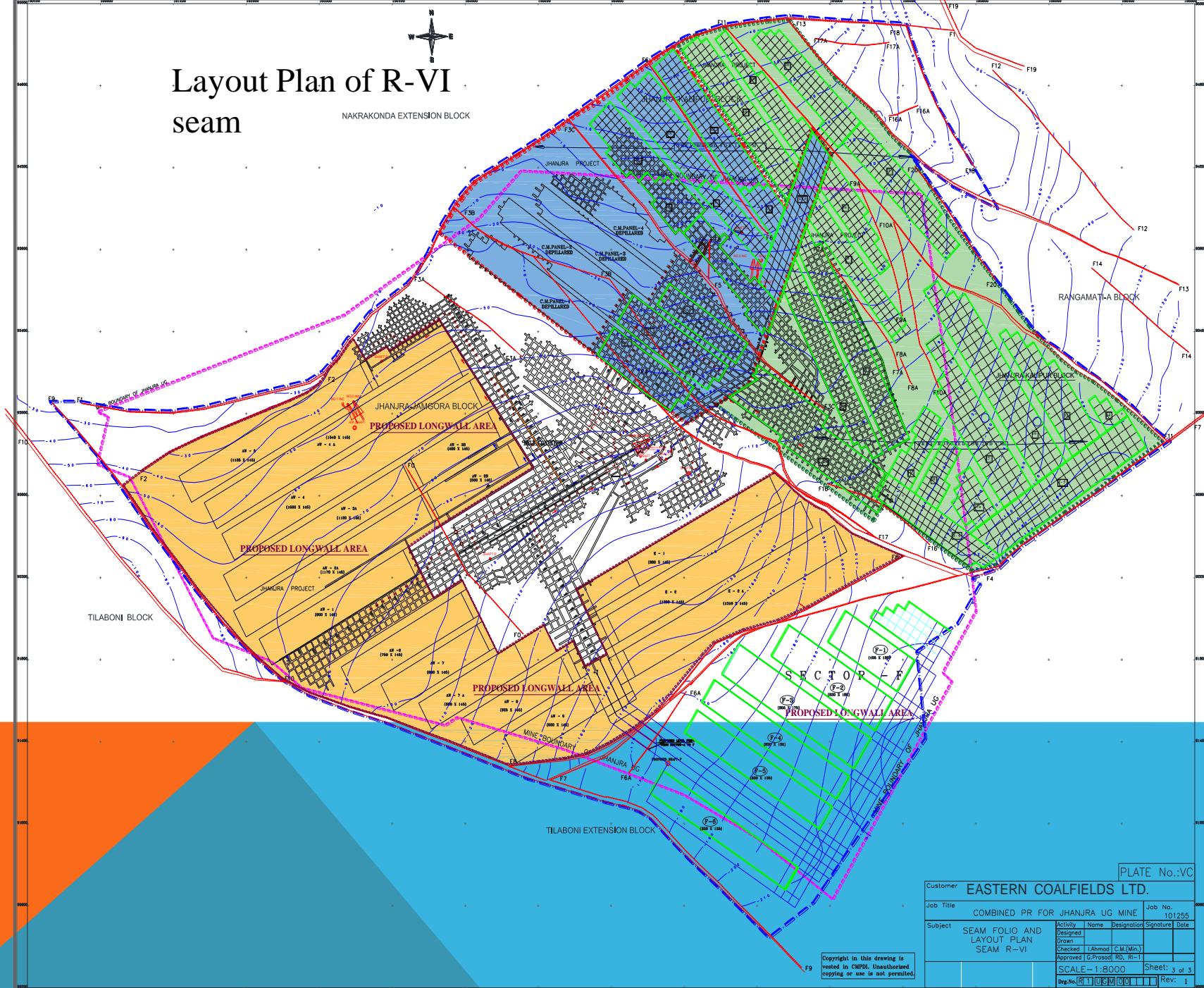
JHANJRA PROJECT



NOT TO SCALE

Layout Plan of R-VI seam

NAKRAKONDA EXTENSION BLOCK



CHRONOLOGY

JHANJRA PROJECT COLLIERY

GOI approved a FR for Jhanjra Mine in collaboration with Soviet Experts in December 1982, for a production level of 3.5 MTY from PSLW Faces.

1982-1985 – Construction of infrastructure and drivage of 1&2 and 3&4 Incline.

1983-84 : Shaft Sinking started.

1985 – 1989: Coal Production started by conventional method and Preparation of LW panel started.

1989 – 2003 : LW Panel Extraction of Different Capacities - 19 LW Panels in 1&2 Mine; 04 LW Panels in MIC mine;

2007 – Continuous Miner I started operation in MIC

2014 - Continuous Miner II started operation in MIC.

2016 – LW Panel (CODOCO) with higher support capacity started operation in MIC.

2016 – 3 Drift Runners and 7 no MUV with 4 no trailers introduced in MIC.

2018- Commissioning of 2 nos.of LHCIM in incline 3&4.

