



GOVERNMENT OF WEST BENGAL
DIRECTORATE OF FORESTS



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Memo No.: 3362 / WL / 2M-33(Pt-II)/ 2021

Date: 23/11/2022

To: The Chairman
State Environment Impact Assessment Authority (SEIAA)
Department of Environment, Govt. of West Bengal.

Sub: Wildlife Conservation Plan of Gourangdih ABC Coal Mine - reg.

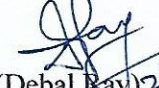
Ref.: 1. General Manager (Projects), WBMDTCL's memo no. MDTC/PM-5/144/Env/2879 dated 11/10/2022.
2. APCCF & CCF, South-East Circle's letter no. 3105/SEC/2M-10 dated 21/10/2022.

Sir,

The Wildlife Conservation Plan for Gourangdih ABC Opencast Coal Mining Project is approved from this end for seeking Environment Clearance.

Encl.: as stated

Yours faithfully,


(Debal Ray) 23/11/22


Principal Chief Conservator of Forests, Wildlife
& Chief Wildlife Warden, West Bengal

Memo No.: 3362(3) / WL / 2M-33(Pt-II)/ 2021

Date: 23/11/2022

Copy forwarded for information to :-

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3. The Divisional Forest Officer, Durgapur Division, West Bengal.


(Debal Ray) 23/11/22

Principal Chief Conservator of Forests, Wildlife
& Chief Wildlife Warden, West Bengal



**WEST BENGAL MINERAL DEVELOPMENT
& TRADING CORPORATION LIMITED
(WBMDTCL)**

(A Govt. of West Bengal Undertaking)

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**WILDLIFE CONSERVATION PLAN
FOR
GOURANGDIH ABC OPENCAST COAL
MINING PROJECT**

**PROPOSED AT
VILLAGES PANURIA, KANTAPAHARI, JAMGRAM,
SHIBDHAWRA, BANDDHAWRA, LALBANDH,
GOURANGDIH AND BHUIAPARA,
TEHSIL BARABANI CD BLOCK, DISTRICT PASCHIM
BARDHAMAN, WEST BENGAL**

**{(2.5 MTPA R.O.M. COAL BY OPEN CAST METHOD)
(M.L. AREA: 213.27 HA, PROJECT AREA: 356.575 HA)}**

Prepared by:



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And

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II	The land use pattern in in the study area as per Census 2011
III	List of flora in the study area and core zone
IV	List of fauna in the study area and core zone
V	PCCF Certificate dt. 27-08-2021

1.0 IDENTIFICATION OF THE PROJECT

M/s West Bengal Mineral Development and Trading Corporation Limited (WBMDTC Ltd.) has been allotted Gourangdih ABC Coal Mine by Ministry of Coal, vide F. No. 103/6/2016/NA dated September 29, 2016 (copy given in **Annexure I**).

1.1 History of Gourangdih A, B & C Blocks (Source : Para 1.2 of Mining Plan).

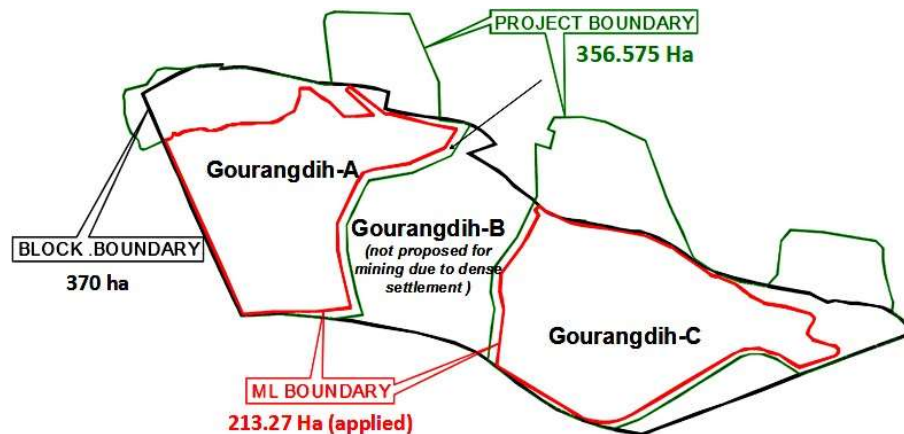
Previous to the allotment, parts of the coal mine had been exploited by both underground and opencast mining method since long. Due to insufficient geological information, mining activities in different time periods were scattered. During pre-nationalization period, private companies like M/s Bird & Co., Burrakar Coal Company and others worked extensively in the B-V seam by underground mining. B-VI seam was also developed in certain areas. B-II, B-IV and B-VI seams have also been exploited by open cast workings at some places.

Apart from the exploitation of coal, some private lessees worked fire clay quarries along the outcrop of B-V seams in the western part of the area. The extent of these quarries is limited in the west and east by faults F2-F2 and F6-F6 respectively. They are now abandoned.

Mine was earlier allotted to Gourangdih Coal Ltd. (A Joint Venture of HEPL and JSW Steel Ltd.) and TOR had been issued to them vide MOEF's letter no. J-11015/12/2011-IA.II(M) dated 30.06.2011 (*Source: online proposal no. IA/WB/CMIN/7273/2010 on environmentclearance.nic.in*). However, the coal block allocation was canceled based on Supreme Court orders in the year 2014. Thereafter this coal mines was allocated to WBMDTC Ltd. Due to lapse of validity of TOR awarded to previous allottee, WBMDTC Ltd, the new allottee submitted a fresh proposal with same parameters i.e. based on the already approved mining plan. The mining plan and mine closure plan was approved by Ministry of Coal on 28.06.2011 and the same has been transferred to and will be followed by new allottee i.e. WBMDTC Ltd.

The total block area is 370 Ha. Gourangdih block is divided into three sub blocks namely Gourangdih A (area: 127.53 Ha.), Gourangdih B (area: 90.83 Ha.) and Gourangdih C (area: 151.64 Ha.). The block boundary of Gourangdih ABC mine as well as its sub-blocks can be seen in **Fig 1** below. Among the 3 sub blocks, Gourangdih A and Gourangdih C have been worked partially both by underground and opencast method. Gourangdih B being the most thickly populated and built up area, the underlying seams were not worked and are mostly virgin. The proposal for mining as per Approved Revised Mining Plan is to mine Gourangdih-A and C, leaving Gourangdih-B undisturbed due to dense settlement. Proposed production from the mine will be 2.5 MTPA. Anticipated life of mine would be 27 years. Opencast mining method has been selected.

FIG 1: MAP SHOWING BOUNDARY OF GOURANGDIH ABC COAL BLOCK, SUB-BLOCKS A, B & C AND PROJECT BOUNDARY



1.2 Salient features

The salient features of the project are summarized in **Table 1**.

TABLE 1: SALIENT FEATURES OF THE PROJECT

Project name	Gourangdih ABC Opencast Coal Mining Project
Project proponent	West Bengal Mineral Development and Trading Corporation Ltd.
Villages in block area	Panuriya (Panuria), Kantapahari, Jamgram, Shibdhawra (Shibdhara), Banddhawra, Lalbandh, Gourangdih and Bhuiapara
Coordinates	23° 48' 30" to 23° 49' 45" N 85° 57' 45" to 85° 00' 15" E (as per allotment letter dt. 29.12.2016)
Allotted block area	370 Ha
Required Mining Lease Area	213.27 Ha
Area required Outside lease	143.305 Ha
Project Area	356.575 Ha
Sub-blocks in main block of 370 Ha	Gourangdih A - 127.53 Ha Gourangdih B - 90.83 Ha Gourangdih C - 151.64 Ha
Intent to mine	Only Gourangdih A & C (as per approved mining plan)

Pre Mining landuse break up		
	Land pattern	Area (ha)
	Agricultural Land	48.43
	Fallow land (Danga)	44.07
	Degraded land (Old quarry area)	61.316
	Built up area	60.86
	Water body	15.44
	Forest land (protected & jungle)	109.459
	Non agricultural land for colony (outside core area)	5.00
	Non agricultural land for Rehabilitation (outside core area)	12.00
	Total	356.575
Total Geological Reserve	<ul style="list-style-type: none"> ➤ Net geological reserve, Quarry A, B & C = 129.15 Million Tonnes (MT) ➤ Quarry A&C (which are proposed to be mined) = 68.37 MT (Gourangdih A-27.18 MT + Gourangdih C-41.2 MT and Gourangdih B-Nil as the area is heavily build-up) 	
Mineable Reserves	68.37 million tonnes (from Gourangdih A&C, which are proposed to be mined)	
Extractable Reserves	24.46 (Gourangdih A) + 37.08 (Gourangdih C) = 61.54 million tonnes	
Rated capacity	2.5 MTPA	
Life of the mine	27 years	
Stripping ratio	2.91 cum/t	
Total OB Generation	179.37 Mcum	
Method of Mining	Opencast Mechanized	
Blasting	Blasting required for overburden and coal extraction.	
Storage of explosives	Shed/ Magazine	
Working days	330 days, 3 shifts	
Manpower	494 for mining, 268 for ancillary jobs	
Transportation	By road or rail to consumers	
Expected cost of the project	Rs. 621.71 crores (as per estimates in Revised Mining Plan of 2011)	

Elevation	135 m to 174 m a.m.s.l.
Topography	Mostly plain with gentle undulations and general northerly slope
Water requirement	530 KLD for potable and 454 KLD for industrial purpose.
Source of water	Ajay River till mine sump water becomes available to meet the demand
Power requirement	11 KVA
Power source	Power will be received from WBSEB through 33 KVA overhead line. It will be stepped down to 11 KVA

2.0 PROJECT PROPONENT

WBMDTC Ltd., a government of West Bengal undertaking was incorporated in the year 1973 and has been engaged in the field of mining and trading of minerals in West Bengal since its inception.

WBMDTC Ltd. has adopted and implemented new business strategies in its different sectors which have started yielding positive results. With the enactment of Coal Mines (Special Provisions) Act, 2015, WBMDTC Ltd had become eligible to get allocation of coal mines for sale of coal. WBMDTC Ltd. was declared by the Ministry of Coal as the allottee of Gourangdih ABC Coal Mine located in Paschim Bardhaman district.

3.0 LOCATION

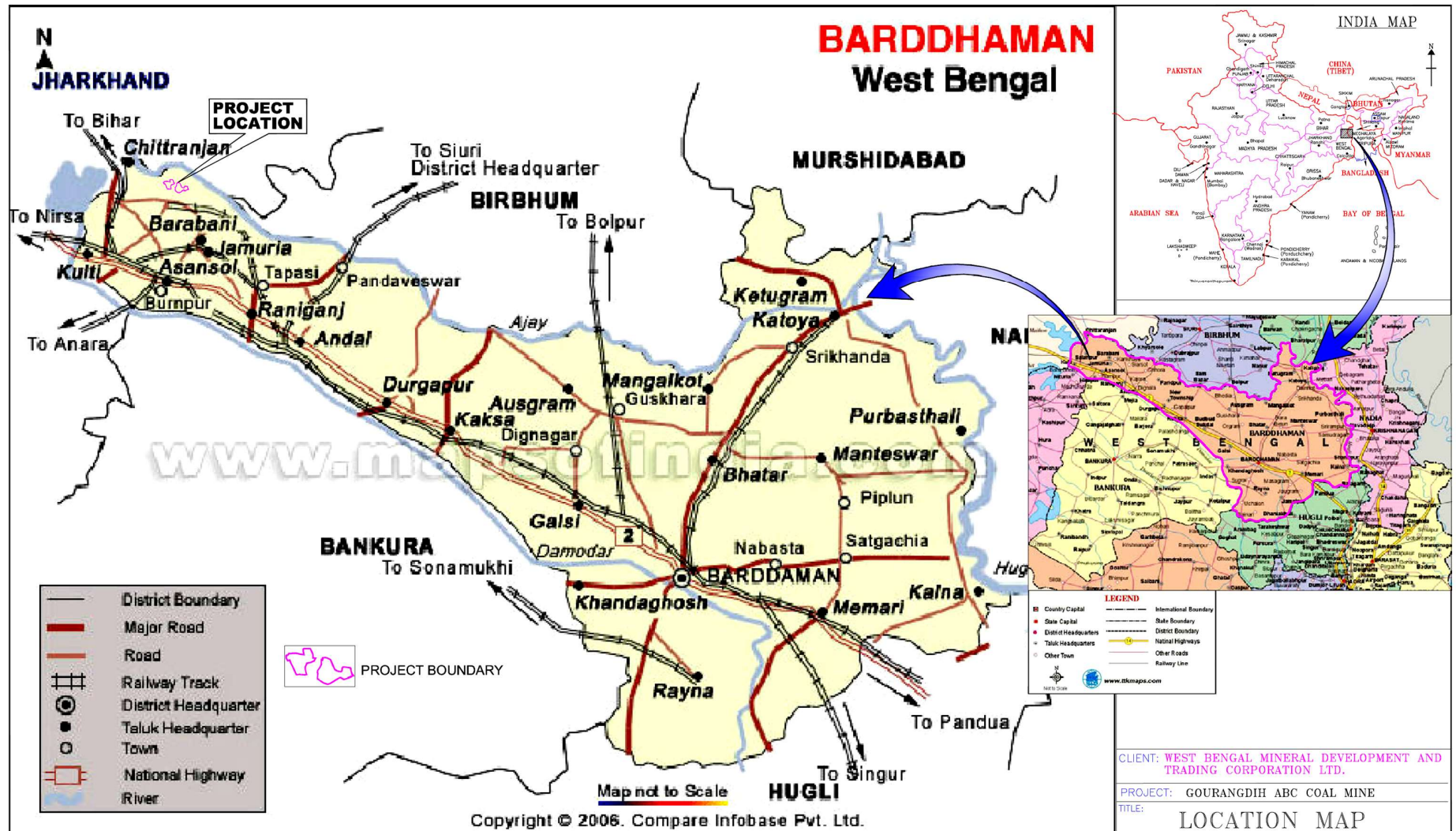
The mine is present in villages Panuriya (or Panuria), Kantapahari, Jamgram, Shibdhawra (or Shibdhara), Banddhawra, Lalbandh, Gourangdih and Bhuiapara in Barabani CD Block of District Paschim Bardhaman, West Bengal. The Block area falls in the Survey of India, Open Series Map no. F45C13 and F45D1. The area is bound by following co-ordinates:

Latitude : 23°48'30" to 23°49'45" N
Longitude : 86°57'45" to 87°00'15" E

The location can be seen in **Fig 2**.

Road Link : The area is well connected by the road. Two roads pass through the project area. One is Asansol-Gourangdih road connecting Runakuraghat via Jamgram, which passes over the eastern flank of Gourangdih C sub-block. Second is Rupnarayanpur-Gourangdih road, which passes through Gourangdih-A sub-block in western portion. At a later stage, these roads are proposed to be diverted as they will pass through quarry area.

FIG 2: LOCATION MAP OF THE PROJECT



The distance and direction to various significant roads around the mine is given below:

Roads	Distance & Direction from Project
Jamgram-Baraboni Road	Within
NH-2, Kulti to Durgapur	13.4 km, SSW
Domahani-Jamuraia Road	7.2 km, SSE
NH-419, Kulti to Gobindpur	7.8 km, W

Railway Link: Gourangdih was a terminal railway station of Andal Gourangdih section of the Eastern railway and is located about 38 km from Andal, on the Howrah-Delhi line of Eastern Railway. The railway line connecting Gourangdih Station and Andal has since then been abandoned. The present nearest railway lines and stations are listed below:

	Distance, km (from project)	Direction (from project)
Railway lines		
Sitarampur to Tapasi	7.1	S
➤ Jamtara to Asansol	7.7	W
➤ Dhanbad to Asansol	12.4	SSW
Railway Stations		
➤ Rupnarayanpur R.S.	7.8	W
➤ Sitarampur R.S.	12.5	SW
➤ Asansol R.S.	13.0	S

Airport : Kolkata airport is situated at a distance of about 195 km SE and Andal airport at a distance of 40 km SE.

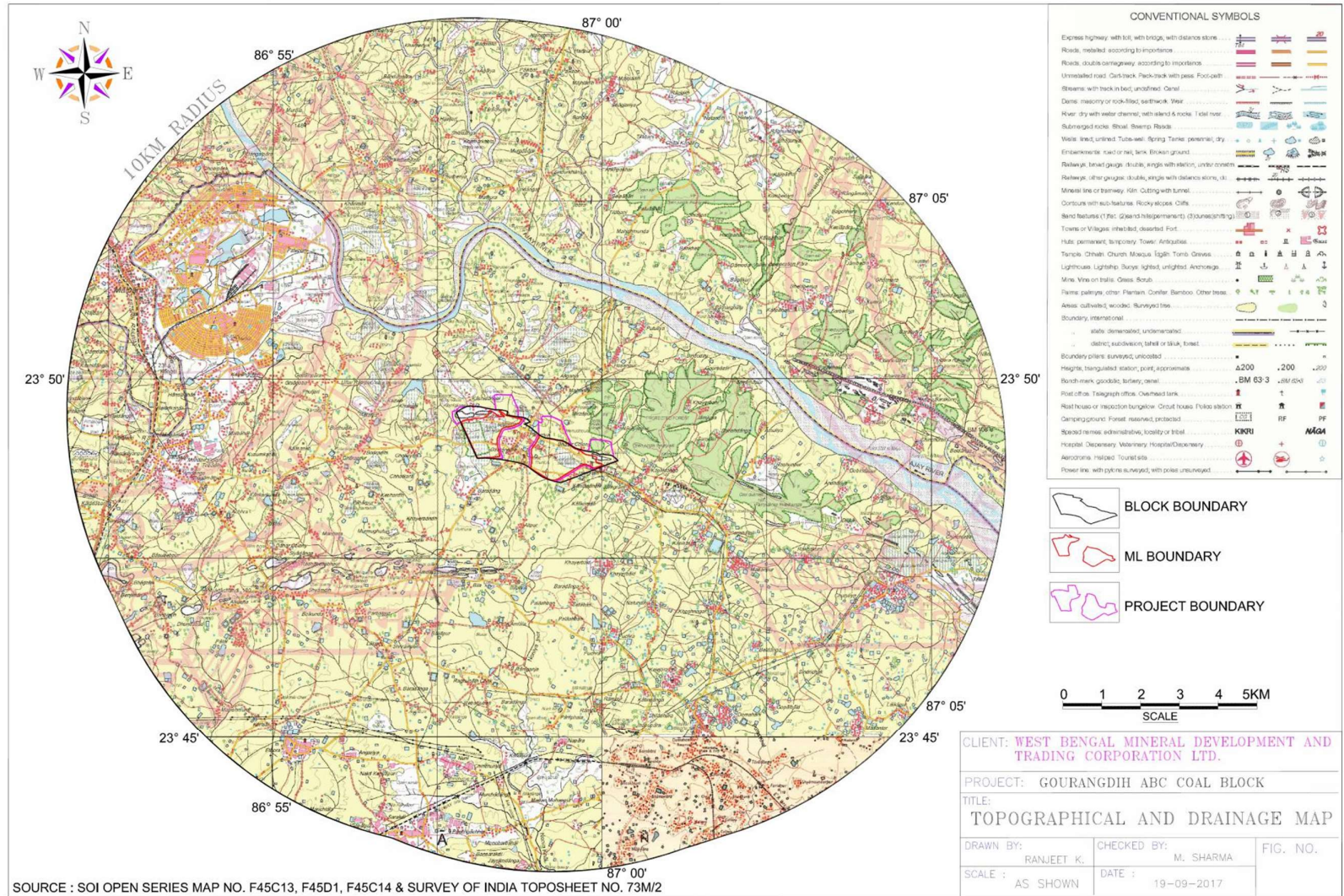
4.0 STUDY AREA

For the description of baseline scenario, the lease area has been considered as the “core zone”. The 10 km radius around the proposed project forms the “buffer zone” i.e. the anticipated area of impact. The core zone and the buffer zone together have been termed as “study area”. The core zone falls within Panuriya (or Punuria), Kantapahari, Jamgram, Shibdhawra (or Shibdhara), Banddhawra, Lalbandh, Gourangdih and Bhuiapara, under Barabani CD Block of District Paschim Bardhaman, West Bengal. Study area covers various sub-districts such as Salanpur, Barabani, Jamuria of District Paschim Bardhaman and Jamtara & Nala sub-district of District Jamtara. The study area can be seen in **Fig 3**.

4.1 Topography

In **Fig 3**, one can see that the topography of the central portion of the study area, between project area and Ajay river is sloping towards Ajay river in north, which lies 2.2 km from the project. The part of the study area which lies north of the Ajay River slopes southwards. The area south of the project i.e. bottom half of the study area is sloping towards Noniya Jhor Nala.

FIG 3: TOPOGRAPHY AND DRAINAGE MAP OF STUDY AREA



The surface elevation varies from minimum 93 m above MSL (near village Beldanga on bank of Ajay River) to maximum 180 m above MSL (near Alkusha village). The area is rich in coal reserves, therefore, there are several coal blocks present in study area. These have disturbed the topography by formation of pits and dumps.

4.2 Drainage

Ajay river (2.2, NW) flows in north-west to east direction which controls the drainage system of major portion of the buffer zone. While, Noniya Jhor, a seasonal nala controls drainage system of the southern portion of the study area. After flowing through study area and Asansol in the south, Noniya Jhor (2.4, S) is drained into the Damodar River. Two tributaries of Ajay river namely, Suriapani Jhor (5.2, NE) and Punta Khal (7.9, SE) are also following in the NE and SE direction, respectively, from the project. The drainage pattern in the study area is dendritic in nature.

4.3 Climate

The district experiences a warm temperate rainy climate with mild winter. The cold season starts from middle of November and continues till the end of February. March to May is dry summer intervened by tropical cyclones and storms. June to September is wet season while October and November is autumn.

(Source: <http://bardhaman.nic.in/geography.html> assessed on 20.01.2018)

Long term meteorological data is available from IMD station - Bankura (MO), located at a distance of 62 km in south direction of the project. Data is available for the period 1990 - 2007 from "Climatological Normal (1981 - 2010)" issued by IMD Pune for different meteorological parameters, such as temperature, rainfall and relative humidity and given in **Table 2**.

TABLE 2: TEMPERATURE, RELATIVE HUMIDITY AND RAINFALL, IMD STATION BANKURA (MO)

Month	Mean Temperature (°C)		Relative Humidity %		Mean Total Rainfall (mm)
	Minimum	Maximum			
			At 0830 HRS	At 1730 HRS	
Jan	11.4	25.1	77.0	61.0	18.2
Feb	15.8	29.1	71.0	55.0	20.4
Mar	20.3	34.4	63.0	45.0	32.1
Apr	24.9	37.3	69.0	53.0	40.7
May	26.3	37.4	72.0	59.0	100.9
Jun	26.6	35.7	79.0	72.0	271.0
Jul	26.4	32.8	85.0	82.0	363.0
Aug	26.3	32.5	86.0	82.0	352.3
Sep	25.5	32.4	87.0	83.0	253.4
Oct	23.3	31.8	84.0	79.0	86.8
Nov	17.9	29.4	81.0	71.0	16.0
Dec	12.9	26.2	80.0	67.0	9.1
Annual Average	21.5	32.0	78	67	Total = 1564

Source: Climatological Normal (1980 - 2010)

From **Table 2**, the following conclusions can be drawn:

1. **Temperature:** The monthly mean of minimum temperatures ranges from 11.4°C in January to 26.6°C in June. While the monthly mean of maximum temperature ranges from 25.1°C in January to 37.4°C in May.
2. **Relative Humidity:** The relative humidity at 08:30 hrs ranges between 63% in March to 87% in September, while the relative humidity at 17:30 hrs varies from 45% in March to 83% in September.
3. **Rainfall:** It can be seen that, June to September are the months of heaviest rainfall, while October to May are of low rainfall. The annual rainfall varies from 9.1 mm in December to 363.0 mm in July. The annual average is 1564 mm.

4.4 Land Use

4.4.1 Land use in core zone

Total project area is 356.575 ha. This includes applied ML area of 213.27 ha and 143.305 ha outside of the ML. The break-up of the pre-mining land use is given in **Table 3**. The pre-mining land use can be seen in **Fig 4** in the Land Ownership map.