TECHNICAL SPECIFICATION

LONGWALL

Powered Roof Supports

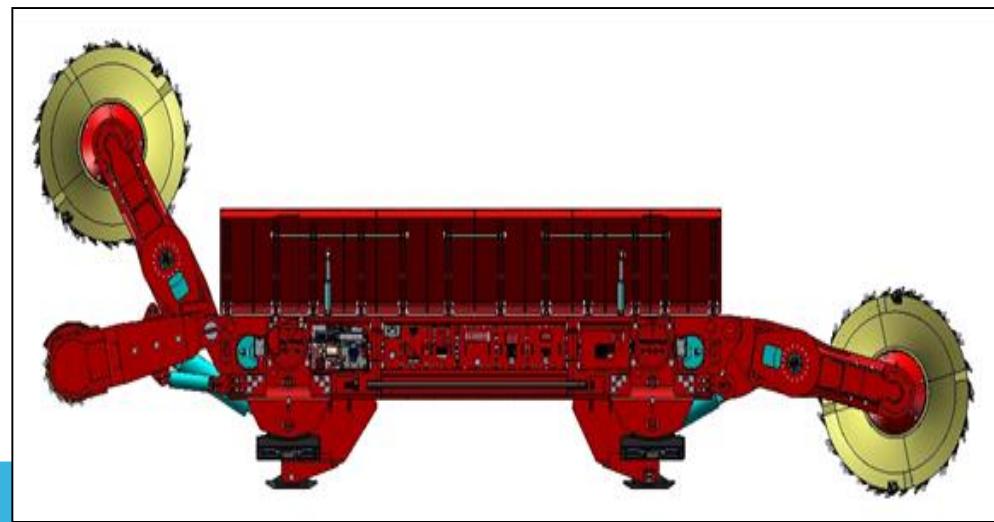
Sl. No.	Particulars	Dimensions
1	Support Type	2-legged shield support
2	Height of support	2600-5600 mm
3	Support yield load @43.8 Mpa	11000 KN



Shearer

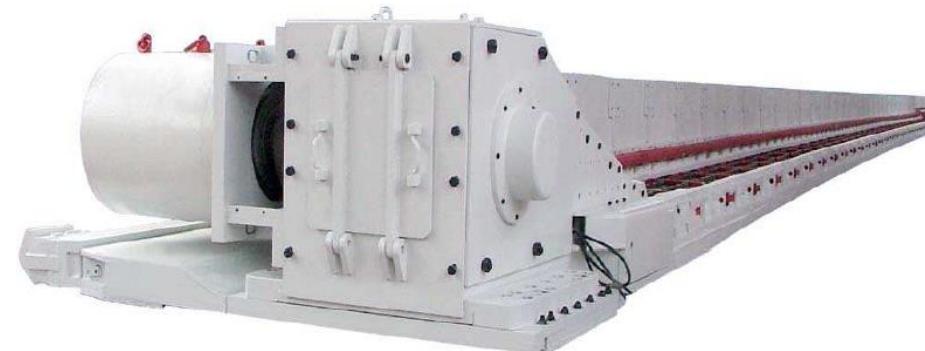
- Number of cuts per day- 7 to 8
- Average production- 6000-6500 TPD
- Maximum production in a day- 9260 Tonnes

Sl. No.	Particulars	Dimensions
1	Production capacity	2800 Tonne/hour
2	Diameter of Shearer drum	2800 mm
3	Maximum cutting height	5500 mm



Armoured Face Conveyor

Model of AFC : SGZ900/800



1. Length :145m
2. Maximum transport capacity :1800t/h
4. Chain speed :1.1m/s
5. Installed power :2x400kW

Chain dimensions : 34×126 mm
Grade :D Grade

Structure type of line pan Bottom sealing with cast welding

Bridge Stage Loader

Model of BSL : SZZ900/315



Chain dimensions : 34×126 mm
Grade :D Grade

Structure type of line pan
Integral chest structure

1. Length :40m
2. Maximum transport capacity :2000t/h
3. Installed power :315kW
4. Rated voltage :3300 V

Gate Road Development by Road headers

- 2 Road headers are being used for Gate road development.
- Gate Road dimensions:
 - Main Gate: 3.8 m (height) x 4.8 m (width)
 - Tail Gate: 3.6 m (height) x 4.8 m (width)

Sl. No.	Particulars	Dimensions
1	Maximum Cutting Height	4.8 m
2	Maximum Cutting Width	5.0 m



TECHNICAL SPECIFICATION

CONTINUOUS MINER - I

Broad Specifications of Continuous Miner-1st CM Package

Feature	Technical Specifications
Cutting Height	2.16 m -4.60 m
Cutting Width	3.30 m
Dimensions	Length-11.02 m x Width-2.77m x Height-1.00m
Weight	58 tonnes
Cutting Drum diameter	1.12 m



Broad Specifications of Shuttle Car-1st CM Package

Feature	Technical Specifications
Dimensions	Length-8.99 m x Width-3.05 m x 1.31 m +side boards
Weight	20.50 tonne
Cubic Capacity	10.19 cu. m



Broad Specifications of Quad Bolter-1st CM Package

Feature	Technical Specification
Length	7.78 m
Width	3.16m
Minimum operating height	2.40 m
Maximum bolting height	4.77 m
Bolting rate	Up to 25 bolts/hour



TECHNICAL SPECIFICATION

CONTINUOUS MINER - II

Broad Specifications of Continuous Miner-2nd CM Package

Feature	Technical Specifications
Maximum Cutting Height	4.62m
Minimum Operating Height	2.33m
Overall Length	11.28m
Weight	75 tonnes
Cutting Drum width	3.50m
Cutting Drum diameter	1.168m
Loading Capacity	11-27 T/ min tonnes/minute
Machine Voltage	1140V/ 50 Hz



Broad Specifications of Diesel Coal Hauler (FBR-15) - 2nd CM Package

Feature	Technical Specifications
Length overall	11.19m
Width	3.30m
Height	1.75-2.0m depending on tyres
Payload (maximum)	15 tonnes
Speed (maximum)	22.5 Km/ hour
Fuel tank	300 litres



Broad Specifications of Roof Bolter -2nd CM Package

Feature	Technical Specifications
Length	7.78 m
Width	3.16m
Minimum operating height	2.40 m
Maximum bolting height	4.77 m
Weight	29.8 tonnes
Minimum operating width	3.16 m
Bolting rate	Up to 25 bolts/ hour
Cable Reel Capacity	135 m
Voltage	1100V/ 50 Hz
Motor power	37. KW x 2



TECHNICAL SPECIFICATION

LOW HEIGHT CONTINUOUS MINER

LOW HEIGHT CONTINUOUS MINER	
Equipment details/Specifications	Data/Information
Make	CAT – CM 230
Operating parameters	
Ground clearance (mm)	229
Tramming speed (m/min)	0-26
Machine weight (t)	63.5
Dimensions	
Overall length (mm)	11049
Width (mm)	3531
Height (mm)	1118 over scrubber duct
Cutting unit	
Cutter drum diameter (mm)	1118
Cutter drum width (mm)	3531
Cutter drum speed (rpm)	57



Shuttle Car /Coal Hauler			
Equipment details/Specifications	Data/Information	Turning radius (mm)	2919 mm inside 7473 mm outside
Make	PHILLIPS - HC14B 56R/56L	Fuel consumption (L/shift) (if Diesel operated)	N/A
Operating parameters			1140
Power (kW)	22kW+30kW+(2x55kW)	Ground clearance (mm)	270
Vehicle speed (kmph)	8.8 Loaded 9.6 Empty	Dimensions	
Grade ability in degree	8.5 degrees Vertical 5.0 degrees Horizontal	Overall length (mm)	9042
		Width (mm)	3683
		Height (mm)	1284



Roof Bolter	
Equipment details/Specifications	Data/Information
Make	J.H. FLETCHER - RRII-AC
Operating parameters	
Number of bolters	Dual Boom
Operating mining height (m)	1.20 – 2.80 Range
Drilling length (m)	1.82 m (for single pass)
Drill hole size (mm)	27 mm (\pm 2 mm)
Tram speed (m/min)	0 to 40 m/min
Drilling nature	Dry and Wet type available
Power (kW)	2 x 37 kW
Operating voltage (V)	1140 VAC, 50Hz, 3 phase
Bolting rate (bolts/hr.)	31 to 37 (in ideal condition)

Dimensions	
Overall length (mm)	7,213
Width (mm)	2,895
Height (chassis) (mm)	863
Wheel base (mm)	1854
Ground clearance (mm)	228
Drilling System	
Torque (Nm)	407
Rotation (rpm)	560
Feed thrust	10,000lbs
Feed length (m)	1.828
Feed rate (m/min)	9.14
Mast height range (m)	Arm – feed mechanism
Mast tilt (deg.)	Vertical drilling



Feeder Breaker

Equipment details/Specifications	Data/Information
Make	ONTRAK - OFB-1212
Operating parameters	
Capacity (TPH)	1200
Input size (mm x mm x mm)	600 x 900 x 1200
Output size (mm x mm x mm)	Variable settings from -100 to -300 mm
Weight (t)	32.0
Tram speed (m/min)	12 m/min
Crusher Power (kW)	90 kw Breaker 55 kw for Tram/Conveyor

Dimensions

Overall length (mm)	10500
Width over bucket type hopper (mm)	3900
Overall width (frame) (mm)	3050
Tram height (mm)	1380
Max. discharge height (mm)	1361
Conveyor	
Conveyor width (mm)	1250



MULTI UTILITY VEHICLE

JHANJRA PROJECT COLLIERY

UNDERGROUND TRANSPORT

□ There are two basic options for the underground transport of materials and equipment:

- Track/rail systems
- Trackless systems

□ **Advantage of Trackless Mines**

- Mobility
- Flexibility
- High efficiency
- Economy

MULTI UTILITY VEHICLE

CL 210 - 10Tonne Capacity.