TABLE 3: PRE-MINING LAND USE OF THE PROJECT AREA

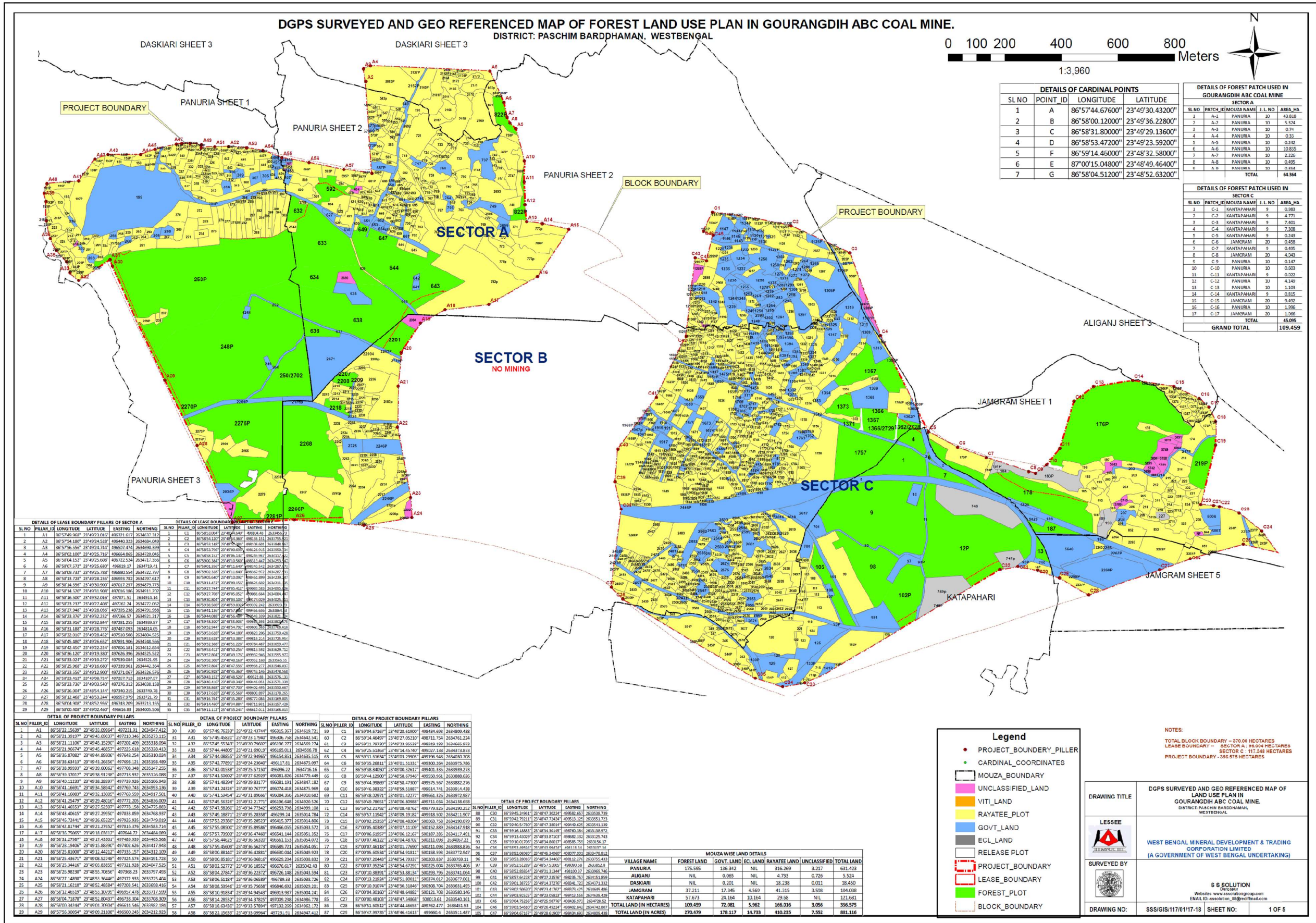
Land pattern	Total Area (Ha)	Within ML area (ha)	Outside ML area (ha)
Agricultural Land	48.43	48.43	22.670
Fallow land (Danga)	44.07	21.40	
Degraded land (Old quarry area)	61.316	13.220	48.096
Built up area	60.86	26.140	34.720
Water body	15.44	7.640	7.800
Forest land (protected & jungle)	109.459	96.440	13.019
Non agricultural land for colony (outside core area)	5.00	-	5.000
Non agricultural land for Rehabilitation (outside core area)	12.00	-	12.000
Total	356.575	213.270	143.305

Source: WBMDTC Ltd.

Stage of land acquisition

Out of 356.575 Ha of Project Land, 109.459 Ha is Forest Land, for which application for diversion has been made. Out of 50 Ha identified Government Vested Land, request has been made to GoWB for perpetual transfer of 40 Ha. The Private Land will be procured from PAPs in consultation with District Magistrate, Paschim Bardhaman.

FIG 4: LAND OWNERSHIP MAP



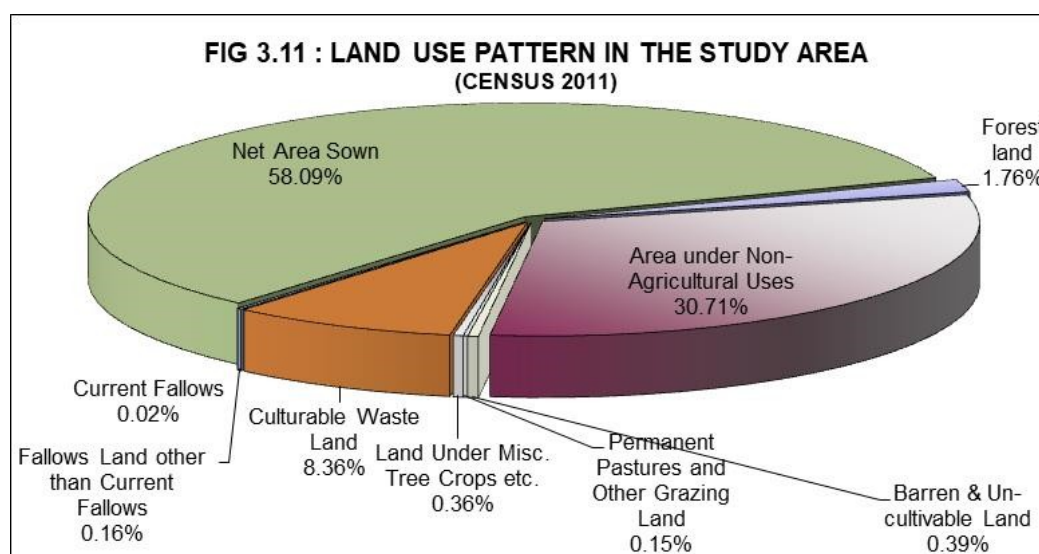
4.4.2 Land use in buffer zone

The land use pattern in the buffer zone of Gourangdih ABC coal mine as per Census 2011 is given in **Fig 4**, summarized in **Table 4** and detailed in **Annexure II**.

**TABLE 4: LAND USE PATTERN IN STUDY AREA
(AS PER CENSUS 2011)**

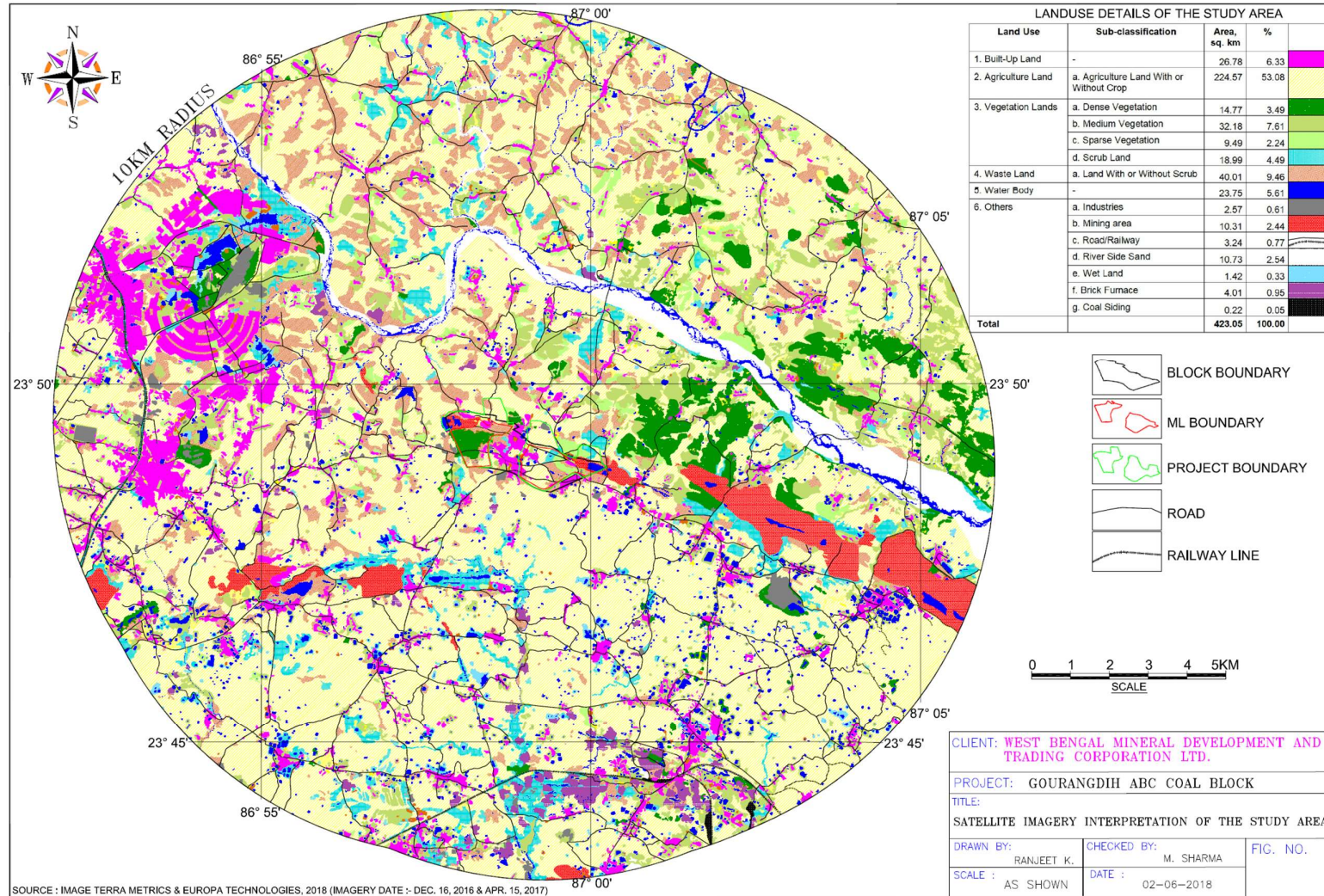
Land use	Area (Ha)	%
Forest land	817.55	1.76
Area under non-agricultural use	14281.93	30.71
Barren and un-cultivable land	181.10	0.39
Permanent pastures and other grazing land	71.86	0.15
Land under Miscellaneous tree crops	168.11	0.36
Culturable waste land	3886.63	8.36
Fallow land other than current fallow	73.58	0.16
Current fallow	8.92	0.02
Net sown area	27015.77	58.09
TOTAL	46505.45	100

A perusal of **Fig 5** shows that the net sown area accounts for a major portion (58.09%) followed by area under non-agricultural use (30.71%), culturable waste land (8.36%) and forest land (only 1.76%).



The latest land use of the study area can be seen in **Fig 6**, wherein the latest satellite image has been extracted through Google Earth.

FIG 6: SATELLITE IMAGERY OF 10 KM RADIUS



5.0 FOREST

Out of total mining lease area, 109.459 Ha (30.7% of the project area) is Forest Land (protected and jungle). Application for seeking Stage I Forest Clearance has been submitted vide Proposal No. FP/WB/MIN/26869/2017 dated 12.07.2017. The DGPS surveyed and geo referenced map of forest land use plan in Gourangdih ABC coal mine can be seen in **Fig 4** earlier.

Total forest in the study area as per Census 2011 is 817.55 ha (1.76%). Forest as classified by Champion and Seth is Tropical Dry Deciduous Forest Group 5B. The forests are scattered in different parts of the study area. Most of the forests remain leafless during dry season. As per SOI open series map, there are 13 protected forests (PF) present in study area. These can be seen in **Fig 7** and list is given in **Table 5**.

TABLE 5: LIST OF FORESTS IN STUDY AREA

Sl. No.	Description	Distance, km	Direction
1.	PF Near Gaurangdih	Within core zone	
2.	PF Near Narayanpur	0.6	NE
3.	PF Near Kashidanga	0.8	E
4.	PF Near Bankhet	5.6	NE
5.	PF Near Chhota Rampur	5.9	ENE
6.	PF Near Sarbediya	5.9	ENE
7.	PF Near Petuashal	6	NNE
8.	PF Near Harilpahari	6.5	NE
9.	PF Near Shialjori	6.5	NNE
10.	PF Near Baraliya	8	ENE
11.	PF Near Bagchhera	8.6	NE
12.	PF Near Nimdangal	9.7	ENE
13.	PF Near Pahargora	10	E

There are no National parks, Wildlife Sanctuary, Biospheres reserves and migratory corridor of any schedule-1 species within 10 km radius. The nearest National Park is Simlipal at a distance of 228 km in SSW direction. The nearest wildlife sanctuary is Ramnabagon at a distance of 70 km in SE.

6.0 FLORA

The plant species list, based on authenticated by Range Forest Officer, Asansol (T) Range and uploaded by forest official in part-II of the forest de-reservation proposal of Gourangdih ABC Coal Mine (FC proposal no. FP/WB/MIN/26869/2017), for both core zone and study area have been listed in **Annexure III**.