CL 215- 15 Tonne Capacity.

SH 660 D – 50 Tonne Capacity(Roof Support Carrier).

SH 150 - Chock Shield Trailers.

Two types available for coupling with CL 210 and CL 215 MUVs through fifth wheel arrangements.



TYPES OF MULTI UTILITY VEHICLE

Caterpillar CL210 Load Haul Dump	Caterpillar CL215 Load Haul Dump	Caterpillar SH 660 D Load Haul Dump
<ul style="list-style-type: none">➤ Bucket Payload 8000 kg➤ RAS forks, max payload 10000 kg➤ RAS Slewing Jib, max payload 7000 kg➤ RAS Belt/Cable Reeler, max payload 7000 kg➤ Max un-braked trailer mass 10000 kg➤ Braked trailer	<ul style="list-style-type: none">Bucket Payload 12000 kgRAS forks max, Payload 15000 kgRAS Fixed Jib max Payload 10000 kgRAS Slewing Jib max Payload 8000 kgRAS Belt Reeler 12000 kgMax un-braked trailer mass 15000 kg	<ul style="list-style-type: none"><input type="checkbox"/> Weight Unladen with full tanks 53000 kgMaximum Laden 113000 kg<input type="checkbox"/> Engine Type Diesel, Turbo charged, 4 cycleCooling system Water based radiatorCooling fan Hydraulic driven fanEngine Make/model Caterpillar 3126Displacement 7.2 litreMaximum power 172kW @ 2200 rpmMaximum torque 895 Nm @ 1700 rpm

SAFETY FEATURES

- | | |
|---|--|
| <ul style="list-style-type: none">• Effective Silencer• Pneumatic Engine Start• Wet Bath Exhaust Conditioner• Disc Type Service & Perking Brakes with SAHR feature.• Low Pressure Engine Cut Off Switch• Hour Meter• Efficient Head and Tail Lights | <ul style="list-style-type: none">• Automatic Fire Suppression System• Protective Canopy for Operator• Proper Steering• Suitable Air Filter on intake• Temperature Gauge• Suitable Flame Arrestor• Exhaust gas back pressure trip.• Cabin door interlock with brakes. |
|---|--|

DRIFT RUNNER - MAN RIDER

JHANJRA PROJECT COLLIERY

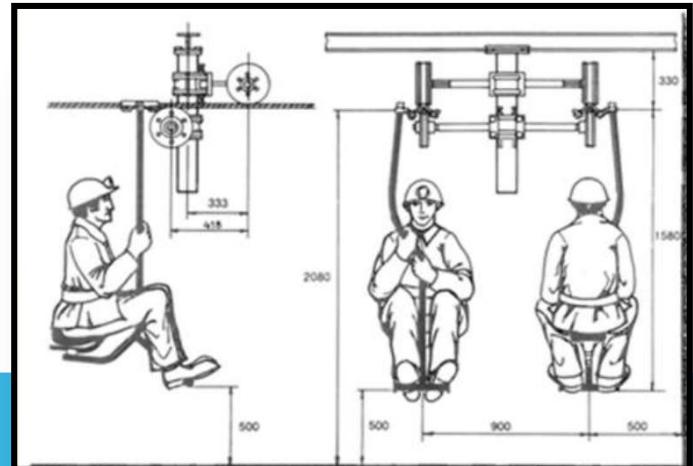
MAN RIDING SYSTEM

Different types of Man Riding System Used in Under Ground Coal Mines:

- ✓ Chair lift man riding systems
- ✓ Man riding car system
- ✓ Mono rail System
- ✓ Diesel Operated Drift Runner (Free Steered)



Man Riding Car System



Chair Lift Man Riding Systems



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SAFETY FEATURES

- | | | |
|--|--|--|
| <ul style="list-style-type: none">• Prestart Alarm• Audible warning signal (Horn)• Automatic Shut Off Valve operates when either fluid level in exhaust conditioner fall below or Temperature of Exhaust Gases exceeds 77 Deg C• Portable Diesel container | <ul style="list-style-type: none">• Methane Warning at 1% and Engine Shut Off if % of CH₄ increases 1.25• Effective Silencer• Pneumatic Engine Start• Exhaust Conditioner• Disc Type Service & Perking Brakes• Suitable Flame Arrestor | <ul style="list-style-type: none">• Low Pressure Engine Cut Off Switch• Hour Meter• Efficient Head and Tail Lights• Fire Suppression System• Protective Canopy• Proper Steering• Suitable Air Filter on intake• Temperature Gauge |
|--|--|--|

SAFETY FEATURES

Default Values for Alarm

Sensor Name	Value that will cause Alarm
Alternator	Off (not supplying current)
Engine Coolant Temp	Greater than 100 °C
Turbo Surface Temp	Greater than 130 °C
Exhaust Outlet Temp	Greater than 65 °C
Hydraulic Oil Level	Open – 'o/o'
Methane	Greater than 1. %

Default Values for Trip

Sensor Name	Value that will cause Trip
Alternator	Off (not supplying current)
Engine Coolant Level	Open – 'o/o'
Engine Coolant Temp	Greater than 105 °C
Engine Oil Pressure	Less than 0.7 Bar
Methane	Greater than 1.25%
Scrubber Level 1	Open – 'o/o'
Scrubber Level 2	Open – 'o/o'
Hydraulic Oil Temperature	Greater than 85 Deg C
Turbo Surface Temp	Greater than 145 °C
Exhaust Outlet Temp	Greater than 77 °C

MILESTONES ACHIEVED

JHANJRA PROJECT COLLIERY

MILESTONES ACHIEVED

- Achieved 103.5% of the APP 2018-19 target
- Achieved a positive Production Growth of over 6.5 % in the FY 18-19 when compared to FY 17-18.
- Achieved Highest production Figures in financial year 2018-19
- The mine is the largest producing Underground Mine of India
- Yearly Highest production for the financial year 2018-2019 is 33,76,155 Te as compared to the previous achievement for the financial year 2017-2018 is 31,69,999 Te.
- Monthly Highest production for the month of January 2019 is 4,17,240 Te as compared to the previous monthly highest achievement December 2018 is 3,86,265 Te.
- Total Dispatch of 33,98,592.58 Tes with a growth of 107.3% as compared to the last year
- Highest production in a day is 21,000 Te on 28.01.2019 as compared to 20,715 Te on 19.01.2019.