Core zone: 63 species of trees, 3 of shrubs & herbs and 2 of grasses and sedges are present in the core zone. Common native species such as Neem, Jamun, Mango, Tad, Acacia etc. are present in the core area.

Buffer zone: During the present survey, 84 plant species were recorded. These included 76 tree species and 6 shrubs/herbs. Besides this two grass species are also present in the buffer zone.

Agricultural crops and fruit trees form a part of the commonly found flora in the study area.

Cropping pattern: The district has two principal cropping regions: Alluvial on the Eastern part and Laterite on the Western part. On an average 58% of total population lives on agriculture. (source: http://bardhaman.nic.in/collect/admin_repo1213.pdf accessed on 10.05.2018)

Rice is the most important crop of the district and in the alluvial plains to the east little else is grown. The rice grown with its numerous varieties can broadly be grouped under the three primary classes distinguished from one another by distinct characteristics and they are - The Aus or autumn, the Aman or winter and the Boro or the summer rice. Paddy covers maximum of the gross cropped area. Among commercial crops Jute, Mesta and Sugarcane, potato, oil seeds are cultivated in marginal areas.

(Source: <http://bardhaman.nic.in/agri/agriculture.htm#food> accessed on 10.08.2018).

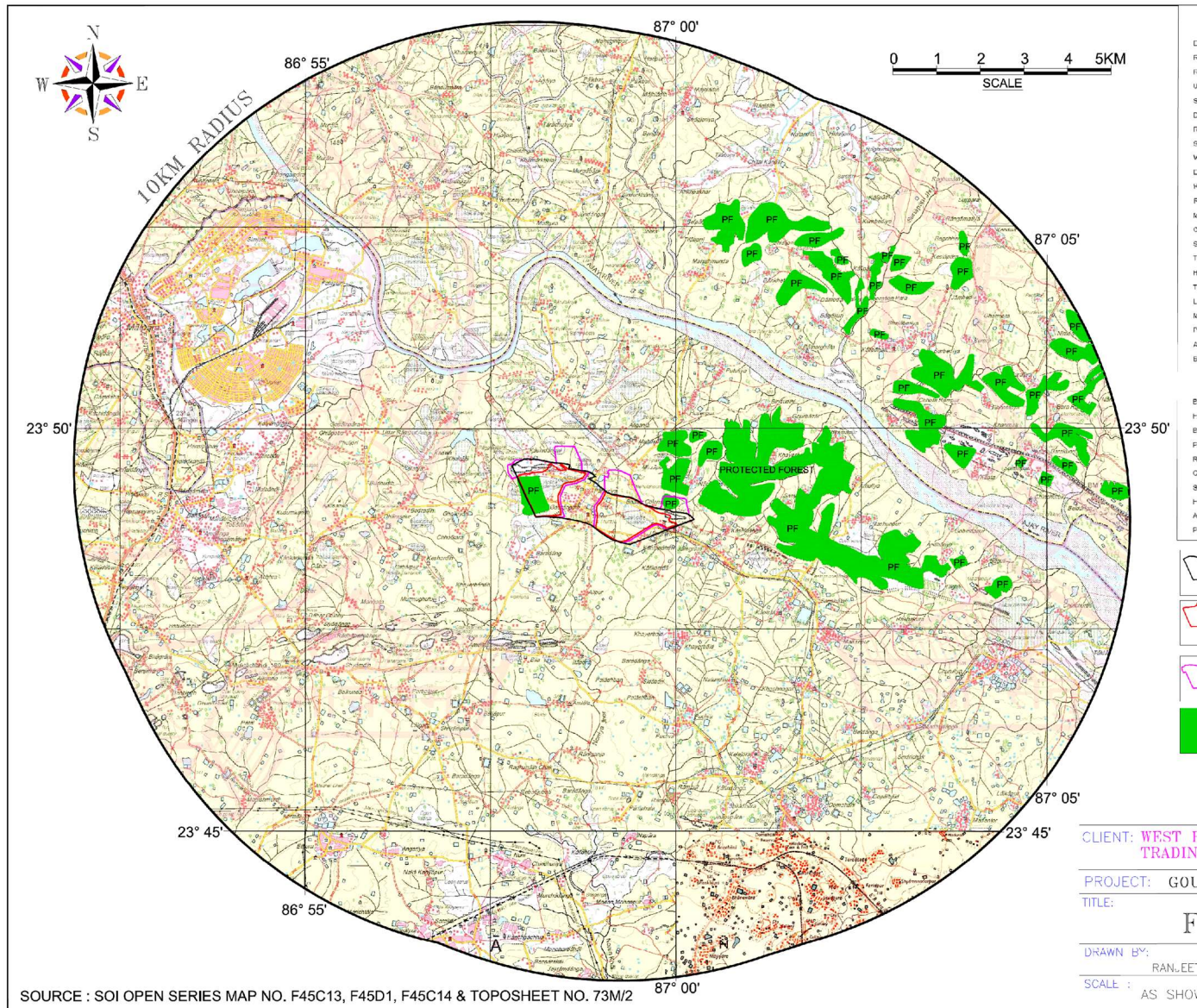
Production and productivity of major crops in Bardhaman District (Average of 5 years: 2004-08) has been given in **Table 6**.

TABLE 6: PRODUCTION AND PRODUCTIVITY OF MAJOR CROPS IN BARDHAMAN DISTRICT (AVERAGE OF 5 YEARS: 2004-08)

Name of crop	Kharif		Rabi		Summer		Total	
	Production ('000t)	Productivity (kg/ha)	Production ('000t)	Productivity (kg/ha)	Production ('000t)	Productivity (kg/ha)	Production ('000t)	Productivity (kg/ha)
Major Field Crops								
Rice	48.1	3069	1231.1	2953	642.5	3129	1921.7	3012
wheat	-	-	6.7	2313	-	-	6.7	2313
Pulses	-	-	1.2	849	-	-	1.2	849
Oilseeds	-	-	43.1	850	-	-	43.1	850
Jute	223.0	3019	-	-	-	-	223.0	3019
Potato	-	-	1058.0	21674	-	-	1058.0	21674
Major horticulture crops								
Cucurbits	-	-	126.0	9687	-	-	126.0	9687
Brinjal	-	-	145.2	17767	-	-	145.2	17767
Cabbage	-	-	92.7	28513	-	-	92.7	28513
Cauliflower	-	-	85.9	27167	-	-	85.9	27167
Okra	-	-	55.8	11330	-	-	55.8	11330
Sowing windows for 5 major field crops (start and end of normal sowing period)			Rice		Potato		Oilseed	
Kharif-Rainfed			July 1 st to 4 th week		-		March 4 th week to April 3 rd week	
Kharif-irrigated			-		-		-	
Rabi-Rainfed			-		-		-	
Rabi Irrigated			Jan 3 rd to 4 th week		Nov 1 st to 2 nd week		Nov 1 st to 3 rd week	
							-	
							-	

Source-Agriculture Contingency Plan for District Bardhaman-31.12.2011

FIG 7: FOREST MAP OF THE STUDY AREA BASED ON OPEN SERIES



Plantation on roads: It was observed that plantation of species on the roadside are *Acacia catechu*, *Aegle marmelos*, *Madhuca longifolia*, *Azadirachta indica*, *Butea monosperma*, *Dalbergia sisoo*, *Ficus benghalensis*, *Ficus religiosa*, *Mangifera indica*, *Pisidium guava*, *Syzygium cumini*, *Tamarindus indica*, *Tectona Grandis*, *Terminalia tomentosa* etc.

Vegetation in the Hamlets: The species composition near the hamlets is different from those found in the natural environmental conditions. The vegetation structure surrounding the hamlets reflects a typical character of habitation. The trees in the settlement area are catering to the needs of local population such as fodder, fuel-wood, fruit, and timber and for religious purposes. Some of the common species found in the hamlets comprise *Mangifera indica*, *Syzygium cumini*, *Madhuca indica*, *Terminalia arjuna* etc.

Medicinal plant species: The study area is also endowed with several medicinal plants. Many medicinal plants are found in the study area which are used by the people of villages for their daily use and minor ailments. The common medicinal plants of the region are *Azadirachta indica*, *Butea monosperma*, *Ficus benghalensis*, *Ficus racemosa*, *Ficus religiosa*, *Madhuca longifolia*, *Mangifera indica*, *Ocimum sanctum*, *Syzygium cumini*, *Terminalia grandis*, *Terminalia arjuna*, *Zizyphus mauritiana* etc.

Fuel wood plant species: Villagers collect dry leaves, stems and log to fulfill their daily need for fuel wood requirement. *Syzygium cumini* (Jamun), *Mangifera indica* (Mango) etc. are the species, used for fuel wood.

7.0 FAUNA

There are no National parks, Wildlife Sanctuary, Biospheres reserves or migratory corridor of any Schedule-1 species within 10 km radius. The nearest National Park is Simlipal at a distance of 228 km, SSW and nearest wildlife sanctuary is Ramnabagon at a distance of 70 km, SE.

Core and Buffer zone were taken into consideration while preparing a list of species of fauna. The list of fauna authenticated by Range forest officer, Asansol (T) Range for both core zone and study area is given in **Annexure IV**.

Core zone: Due to the presence of trees, shrubs, herbs and grasses in the core zone, a variety of fauna is found. Common avifauna such as house sparrow, house crow, pigeon, common myna, owl, koel, bulbul and wood sandpiper were observed. Mammals such as hare, squirrel, common house rat, mongoose and Indian field mouse have been observed. Amongst reptiles, common garden lizard, chameleon and Indian cobra were seen or reported by villagers.

Buffer zone: During primary survey of study area and from secondary data sources, total of 41 species of fauna have been estimated, comprising 14 species of mammals, 14 species of birds, 8 species of reptiles and 5 species of aquatic fauna (fishes).

The common species of fauna observed in the study area are Common Langur, Common House Rat, Indian Hare, etc. The common bird species i.e. avifauna recorded during the survey in the study area are House Sparrow, Indian Mayna, Pigeon and Grey Partridge etc.

The list of fauna authenticated by Range forest officer, Asansol (T) Range for both core zone and study area is given in **Annexure IV** wherein no schedule I species was reported. The latest letter dated 27.08.2021 from the Office of the Principal Chief Conservator of Forests & Head of Forest Force, West Bengal regarding Certificate regarding the absence of Schedule-I species & non-existence of any Wildlife/National Sanctuary within 10 Km. of the project area of Gourangdih ABC Coal Mines, as required by the EAC, MoEF&CC, New Delhi states that there is no direct evidence of Schedule-I Species in the project and buffer area but it is learnt that regular rescue of Rock Python within 10 km of the project site exists. (Copy enclosed as **Annexure V**). Thus only one Schedule species i.e. Rock Python has been found occasionally in the buffer area.

The project site surroundings does not support any habitat for any group of wild animal except few animals such as monkey, squirrel and lizards species, which are well adapted to urban areas. They live in the agricultural field, open scrub land and near the river and nala side. As per recommendation report dated 05.10.2018 issued by DFO, Durgapur Division, the forest present in the core zone does not form part of any endangered wildlife habitat.

Animal Husbandry: Animal husbandry occupies an important place in the rural economy of Burdhaman district. It provides them with the draught power required for cultivation and an additional means of supplementing their income. To the farmers, cattle are a valuable form of wealth.

The live-stock plays a vital role in the agricultural economy of the district, because it not only supplies milk, meat, manure, bones, hides and skins, hoofs and horns, but also serves as draught cattle for drawing carts, ploughs and is also used for drawing water. Live-stock products in the district comprise milk, eggs, skins and hides, wool, manures, etc.

As per the survey and reports, no ecologically sensitive area/migratory corridor is present within 10 km radius of project

8.0 IMPACT ON ECOLOGY

Ecological impact from open cast mining result from generation of pollutants both in air and water. Further excavation of soil causes damage to its structure and composition. The adverse impact of proposed mining activity will cause:

- Loss of vegetation by excavation and dumping thereby affecting the species for which such vegetation was the host.

- Movement of species away from mining lease area due to noise, vibration and light.

The impact on the terrestrial ecosystem due to operation of the proposed mining would mainly occur from deposition of air pollutants. Particulates, sulphur dioxide and oxides of nitrogen are major pollutants from traffic. These pollutants affect biotic and abiotic components of the ecosystem individually and synergistically.

Chronic and acute effects on plants and animals may be induced when the concentration of these pollutants exceeds threshold limits. The dust particles depending upon their size and weight settle down at varying distances on vegetation and soil surfaces in the prevailing wind direction. Foliar deposition of dust may interrupt gaseous exchange through stomatal clogging, thereby affecting plant growth. The effects of air emissions on nearby vegetation and crop lands are not likely to be adverse as the pollutants concentration is expected to be well within the prescribed standards.