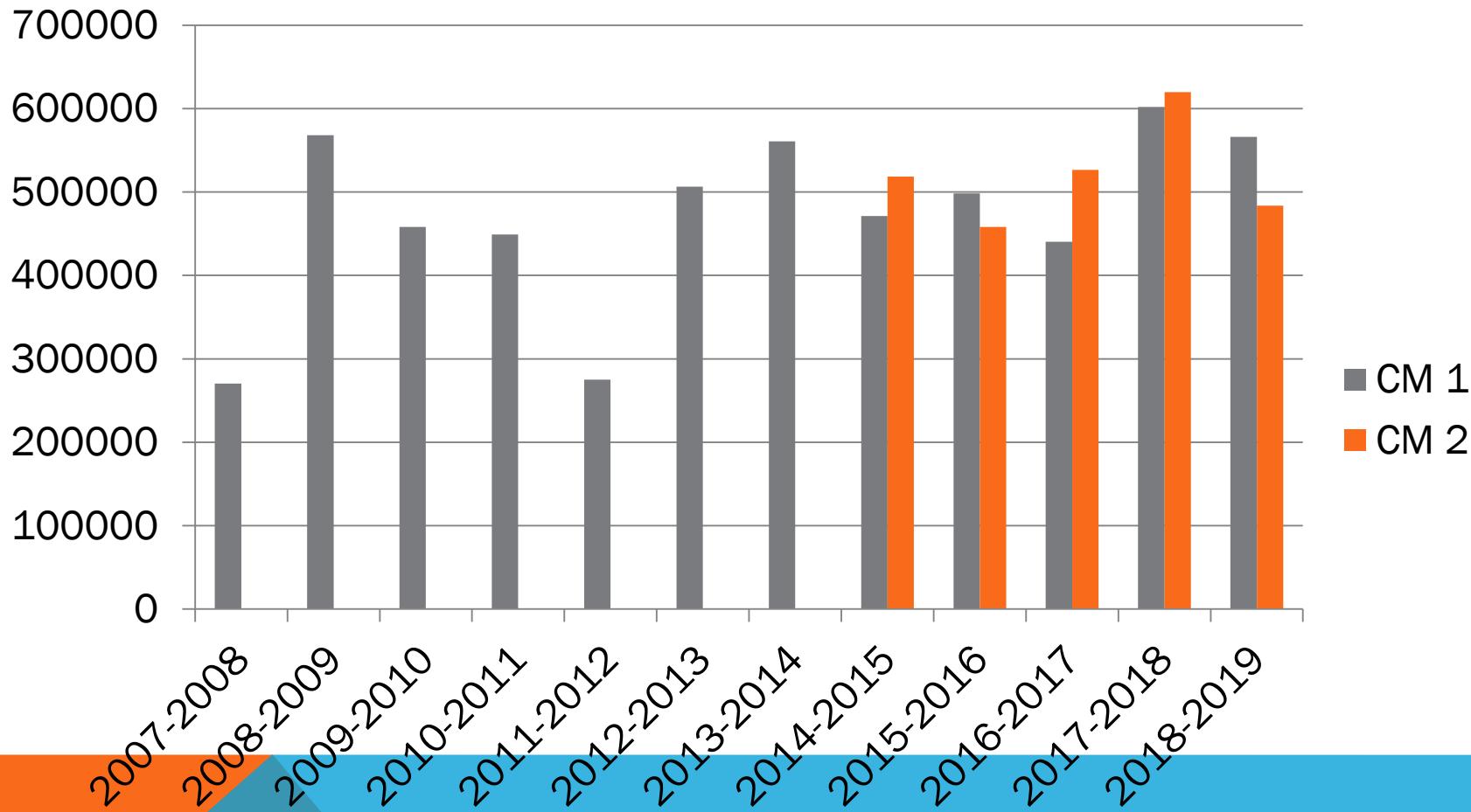
MILESTONES ACHIEVED

- Highest Transport Record of 16924.3 tes in a single day on 28/02/2019 and Highest Dispatch Record of 17870.91 tes in a single day on 28/02/2019.
- Highest production in Longwall District for the month of January 2019 is 2,19,435 Te.
- Highest production in Longwall District in a day is 9,205 Te on 07.01.2019
- Highest production in CM-1 District in a day is 4,045 Te on 27.03.2016 and for the month of March 2008 is 66,150 Te.
- Highest production in CM-2 District in a day is 5,050 Te on 31.03.2017 and for the month of March 2017 is 78,850 Te.
- Highest production in LHCM District in a day is 3,100 Te on 07.01.2019.

PRODUCTION STATISTICS

JHANJRA PROJECT COLLIERY

Production Comparison of CM - 1 and CM - 2 Package



- Maximum Production in a day from 1st CM- 4045 tonnes
- Maximum Production in a day from 2nd CM- 5050 tonnes

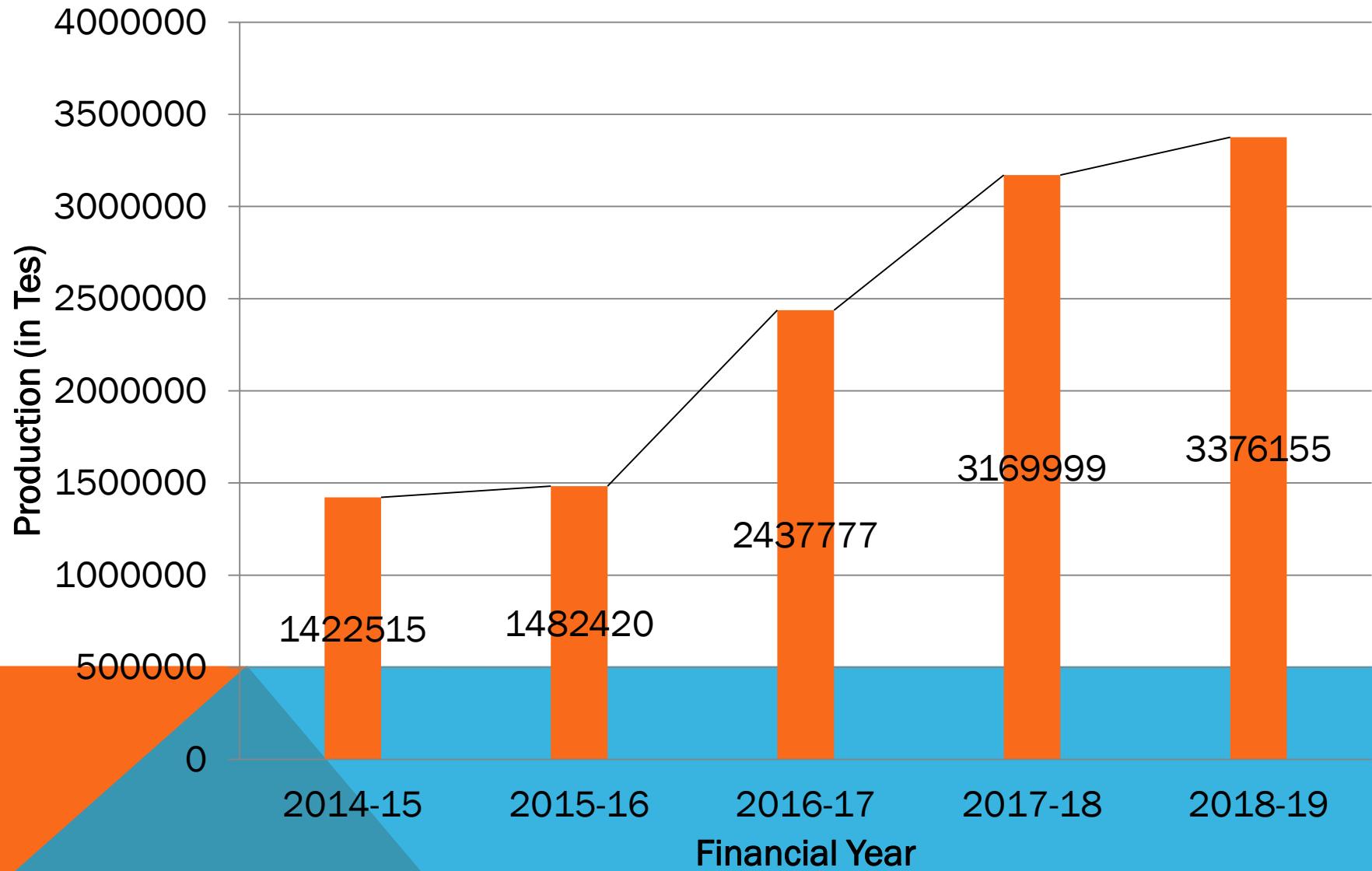
TECHNOLOGY WISE PRODUCTION OF JPC for the FY 2018 - 19

MONTH	CM 1	CM 2	L/W	R/H	LHCM	SDL	LHD	Total JPC
Apr-18	50855	39290	72800	15190	10365	6695	14195	209390
May-18	48280	11940	115000	14785	20100	4520	16760	231385
Jun-18	51990	0	170275	11175	21365	4325	16215	275345
Jul-18	55415	0	178535	11235	30890	4240	19750	300065
Aug-18	46650	47280	14545	12590	24845	4475	22960	173345
Sep-18	51585	54190	0	13125	24725	4095	24745	172465
Oct-18	45000	49335	49760	16483	36273	2235	20379	219465
Nov-18	45925	41035	149180	18770	45830	1190	18315	320245
Dec-18	41310	44710	205735	16050	56615	1935	19910	386265
Jan-19	50660	58030	219435	11290	57545	1860	18420	417240
Feb-19	41250	63900	186375	9125	51320	5210	15190	372370
Mar-19	37265	73975	91450	13690	56405	2990	22800	298575
TOTAL JPC	566185	483685	1453090	163508	436278	43770	229639	3376155
	CM1 + CM 2		LW + RH		LHCM	SDL + LHD		
	1049870		1616598		436278	273409		3376155

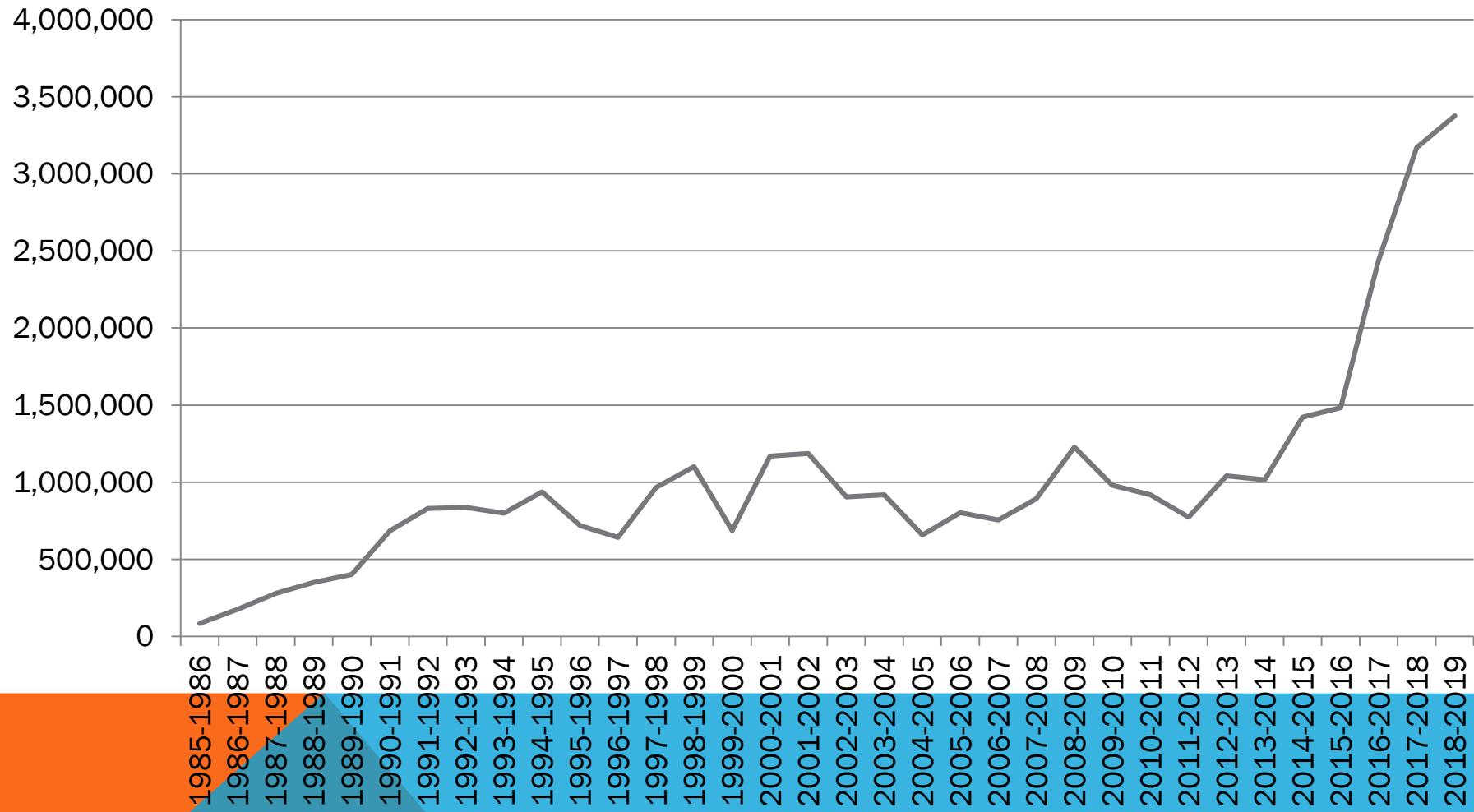
PRODUCTION ACHIEVED 2017-18

TECHNOLOGY WISE PRODUCTION OF JPC for the FY 2017-18							
MONTH	CM 1	CM 2	L/W	R/H	SDL	LHD	Total JPC
Apr-17	57255	66125	0	16810	9310	17500	167000
May-17	50500	57380	130450	19535	10690	18330	286885
Jun-17	46827	28165	177930	16905	9150	13743	292720
Jul-17	39710	44010	140066	15280	9685	14385	263136
Aug-17	60210	41991	4915	14019	11310	15535	147980
Sep-17	62975	53400	0	16355	11240	14630	158600
Oct-17	60250	53860	63415	12650	11255	15260	216690
Nov-17	40050	52565	151880	13091	10090	15310	282986
Dec-17	44695	62270	194575	8665	9420	17250	336875
Jan-18	37520	56485	203455	7030	7340	16760	328590
Feb-18	43655	52045	205550	10245	6990	14620	333105
Mar-18	58292	51360	210230	14075	7030	14445	355432
TOTAL JPC	601939	619656	1482466	164660	113510	187768	3169999
	CM1 + CM 2		LW + RH		SDL + LHD		
	1221595		1647126		301278		3169999

Production Figures of Jhanjra Project Colliery



PRODUCTION SINCE INCEPTION OF MINE



ANNUAL PRODUCTION TARGET OF JHANJRA PROJECT COLLIERY 2019 - 2020

MONTH	CM 1	CM 2	LONGWALL	Road Header	LHCM	SDL/LHD	TOTAL JPC
April ' 2019	0	46000	93500	12500	60000	14000	226000
May ' 2019	0	48000	162500	12500	60000	13500	296500
June ' 2019	0	48000	162500	12500	60000	13500	296500
July ' 2019	49000	51000	0	12500	60000	14000	186500
August ' 2019	48000	48000	0	12500	60000	13500	182000
September ' 2019	50000	50000	35000	12500	60000	14000	221500
October ' 2019	45000	47000	163000	12000	60000	13500	340500
November ' 2019	48000	48000	162500	12500	60000	13500	344500
December ' 2019	52000	50000	167000	13000	60000	14000	356000