Chronic exposure to SO₂ causes injury characterized by yellowing of the leaf (Chlorosis). Scientific literatures reveal that low concentration of SO₂ over long period lead to intravascular chlorosis in high humidity. However at higher concentrations, SO₂ combines with moisture in the air to form aerosol which erodes cuticle and cell membrane, thus inviting easy entry of pathogens. It may alter the pH of the soil. Changes in pH of the soil may affect microflora and fauna of the soil. Acute injury is characterized by development of dry dead areas with an ivory to brown colour (necrosis). Taking a seasonal and annual average, the threshold for chronic plant injury has been estimated at approximately 130 µg/m³ (A.J Dvorack and B G Lewis, 1978).

USEPA air quality criteria for SO₂ stipulates 0.2 ppm (524 µg/m³) level when visible injury to sensitive vegetation in humid regions after 3 hours exposure is observed. In another case, level 0.5 ppm SO₂ level (1310 µg/m³) for 1 hour exposure results in visible injury to sensitive vegetation in humid regions. At higher SO₂ concentration of 10 ppm (26214 µg/m³), visible injury to vegetation in arid regions is observed. Such high ambient air concentration of sulphur dioxide, is not likely to occur in the area.

USEPA air quality criteria for NO₂ stipulates 2 ppm (3760 µg/m³) level when foliar injury to vegetation at 4 hours exposure is observed. At a lower NO₂ concentration of 0.25 ppm (470 µg/m³) during the growing period, decrease of growth and yield. Such high ambient air concentration of nitrogen dioxide is unlikely in the study area.

The cumulative 24-hour average incremental GLC from the proposed Gourangdih ABC coal mine when added to the baseline concentration of SO₂ and NO₂ observed in the study area would not be more than 38.225 µg/m³ and 48.190 µg/m³, respectively which is well within the National Ambient Air Quality Standards. Therefore it can be seen that these values

are much lower than the threshold limits for damage to terrestrial flora and as such, the impact on the terrestrial ecosystem would be marginal.

The general adverse impacts, usually in case of mine are:

- Impact on species of flora and fauna in the form of relocation for their survival, due to diversion of proposed 109.459 ha forest land (Protected and Jungle).
- Dust emission from mine due to excavation and transportation, affects the effective photosynthesis by covering the plant/ tree leaves by thin dust layer during dry months which however will be washed away in rainy months.
- Disturbance to birds and animals due to bright light and unusual noise during operation activity.
- There may be discharge of excess unutilised pumped out mine water into the nearest natural stream after settlement of suspended solids. As the streams are seasonal and the discharge will also be during monsoons, no major impact is envisaged on the surface water bodies and on the fresh water eco-system.
- The effluents generated from the mine will be treated and reused after complying with prescribed standards. Therefore, these too are not anticipated to impact ecology. In fact the waste water, after treatment, will be used for watering the plantation.

9.0 MANAGEMENT OF ECOLOGY

- **Compensatory afforestation:** As per the application made for seeking prior approval of Central Government under section 2 of the Forest (Conservation) Act, 1980 for Diversion of fresh forest area, encumbrance free 111.32 Ha of Government land has been provided by the Additional District Magistrate & District Land & Land Reform Officer, Purb Bardhaman, on which compensatory plantation shall be done equivalent to trees that shall be removed for mining purpose.
- **Green Belt:** Plants act as natural sink for a variety of pollutants as well as replenish air with fresh oxygen. Therefore, establishment of greenbelt and plantation along various facilities and periphery is an important aspect of mitigation plan under ecology. The main consideration during development of green belt and plantation are as follows:
 - Effective trapping of dust and emissions
 - Adequate dilution of accidental releases
 - Noise absorption
 - Balancing eco environment

- Waste water reuse
- Aesthetics
- fast growing, evergreen with large crown

As a single plant does not have all the qualities, a mixture of several varieties of plants has been chosen.

The widths of the belt will be 7.5 m all along the boundary. Plantation on 45 m safety zone between Quarry A and settlements of Panuriya and Gourandih as well as between Quarry C and these settlements shall be carried out.

- **Other plantation:** Plantation shall also be carried out along roadside and around Administrative buildings, facilities and in vacant undisturbed areas as well.
- **Reclamation plantation:** The other measures for management of ecology will comprise of mainly of plantation for rehabilitation. Once the simultaneous backfilling of mine void commences from 5th year, the reclamation process over the backfilled area will also commence. Reclamation of external OB dumps as well as top soil dump will also eventually take place. The reclaimed area will be 238.4 ha under agro-forestry, 0.19 ha under plantation and 65.61 ha under agriculture. At the end of life of the mine the total afforested area will be 304.2 ha comprising 62.97 ha external OB dump, 13.73 top soil dump, 213.27 ha excavation, 4 ha roads and 10.23 ha built up area.
- **Plantation program of mine:** A plantation program over life of mine has been planned in a phase wise manner. The plantation shall be started from first year of mining and till fifth year about twenty seven thousand trees shall be planted. The total plantation till the end of life of mine, shall be done on 226.84 ha., out of which 132.5 ha. will be backfilled area, 62.97 ha. external dump area, 7.52 ha. greenbelt and 23.85 ha will be others i.e. undisturbed area. The stage wise cumulative plantation are tabulated in **Table 7**.

TABLE 7: STAGE-WISE CUMULATIVE PLANTATION

Sl. No.	Year*	Greenbelt		External Dump area		Backfilled Area		Others (undisturbed area, etc)		Roads		Built up area		Total	
		Area (ha)	No. of trees	Area (ha)	No. of trees	Area (ha)	No. of trees	Area (ha)	No. of trees	Area (ha)	No. of trees	Area (ha)	No. of trees	Area (ha)	No. of trees
1	5 th year	7.52	18800	60.5	151250	16.8	42000	23.85	59625	0	0	0	0	108.67	271675
2	10 th year	7.52	18800	62.57	156425	60.5	151250	23.85	59625	0	0	0	0	154.44	386100
3	15 th year	7.52	18800	62.97	157425	85.45	213625	23.85	59625	0	0	0	0	179.79	449475
4	27 th year (end)	7.52	18800	62.97	157425	132.5	331250	23.85	59625	0	0	0	0	226.84	567100
5	Post Mine closure	7.52	18800	11.09	27725	213.27	533175	23.85	59625	4	10000	10.23	25575	269.96	674900

Note- density of tree plantation is proposed 2500 tree/ha (see EAC observation point xxii of TOR)

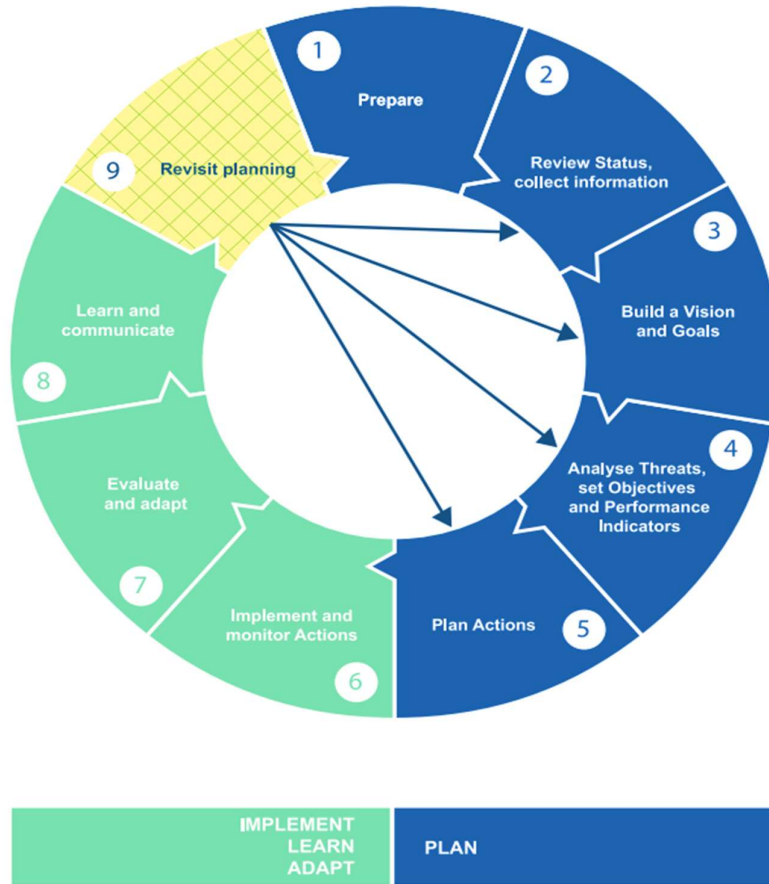
10.0 MITIGATION MEASURES FOR WILDLIFE CONSERVATION

10A.0 Wild Life Conservation Plan for Schedule I and Schedule II species in the core & buffer zones

The primary threats to biodiversity are due to human activities. These include land use changes affecting habitats and ecosystems, hunting for food or for cultural reasons; or larger factors such as pollution, climate change and pressures from expanding human populations and their needs. Hence, it is essential to assess comprehensively the driving factors of threat and engage the right people, especially local community and local governance in planning from the start. These will include the communities closest to the species who may provide critical information about the species, the pressures these species face, and who will inevitably be stakeholders in conservation actions. Establishing the 'value' of a species to humans is intrinsic to its conservation. Finding 'win-wins' for people and wild species has been the goal of many conservation strategies, but both finding and then delivering them is recognised to be often very challenging. This will often require scientific approach, infrastructure and creating incentives for changes in human behaviours which will be truly supportive of conservation and be sustainable. The purpose of a planning exercise will (i) first be the assessment of status and distribution of the species, (ii) assessment of general and species-specific threats, (iii) determination of action plan, both long and short term, and (iv) engagement of local community and governance in the conservation process. This determination will usually be the result of a systematic process of prioritisation of species and area.

When a wild population is threatened by major disruption of its habitat through a proposed major land use change, such as mining; species planning in these circumstances could be part of a wider environmental impact assessment. The proposed project will be an open cast mechanized mine having production capacity 2.5 MTPA, mining lease area of 213.27 Ha and project area 356.575 ha. Project has been classified as "Category-A" Mining Project as per the EIA Notification dated 14th September, 2006. The project area (356.57 ha) is termed as "core zone". The area within 10 km radius around the periphery of the project boundary has been considered as the "buffer zone" for identifying and assessing impact with respect to air, water, noise, land use, ecology, socio-economic environment, etc. The core zone and buffer zone together comprise the "study area". The Environmental Impact Assessment and Environment Management Plan for the mine addressing the environment related issues are prepared in accordance with the requirements of Terms of Reference prescribed by Ministry of Environment, Forest & Climate Change, Govt. of India. The study evaluates the prevailing environmental conditions. The adverse impacts have been identified and possible mitigation measures have been drawn in order to protect the wildlife, especially the Scheduled species.

The evaluation and action planning are based on the IUCN SSC Species Conservation Planning Cycle guidelines given by the International Union for Conservation of Nature (IUCN) in 2017.



It is imperative to evaluate the impacts as cumulative as the area is already a mining zone and there are eight (08) **active mining projects** within the buffer region (10 km) of the proposed project area (Table 8).

Table 8. List of coal mines within buffer zone (10 km radius) of Gourangdih ABC Coal Mine, WBMDTCL

SL. NO.	NAME OF MINES	OWNER	SITE LOCATION	ADMINISTRATIVE BLOCK	AERIAL DISTANCE	PRESENT STATUS
1	GB -COLLIERY	ECL	JAMGRAM,SALANPUR AREA	BARABANI	4.32 KM	RUNNING
2	GOURANGDIH COLLIERY	ECL	GOURANGDIH,SALANPUR AREA	BARABANI	0 KM, ADJACENT MINE	RUNNING
3	MOHANPUR COLLIERY	ECL	MOHANPUR,SALANPUR AREA	SALANPUR	4.99 KM	RUNNING
4	SANGRAMGARH COLLIERY(DABOUR +SAMDI)	ECL	SAMDI,SALANPUR AREA	SALANPUR	8.9 KM	RUNNING
5	DALMIA COLLIERY	ECL	BASUDEBPUR, SALANPUR AREA	BARABANI	10 KM	ABANDONED
6	ITAPARA COLLIERY	ECL	BILA, SALANPUR AREA	BARABANI	3.70 KM	RUNNING
7	BARMUNDIA COLLIERY(KD SEAM)(U/G MINE)	ECL	PANCHGACHIA, SALANPUR AREA	BARABANI	10 KM	ABANDONED
8	SARISHATALI COLLIERY (ICML)	CESC	SARISHATALI, JAMGRAM	BARABANI	5 KM	RUNNING

Therefore it is envisaged that, there will be general impacts as follows,

1. Within the 10 km buffer of the proposed project the land use is human-dominated. Almost 58.09% of the area is under agriculture (Fig. 3.12, 3.13 in para 3.12.2), and the built-up and non-agricultural area comprise of 30.71%
2. The area under forest (1.76%) and waterbodies are very less to sustain diverse wildlife. Therefore, common wildlife occurs in small forested patches, away from human habitation and active mining areas.
3. Already disturbed site due to high human interference, blasting, noise and vibrations.
4. No continuous forest patch and lack of corridors.
5. There are patches of small waterbodies in and around the agricultural land and built-up areas which might be inaccessible to wild animals. The waterlogged areas within the abandoned mines may be accessible to wildlife but the quality of them may be questionable.
6. Habitat for small mammals (Schedule II) such as jungle cat, foxes and jackals are already disturbed due to presence of mines and agricultural fields. Their current remaining habitat may be restricted to the abandoned mine areas around the buffer of the proposed project site.
7. Habitats for snakes (Schedule II) which are reported from the area, are remaining in forest patches and nearby agricultural lands because of food provisions.
8. The dwindling forest area in and around the proposed project area may not support tree-dwelling species such as langur and birds.
9. Road traffic and movement of heavy vehicles create continuous disturbance and ward off wildlife.
10. There is chance of loss of forest cover in the western part of the active mining area of the proposed project site. The wildlife in this small forest patch will be displaced from the habitat.
11. There may be increase chance of man-animal conflict as the wild habitat will shrink.
12. There is lack of awareness about the Scheduled animals among locals, and displaced animals straying in the human habitation may increase conflict.