January ' 2020	49000	48000	172000	13000	60000	14000	356000
February ' 2020	45000	44000	160000	11500	60000	13000	333500
March ' 2020	51000	50000	172000	13000	60000	14500	360500
Total	437000	578000	1450000	150000	720000	165000	3500000

FINANCIAL FIGURES

FINANCIAL FIGURES

Year	Profit (Rs) in Cr	OMS
2019-20 (1 st quarter)	107.12	4.91 (estimated)
2018-19	137.42 (NET)	4.60
2017-18	108.12	4.12
2016-17	72.61	3.12

FUTURE CHALLENGES

- The present state of the art technology will not be feasible to be operated with the conditions in the R-V seam as it is thicker and full extraction would not be possible.
- The rising demand for coal has to bring in innovations and implications of latest technologies adopted presently in the world.
- To extract full thickness of coal we need to adopt technologies like Longwall Top Coal Caving, Multi-Layer Slicing, and Integrated Longwall Techniques.

Major mechanization still to be adopted at Jhanjra Project Colliery:

- Small track mounted man riding arrangement in long main gate roadways
- Mechanization for small jobs like cleaning of belts, capital activity
- Integrated bolter miner for capital activities like drivage between two seams, crossing of geological disturbances with high capacity
- Tube Bundle System for gas monitoring at Longwall face
- Refuge Centre to cater to man deployed belowground in times of distress/emergency

CONCLUSION

- With advent of rising demands in Global Coal and Indian Coal consuming industries the rate of production has to be increased at a higher rate.
- Underground Mining contributes only 6-7% of the total production but it has to be augmented to sustain in the near future
- Presently there are only 2 sets of Longwall operating in Coal India but the number of Longwall packages operational has to be increased
- The history of Long wall technology in India is not so satisfactory due to several reasons but it is successful in Jhanjra Project Colliery.
- There is much that Indian coal industry can learn from Chinese experiences in Long wall technology, especially for thick seam mining using sub-level caving
- Coal industry must accept the challenge of transplanting the international best practices into India with more effective face management on a consistent basis
- It is a step to achieve our dream of producing 3.5MT of coal per annum, a step towards achieving the vision of Coal India Limited of producing 1 billion tons of coal by 2020.

THANK YOU

On behalf of Mechanized team of Jhanjra Project Colliery