It is therefore important to evaluate species/group-specific action plan for the Scheduled animals (I & II) in detail. The action planning will consist of (i) Impact assessment and (ii) Conservation plan.

10A.1 WCP for Schedule I species: Target animal – Indian Rock Python

10A.1.1 Assessment of impacts on Indian Rock Python

a. Ecological description of the species

The Indian Rock Python (*Python molurus*) is thick-bodied and smooth scaled snake that may reach a size upto 10 ft. The overall colour varies from body full of irregular shaped patches with main dorsal colour white mixed with yellow, grey or brown. The colour of patch mostly dark brown or blackish, between these patches yellowish-brown colour exists. Pythons are non-venomous. It lives in a wide range of habitats, which includes swamps, marshes, rocky foothills, woodlands, open forest, and scrublands as found in the buffer region of the Project area. The species hides in abandoned mammal burrows, hollow trees and bushy thickets (Groombridge & Luxmoore, 1991). It needs a permanent source of water. Locomotion is

usually with the body moving in a straight line, however they move slowly and rarely attack human. Indian pythons are strictly carnivores and feed on small mammals, birds, and reptiles.

Habitat requirements:

- Burrowing, occupy natural crevasse underground, near water hole
- Prey on small mammals (may include larger mammals if prey population exists)
- May stray to agricultural fields for rodents

b. Distribution in Project site (within 10 km buffer)

No presence was recorded in the primary survey. According to West Bengal Forest Department (vide communication Memo no. 551/8 dated 06/05/2022 from DFO Durgapur Division) 5 sightings/rescue records were found in last five years spanning from 2017 to 2021. The records show that, the python were sighted/rescued from Dashkehari, about 1.5 km north from the project site, at Lalgang, 5.5 km south to the project site, at Chayanpur, 3 km west from the project site and at Madhaichak, 7 km south-west from the project site. It is presumed that the python reported from Gourangdih Bazar may be a rescue case.

c. Identification of major threats


All the python reports are very scant, with a frequency of one in a year near abandoned mines, built-up areas and agricultural lands. It can be deduced that the population is very small and sparse, and the abandoned mines provided access to underground burrows for the species, whereas proximity to agricultural lands provide water and small prey base such as rodents. Therefore the pythons occupied/reported such areas. No man-animal conflict regarding pythons were reported during the biodiversity assessment, while interacting with the locals and forest department.

The threats to the species in the 10 km buffer of the project site can be summarized as,

1. Accidental killing on the road
2. Lack of burrowing hole and water holes
3. Conflict killing

10.1.2 Conservation Plan

Table 9 Action Plan for Indian Rock Python

S. No.	Actions		Frequency	Execution agency	Budgetary allocation		
	Immediate action	Long term			Unit cost	Recurring cost (per annum)	Total Capital cost over life of mine (27 years)
1.	<p>Habitat enhancements through providing artificial burrow made of Half Round RCC Pipes, size 600-1000 mm dia with a length of 2.5 m.</p> <p>OR,</p> <p>Round RCC Pipes, size 600-1000 mm dia with a length of 2.5 m</p>  <p>The half-round pipes will go up-curve into the ground and round pipes will go under the surface of the ground with 1.5 ft above-ground clearing, with gentle slope of 30°, open end on the ground for entry, with soil on the top to hide the pipe. The entry will be open and shall be camouflaged with trees and shrubs. The location of the burrows shall be selected carefully near potential habitats of the pythons.</p>	Monitoring	Once at the initiation of the project	WBFD	6 pipes & placement underground, 1.0 Lakh	0.3 Lakh	8.8 Lakh
2.	<p>Small Water holes near python burrows – 3mX3mX1.5m shallow dug open pits, no cement lining, surrounded by shrub vegetation and grass to reduce erosion and provide camouflage.</p>	<p>Monitoring for water availability.</p> <p>Removal of silt</p>	<p>Creation of waterhole</p> <p>Once at the initiation of the project.</p> <p>Monitoring &</p>	WBFD	6 pits, 0.2 Lakh	0.2 Lakh	5.4 Lakh

WBMDTC Ltd.

S. No.	Actions		Frequency	Execution agency	Budgetary allocation		
	Immediate action	Long term			Unit cost	Recurring cost (per annum)	Total Capital cost over life of mine (27 years)
			de-siltation annually				
3.	Information signage, Wildlife Signage at prominent places near the road site and crossings to create awareness	-	Once at the initiation of the project	WBFD	Given in Table 13 as cumulative		
4.	-	Rescue & rehabilitation	As and when required	Eco-Club Rapid Response Team established within one year of the commencement of the project, under supervision of WBFD	Given in Table 13 as cumulative		
5.	Awareness campaigns	-	On occasions of World Environment Day & International Day for Biological Diversity & Wildlife week	Eco-Club under supervision of WBFD	Given in Table 13 as cumulative		
Total for conservation of Indian Rock Python =					14.2 Lakh		

10A.2 WCP for Schedule I species: Target animal – Sloth Bear

10A.2.1 Assessment of impacts on Sloth Bear

a. Ecological description of the species

Sloth bears (*Melursus ursinus*), occupy a wide range of habitats including forests, scrublands, and grasslands where boulders and scattered shrubs and trees provide shelter. The most common shelter is a den, a cavern like structure generally in rocks. Sloth bears avoid areas where human disturbance is high, however, the bear may raid agricultural areas in search of fruits and *mahua* in these parts. Sloth bears like to escape from the heat of the day and forage for food at night. They will start to become active as the sun starts to set. This is also the time when many insects such as termites are more active. They subsist primarily on termites, ants, and fruits. This is the only species of bear adapted specifically for myrmecophagy (ant and termite-eating) and also mango, fig and other fruits. They have special liking for the honey for which the animal can climb trees and knock down honeycombs, later collecting it on the forest floor.

As no bear was sighted in the proposed project site during survey and only reported in historical research papers, it can be deduced that they are no longer present in the 10 km buffer of the proposed project site. It can also be deduced that the high human pressure and lack of suitable habitat makes it less probable for their occurrence in the area.

Therefore, preventive/precautionary management and conservation actions are needed for the species.

10A.2.2 Conservation Plan

Table 10 Action Plan for Sloth Bear

S. No.	Actions		Frequency	Execution agency	Budgetary allocation		
	Immediate action	Long term			Unit cost	Recurring cost (per annum)	Total Capital cost over life of mine (27 years)
1.	Information signage, Wildlife Signage at prominent places near the road site and crossings to create awareness	-	Once at the initiation of the project	WBFD	Given in Table 13 as cumulative		
2.	Awareness campaigns	-	On occasions of World Environment Day & International Day for Biological Diversity &	Eco-Club under supervision of WBFD	Given in Table 13 as cumulative		

S. No.	Actions		Frequency	Execution agency	Budgetary allocation		
	Immediate action	Long term			Unit cost	Recurring cost (per annum)	Total Capital cost over life of mine (27 years)
			Wildlife week				

10A.3 WCP for Schedule II target animals

10A.3.1 Group – Mammals (Target animals: Jungle cat, Jackal, Indian fox, Langur)

a. Impact assessment

Jungle cat

The jungle cat (*Felis chaus*) is a medium-sized cat inhabits places with adequate water and dense vegetation, such as swamps, wetlands, littoral and riparian areas, grasslands and shrub. It is common in agricultural lands and has often been sighted near human settlements. The jungle cat is typically diurnal and hunts throughout the day. Primarily a carnivore, the jungle cat prefers small mammals such as gerbils, hares and rodents. It also hunts birds, fish, frogs, insects and small snakes.

Golden Jackal

The Golden jackal (*Canis aureus*) is the largest and most widespread of the jackals. Its fur is a mixture of black and white, with buff on the shoulders, ears and legs. Its diet consists of rodents, reptiles and fruit and subsist by scavenging on carrion and garbage. Its preferred habitats consist of flat shrublands, humid reeded areas and floodplains. The typical habitat of the golden jackal can be anywhere from the dry deciduous forests, semi-arid regions to agricultural lands and close to human settlement habitats.

Bengal fox

The Bengal fox (*Vulpes bengalensis*), also known as the Indian fox, favours semi-arid, flat to undulating land, bush and short grassland habitats. It is relatively widespread in scrub, thorn or dry deciduous forests, or short grasslands. In the Paschim Bardhaman region, the species is confined to plains and open scrub forests. Bengal foxes are predominantly crepuscular and nocturnal. Their diet consists mainly of termites, ants, beetles, spiders, small birds, soft-furred rats and Indian field mice.

Grey langur

The northern plains grey langur (*Semnopithecus entellus*), also known as the Bengal sacred langur or Hanuman langur, is diurnal, and is both terrestrial and arboreal. It eats fruits and leaves, seeds, flowers, buds, bark and insects, including caterpillars. It is also fed fruits and vegetables provided by humans, and some groups get a substantial portion of their diets from food provided by temples and from raiding crops.

These species have common occurrence in these parts of Paschim Bardhaman and in and around the proposed project site. As there are active mines, it is presumed that

the species are no longer present in the core proposed mining area, and took refuge in the nearby forest patches (GPS 23°49'20.01"N, 87° 0'51.41"E Protected Forest area) and abandoned mines. Most of them are habitat generalist and occur frequently in human-dominated landscapes.

- The major threats are presumed as human animal conflicts, road kills and loss of forest patches.
- The abandoned and re-forested mines may provide good habitats for these species.
- All the species need waterholes under vegetation cover in an undisturbed area.

b. Conservation plan

Table 11 Action Plan for Schedule II mammals

S. No.	Actions		Frequency	Execution agency	Budgetary allocation		
	Immediate action	Long term			Unit cost	Recurring cost (per annum)	Total Capital cost over life of mine (27 years)
1.	Afforestation	Monitoring of survival	Bi-annual monitoring	Eco-Club under supervision of WBFD	Addressed in Section 9.0		
2.	-	Rescue & rehabilitation	As and when required	Eco-Club Rapid Response Team established within one year of the commencement of the project, under supervision of WBFD	Given in Table 13 as cumulative		
3.	Information signage, Wildlife Signage at prominent places near the road site and crossings to create awareness	-	Once at the initiation of the project	WBFD	Given in Table 13 as cumulative		
4.	Awareness campaigns	-	On occasions of World Environment Day & International Day for Biological Diversity & Wildlife week	Eco-Club under supervision of WBFD	Given in Table 13 as cumulative		

10A.3.2 Group – Birds (Target species: Red junglefowl)

a. Impact assessment

Red junglefowl

The Red junglefowl (*Gallus gallus*) is a tropical bird, has a mix of feather colours, with orange, brown, red, gold, grey, white, olive and even metallic green plumage. Jungle fowl use logged and regenerating forests and often found near human settlement.

The species needs scrublands and vegetation cover for their habitat and these kind of habitat is patchily distributed throughout the 10 km buffer area of the proposed project site. The undulating terrains of the abandoned mines can also be habitat for the species. As they are adapted to human dominated area, no major threat is envisaged. However, poaching for meat can be threat to the species.

b. Conservation plan

No species-specific action plan is required. However, general signage and awareness campaigns may be carried out along with other species.

10A.3.3 Group – Reptiles (Target species: Spectacled cobra, Rat snake, Indian chameleon, Russell's viper)

a. Impact assessment

Spectacled cobra

The Indian cobra (*Naja naja*), also known as the spectacled cobra, is a venomous snake contain post-synaptic neurotoxin and cardiotoxin. inhabits a wide range of habitats such as dense or open forests, plains, agricultural lands (rice paddy fields, wheat crops), rocky terrain, wetlands, and it can even be found in heavily populated urban areas, such as villages and city outskirts. The Indian cobra is often found in the vicinity of water. Preferred hiding locations are holes in embankments, tree hollows, termite mounds, rock piles and small mammal dens. They predate upon small rodents and frogs.

Indian rat snake

The Indian rat snake (*Ptyas mucosa*), darash or dhaman, is a common species of non-venomous large snake which is diurnal, semi-arboreal, fast-moving and harmless to humans. They inhabit forest floors, wetlands, rice paddies, farmland, and suburban areas where they prey upon small reptiles, amphibians, birds, and mammals. Adult members of this species emit a growling sound and inflate their necks when threatened.

Indian chameleon

The Indian chameleon (*Chamaeleo zeylanicus*) are found throughout much of India. Like other chameleons, this species has a long tongue, feet that are shaped into bifid claspers, a prehensile tail, independent eye movement, and the ability to change skin colour. They move slowly with a bobbing or swaying movement and are usually arboreal (tree-dwelling). They eat small insects on trees.

Russell's viper

Russell's viper (*Daboia russelii*) is a venomous snake. The head is flattened, triangular, and distinct from the neck. The snake is mostly found in open, grassy or bushy areas, but may also be found in second growth forests (scrub jungles), on forested plantations and farmland. Russell's viper is terrestrial and active primarily as a nocturnal forager and prey upon rodents and frogs.

b. Conservation plan

Table 12 Action Plan for Schedule II reptiles

S. No.	Actions		Frequency	Execution agency	Budgetary allocation		
	Immediate action	Long term			Unit cost	Recurring cost (per annum)	Total Capital cost over life of mine (27 years)
1.	-	Rescue & rehabilitation	As and when required	Eco-Club Rapid Response Team established within one year of the commencement of the project, under supervision of WBFD			
2.	Snake bite information and anti-venom	-	Anti-venom shall be present in Forest Beat Offices	WBFD, Eco-Clubs		0.5 Lakh	
3.	Information signage, Wildlife Signage at prominent places near the road site and crossings to create awareness	-	Once at the initiation of the project	WBFD			
4.	Awareness campaigns	-	On occasions of World Environment Day & International Day for Biological Diversity & Wildlife week	Eco-Club under supervision of WBFD			

10B. Overall Wildlife Conservation Plan (WCP) and total budgetary provision for wildlife conservation measures within the project site

The overall Wildlife Conservation Plan can be broadly classified into 10 categories, viz., (i) Plantation, (ii) Biological reclamation of de-coaled void & left out OB dump, (iii) Maintenance of Safety, (iv) Wastewater & waterbody management, (v) Species-specific action plans, (vi) Rescue & rehabilitation, (vii) Capacity building, Mass environmental education and

awareness, (viii) Institutionalization of conservation action, (ix) Prevention of Zoonotic disease, (x) Hiring of Wildlife & Forestry expert in Trainings, Education & Awareness programmes, development of IEC materials and signage, habitat restoration and periodic monitoring for conservation effectiveness assessment (CEA).

- (i) **Plantation:** The detailed planning for compensatory afforestation and Green Belt development is described in Section 9.0.
- (ii) **Biological reclamation of de-coaled void & left out OB dump:** Filing up and biological reclamation of de-coaled void, Plantation and Biological reclamation of left out OB dump shall be carried out to restore mining area after all target resources were extracted.
- (iii) **Maintenance of Safety:** A Safety Zone will be demarked and access to any wildlife or human will be prevented through fencing, plantation and signage.

For minimizing coal fire, a well-designed fire fighting system will be maintained within mine to deal with possibilities of fire. Water sprinklers and fire hydrants of adequate specification will be provisioned at strategic locations to deal with any emergency. To prevent wild fires, water tanks with tractors and Sprinkler Systems will be provided by PP to each of the Beat offices of the Forest Department.

The roads leading to and from the mine shall have caution boards warning drivers to slow down for animal crossings, if any develop in the future. The drivers shall be sensitized not to hit stray animals on the road.

The emissions from the mines shall always be kept within the norms so that surrounding environment will always be clean and comfortable for humans, wildlife and vegetation.

Care shall be taken that no food or degradable waste is openly disposed. This could attract wild animals near to human habitation and create man-animal conflict. Hence, disposal of wastes shall always be on the designated and protected place.

Solar street lights shall be installed near forest beat offices and range offices.

- (iv) **Wastewater & waterbody management:** Waste water from domestic sources (toilets/ canteens/ baths/ kitchens) will not be released into the environment but treated in septic tank system or STP. Thus, the flora and fauna shall not be exposed to any contaminants.

Company will refill the existing water bodies at the adjoining areas to the Gourangdih ABC Coal Project in consultation with Forest Department during the dry season which serve as water source for the wild animals. This, apart from the waterholes created for specific species conglomerate, would help to meet water requirements of wild animals and birds.

- (v) **Species-specific action plans:** The species-specific conservation plans are described in section 10A in detail.
- (vi) **Rescue & rehabilitation:** The animals which will be rescued from the project area or from the adjoining areas to the project would be taken to the nearest Animal Rescue Centre of the Forest Department (preferably Ramnabagan, Paschim Bardhaman District and Surulia, Purulia District) with the help of the trained Joint Forest Management Committee (JFMC) Eco-Club members under the supervision of Forest officials and staffs and all the expenses including transportation charges and any other charges as sought by the Forest Department will be borne by the PP. PP will also provide the local Forest Department officials / staff with required resources to help implement this plan.
- (vii) **Institutionalization of conservation action:** A committee shall be formed under the Chairmanship of DFO, Durgapur. Other members of committee would be local B.D.O. or his representative, concerned Range Officer, members of all JFMC Eco-Clubs and two representatives of User Agency who will be responsible for the implementation of the WCP. The committee would also review the progress of the recommended measures as per the Plan, at least twice every year and take action to correct the course, if required. There are eight JFMCs under the Gourangdih Forest Beat Office and Sarishatali Forest Beat Office. It is therefore required to establish Eco-Clubs at each of these eight JFMCs to assist in execution of WCP.

Number of Forest Beat Offices within the Project area and Buffers (10 KM): Two

I Gourangdih Forest Beat Office: Vill- Gourangdih, Po- Panuria, Dist- Paschim barddhaman (Within Project area, Block-A)

II Sarishatali Fore Beat office: Vill-Sarishatali, Po- Kapistha, Dist- Paschim Barddhaman (Within buffer zone)

Number of Range Office with in the Project area and Buffer: One

I Rupnarayanpur Range: Po- Rupnarayanpur, Dist- Paschim Barddhaman (Within buffer zone)

Gourangdih ABC Coal Mines is situated under the Forest Beat Office : Gourangdih Forest Beat Office and Sarishatali Forest Beat Office.

JFMC under the Gourangdih Forest Beat Office - Six

I Rosna JFMC : Vill- Rosna, Po- Rosna, Dist- paschim Barddhaman

II Lalband, Panuria JFMC : Vill- Panuria, Po- Panuria, Dist- Paschim Barddhaman

III Bonpara JFMC: Vill- Bonpara, Po- Panuria, Dist- Paschim Barddhaman

IV Kaskuli JFMC : Vill- Kaskuli, Po- Panuria, Dist- Paschim Barddhaman

V Jitpur JFMC : Vill- Jitpur, Po- Uttarampur, Dist- Paschim Barddhaman

VI Aliganj JFMC : Vill- Aliganj, Po- Panuria, Dist- Paschim Barddhaman

JFMC under the Sarishatali Forest Beat Office - Two

I Khoyarbani, Jamjuri, Sarishatali, Shyamapur, Sirisdanga JFMC : Po- Jamgram, Dist - Paschim Barddhaman

II Goubazar, Binodihi JFMC : Po- Panuria, Dist- Paschim Barddhaman

(viii) **Capacity building, Mass education and awareness:**

The Eco-Clubs shall be equipped with campaigning equipment such as Portable Address System (Hand mikes), rescue gears for snakes and small mammals, motor cycle for rapid response to rescue calls.

The forest staffs in each of the beat offices shall be equipped with Search Lights, torches, solar charger and battery for wild surveys.

To ensure scientific monitoring of the wildlife during initiation and operational phases of the proposed project, camera traps shall be a better option. In accordance with the large landscape and undulating inaccessible terrain, a total of 100 camera traps shall be needed for comprehensive assessment. To carryout education and awareness programmes LCD Projector and compatible sound system shall be kept at a strategic location such as Divisional Forest Office for mass awareness purposes.

Awareness about the variety of faunal species, their status of endangerment and behaviour will be spread through signage erected at designated sites determined by Forest Department, posters/ seminars/workshops by Eco-Club to sensitize the

villagers. By gaining correct scientific information, the villagers will be in a better position to protect themselves from animals and in return will not harm them also. Such situation reduces, man-animal conflict, which usually arise due to myths and fear or hatred of animals.

- (ix) **Prevention of Zoonotic disease:** The domestic livestock do graze in forests of this area as stall-feeding is seldom practiced. Hence, there is probability of transmission of communicable disease to wild animals. However, there is no record of wild ungulates (deer etc.) in the proposed project area and buffer region.

Though negligible chance of spreading of zoonotic diseases, precautionary measures shall be taken. This needs to be done through awareness and training programmes on animal health. Monitoring of disease in domestic animals through animal health camps periodically.

- (x) **Hiring of Wildlife & Forestry expert** in Trainings, Environmental Education & Awareness programmes, development of IEC materials and signage, habitat restoration and periodic monitoring for conservation effectiveness assessment (CEA)

Table 13 Capital investment for activities which contribute to wildlife conservation from Environmental Management Plan Budget (Cumulative Table)

S. No.	Actions		Budgetary allocation		
			Unit cost (Lakh)	Recurring cost (per annum)	Total Capital cost over life of mine (27 years) (Lakh)
1.	Plantation in Green belt, fruit trees and on undisturbed area at 31.37 ha		1.5	-	47.06
2.	Biological reclamation of de-coaled void & left out OB dump of 100.1 ha		1.0	-	100.1
3.	Maintenance of Safety		LS	LS	22.0
4.	Wastewater & waterbody management				
5.	Species-specific action plans	Action Plan for python		-	14.2
		Action Plan for Schedule II reptiles		-	0.5
6.	Rescue & rehabilitation		3.0	-	81.0
7.	Institutionalization of conservation action		4.0	0.2	9.4
8.	Capacity building, Mass education and awareness		LS	LS	40.0
9.	Prevention of Zoonotic disease		1.0	-	27.0
10.	Hiring of Wildlife & Forestry expert in Trainings, Environmental Education & Awareness programmes, development of IEC materials and signage, habitat restoration and periodic monitoring for conservation effectiveness assessment (CEA)		LS	1 year at Initiation Phase, 2 Years during Operational Phase and Last 2 years	15.0
Grand Total for WCP =					(356.26)

ANNEXURES

**Government of India
Ministry of Coal
O/o the Nominated Authority**

World Trade Centre, New Delhi

Office of the nominated authority constituted under section 6 of the Coal Mines (Special Provisions) Act, 2015.

Allotment order under clause (c) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13

In re: **Gourangdih ABC Coal Mine** (the "mine") particulars of which is specified in **Annexure 1**

Order no.: F. No. 103/6/2016/NA

Date: September 29, 2016

In favour of: **West Bengal Mineral Development & Trading Corporation Limited** incorporated in India under the Companies Act, 1956 with corporate identity number U14219WB1973SGC028707, whose registered office is at 13, Nellie Sengupta Sarani, 2nd Floor Kolkata, West-Bengal – 700087, India (the "Allottee")

For: Sale of Coal

WHEREAS, the nominated authority has, in accordance with the provisions the Coal Mines (Special Provisions) Act, 2015 (the "Act") and the Coal Mines (Special Provisions) Rules 2014 (the "rules") conducted the allotment of the relevant Schedule I coal mine;

AND WHEREAS the allottee is eligible to receive this allotment order with respect to the mine, including, inter-alia -

(a) the coal bearing land acquired by the prior allottee and the lands, in or adjacent to the coal mines used for coal mining operations acquired by the prior allottee; and

(b) any existing mine infrastructure as defined in clause (j) of sub-section (1) of section 3 of the Act;

AND WHEREAS the allottee has furnished a performance bank guarantee dated September 23, 2016 for an amount equal to INR 42,37,50,000.00 (Indian Rupees Forty Two Crore Thirty Seven Lakh and Fifty Thousand) issued by HDFC Bank in accordance with the allotment document and in accordance with the provisions of sub-section (6) and sub-section (7) of section 8 of the Act;



AND WHEREAS the allottee has entered into an Allotment Agreement dated August 24, 2016 (as amended) with the nominated authority in accordance with the provisions of sub-rule (5) of rule 13.

NOW, THE NOMINATED AUTHORITY DOES ORDER:

1. On and from September 29, 2016 ("allotment date") and in accordance with sub-section (4) of section 8 read with sub-section (12) section 8 of the Act, with respect to the mine, the following shall stand fully and absolutely transferred and vested in the allottee, namely: -
 - (a) all the rights, title and interest of the prior allottee in and over the land and mine infrastructure free from all encumbrances;
 - (b) entitlement to a mining lease to be granted by the State Government with the terms and conditions of the Allotment Agreement forming a part of it on making an application;
 - (c) all statutory licences, permits, permissions, approvals or consents as per rules, required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 2**;
 - (d) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 3**;
 - (e) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the State Government, to the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 4**;
 - (f) rights appurtenant to the approved mining plan of the prior allottee;
 - (g) any subsisting contract in relation to coal mining operations, to which the prior allottee was a party and which is assumed, adopted and continued by the Allottee and listed in the **Annexure 5** shall stand novated (by virtue of a deemed consent from the relevant party(ies)), in accordance with the provisions of sub-section (1) of section 11 of the Act in favour of the allottee for the residual term or residual performance of such contract;
2. The Allottee may seek any change in the terms and conditions attached to such licence, permit, permission, approval or consent by making an application in accordance with applicable laws;

Hereinafter, the Allottee shall be entitled to take possession of the mine as specified in Annexure-1 without let or hindrance;



4. This allotment order is liable to be cancelled in accordance with the provisions of sub-rule (6) of rule 13.

Uickh...
.....
(By the nominated authority)



Annexures:

Annexure 1: Particulars of the mine

Part A – Description of the mine

Coal Mine	Gourangdih ABC
Latitude	23°48'30"N & 23°49'45"N
Longitude	86°57'45"E & 87°00'15"E
Coalfield	Raniganj
Villages	Shibdhawra, Banddhawra, Lalbandh, Panuria, Gourangdih, Kantapahari and Bhuiapara
District	Burdwan
State	West Bengal



Part B – Description of Land in relation to the mine

Type of Land: Freehold Land for Mining as per Mining Lease

Nil

Type of Land: Leasehold Land for Mining as per Mining Lease

Nature	Area (Hectares)
Government Land	-
Private Land	-
Forest Land	-



Part C – Description of Mine Infrastructure in relation to the mine**C1- Mine Infrastructure: Immovable Assets***Nil***C2- Mine Infrastructure: Land for Compensatory Afforestation****Type of Land:** Freehold Land for Compensatory Afforestation*Nil***Type of Land:** Leasehold Land for Compensatory Afforestation

Nature	Area (Hectares)
Government Land	-
Private Land	-
Forest Land	-

C3- Mine Infrastructure: Resettlement and Rehabilitation Land**Type of Land:** Resettlement and Rehabilitation Freehold Land*Nil***Type of Land:** Resettlement and Rehabilitation Leasehold Land

Nature	Area (Hectares)
Government Land	-
Private Land	-
Forest Land	-



Annexure 2: Particulars of statutory licences, permits, permissions, approvals or consents issued by the Central Government which are being transferred along with this Allotment order.

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
1.	Approval of Mining Plan and Mine Closure Plan	Ministry of Coal	No. 13016/77/2006- CA-I (Part)	28.06.2011



Annexure 3: Particulars of statutory licences, permits, permissions, approvals or consents issued by the Central Government to be obtained on application by the Allottee.

Not Applicable



Annexure 4: Particulars of statutory licences, permits, permissions, approvals or consents issued by the State Government to be obtained on application by the Allottee.

Not Applicable



Annexure 5: Particulars of the contracts adopted by the Allottee.

The Allottee does not intend to adopt and continue with any of the contracts of the Prior Allottee.



POPULATION AND LANDUSE OF 10 KM RADIUS STUDY AREA, CENSUS 2011 (Ha.)

GOURANGDIH ABC COAL MINE, WEST BENGAL

Town/ village code	Town/village name	Populat ion	Total area	Forest land	Area under Non- Agricultural Uses	Barren & Un- cultivable Land	Permanent Pastures and Other Grazing Land	Land Under Misc. Tree Crops etc.	Culturable Waste Land	Fallow Land other than Current Fallows	Current Fallows	Net Area Sown	Total Unirrigated Land	Area Irrigated by Source	Canals	Wells/ Tube Wells	Tanks/ Lakes	Waterf all	Other Source
District	Bardhaman																		
Sub Distt.	Salanpur																		
318464	Namokesia (P)	1910	217.32	1.35	44.47	0.00	0.00	0.00	9.35	0.00	0.00	162.15	116.82	45.33	0.00	0.00	2.57	0.00	42.76
318471	Ramchandrapur	1111	146.82	0.00	2.72	0.00	0.00	0.00	13.50	0.00	0.00	130.60	90.60	40.00	0.00	2.10	24.65	0.00	13.25
318473	Brindabani	761	86.80	0.00	6.00	0.00	0.00	0.00	2.40	0.00	0.00	78.40	56.00	22.40	0.00	0.00	22.40	0.00	0.00
318474	Damdaha	952	136.88	4.00	51.95	0.00	0.00	0.00	0.40	0.00	0.00	80.53	0.00	80.53	0.00	0.00	80.53	0.00	0.00
318475	Dhanguri	1318	235.92	0.00	32.32	0.00	0.00	0.00	3.60	0.00	0.00	200.00	160.00	40.00	0.00	0.00	40.00	0.00	0.00
318476	Pithakari	2782	205.22	0.00	98.56	0.00	0.00	0.00	20.10	0.00	0.00	86.56	61.56	25.00	0.00	10.00	15.00	0.00	0.00
318477	Majhladi	518	105.91	0.00	20.00	0.00	0.00	0.00	5.91	0.00	0.00	80.00	60.00	20.00	0.00	0.00	20.00	0.00	0.00
318478	Muchidi	1048	106.88	0.00	2.40	0.00	0.00	0.00	1.18	0.00	0.00	103.30	83.30	20.00	0.00	0.00	20.00	0.00	0.00
318479	Pratappur	697	53.37	0.00	10.30	0.00	0.00	0.00	5.07	0.00	0.00	38.00	8.00	30.00	0.00	20.00	10.00	0.00	0.00
318480	Alladi	2384	81.20	0.00	5.20	0.00	0.00	0.00	6.00	0.00	0.00	70.00	50.00	20.00	0.00	0.00	20.00	0.00	0.00
318481	Kaladabar	1206	43.70	0.00	6.10	0.00	0.00	0.00	1.60	0.00	0.00	36.00	24.00	12.00	0.00	0.00	12.00	0.00	0.00
318482	Sinsbera	749	71.82	0.00	23.49	0.00	0.00	0.00	0.00	0.00	0.00	48.33	48.33	0.00	0.00	0.00	0.00	0.00	0.00
318483	Ramdi	1712	56.01	0.00	12.81	0.00	0.00	0.00	6.00	0.00	0.00	37.20	25.27	11.93	0.00	0.00	0.00	0.00	11.93
318484	Dendua	2297	106.34	0.00	51.00	0.00	0.00	0.00	9.34	0.00	0.00	46.00	28.00	18.00	0.00	10.00	8.00	0.00	0.00
318491	Salanpur	4739	379.96	0.00	73.83	0.00	0.00	0.00	75.90	0.00	0.00	230.23	199.63	30.60	0.00	0.00	30.60	0.00	0.00
318492	Khudika	3630	345.06	0.00	56.81	0.00	0.00	0.00	54.16	0.00	0.00	234.09	107.63	126.46	0.00	0.00	126.46	0.00	0.00
318494	Banbirdi	1312	55.27	0.00	38.50	0.00	0.00	0.00	0.00	0.00	0.00	16.77	16.77	0.00	0.00	0.00	0.00	0.00	0.00
318495	Basudebpur	3098	161.60	0.00	102.90	0.00	0.00	0.00	58.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318496	Jemari	4321	151.00	0.00	151.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318497	Dhaminberia	261	103.65	0.00	17.89	0.00	0.00	0.00	5.20	0.00	0.00	80.56	25.56	55.00	0.00	10.00	20.00	0.00	25.00
318498	Amjharia	271	75.40	0.39	5.20	0.00	0.00	0.00	8.44	0.00	0.00	61.37	16.37	45.00	0.00	10.00	10.00	0.00	25.00
318499	Harishadi	2328	137.69	0.00	26.79	0.00	0.00	0.00	6.00	0.00	0.00	104.90	95.20	9.70	0.00	3.70	6.00	0.00	0.00
318500	Rupnarayanpur	2242	76.84	0.00	48.78	0.00	0.00	0.00	5.50	0.00	0.00	22.56	0.00	22.56	0.00	22.56	0.00	0.00	0.00
318501	Benagaria	3434	47.42	0.00	20.42	0.00	0.00	0.00	0.00	0.00	0.00	27.00	0.00	27.00	0.00	0.00	27.00	0.00	0.00
318502	Kusumdanali	1095	92.94	0.00	14.26	0.00	0.00	0.00	5.50	0.00	0.00	73.18	24.68	48.50	0.00	4.00	40.25	0.00	4.25
318503	Ghiadoba	3388	158.74	0.36	16.48	0.00	0.00	0.00	2.25	0.00	0.00	139.65	66.00	73.65	5.26	57.37	11.02	0.00	0.00
318504	Uttar Rampur	1331	115.47	1.76	20.97	0.00	0.00	0.00	14.57	0.00	0.00	78.17	28.16	50.01	0.00	14.26	35.75	0.00	0.00
318505	Jitpur	1532	275.81	0.00	35.91	0.00	0.00	0.00	1.11	0.00	0.00	238.79	176.48	62.31	23.63	37.56	1.12	0.00	0.00
318506	Kallya	703	86.71	0.00	14.21	0.00	0.00	0.00	3.50	0.00	0.00	69.00	66.50	2.50	0.00	0.00	2.50	0.00	0.00
318507	Seakulberia	556	72.18	0.00	44.00	0.00	0.00	0.00	6.00	0.00	0.00	22.18	0.00	22.18	0.00	0.00	22.18	0.00	0.00
318508	Kirtanshala	811	103.83	1.76	20.97	0.00	0.00	0.00	6.20	0.00	0.00	74.90	39.95	34.95	0.00	14.26	20.69	0.00	0.00
318509	Kalisanko	1127	149.67	0.00	42.00	0.00	0.00	0.00	15.00	0.00	0.00	92.67	72.68	19.99	0.00	0.00	19.99	0.00	0.00
318510	Chayenpur	783	83.42	0.00	28.00	0.00	0.00	0.00	6.02	0.00	0.00	49.40	46.50	2.90	0.00	0.00	2.90	0.00	0.00
318511	Dharaspur	759	106.80	0.00	3.00	0.00	0.00	0.00	10.00	0.00	0.00	93.80	55.80	38.00	0.00	0.00	3.00	0.00	35.00
318512	Keshardi	396	69.69	0.00	26.00	0.00	0.00	0.00	4.00	0.00	0.00	39.69	20.70	18.99	0.00	3.00	15.99	0.00	0.00
318513	Paharpur	766	85.99	0.00	42.00	0.00	0.00	0.00	9.00	0.00	0.00	34.99	27.80	7.19	0.00	5.00	2.19	0.00	0.00
318514	Manahara	972	186.66	0.00	41.00	0.00	0.00	0.00	11.00	0.00	0.00	134.66	130.26	4.40	0.00	0.00	4.40	0.00	0.00
318515	Malladih	626	103.35	0.00	19.15	0.00	0.00	0.00	4.00	0.00	0.00	80.20	50.84	29.36	0.00	12.00	0.00	0.00	17.36
318516	Kankurkunda	229	44.43	0.00	15.00	0.00	0.00	0.00	3.00	0.00	0.00	26.43	0.00	26.43	0.00	0.00	24.39	0.00	2.04
318517	Achhra	2583	261.29	2.00	44.04	0.00	0.00	0.00	17.00	0.00	0.00	198.25	52.95	145.30	0.00	0.00	0.00	0.00	145.30
318518	Dabar	2443	256.29	0.00	90.00	0.00	0.00	0.00	24.00	0.00	0.00	142.29	114.30	27.99	0.00	0.00	27.99	0.00	0.00
318519	Alkusha	1420	126.56	0.00	48.06	0.00	0.00	0.00	2.02	0.00	0.00	76.48	44.46	32.02	0.00	0.00	32.02	0.00	0.00
318520	Phulberya	1918	88.48	0.00	31.00	0.00	0.00	0.00	0.80	0.00	0.00	56.68	32.63	24.05	0.00	0.00	24.05	0.00	0.00
318521	Sadhna	343	94.94	0.00	14.24	0.00	0.00	0.00	0.00	0.00	0.00	80.70	0.00	80.70	0.00	0.00	80.70	0.00	0.00
318522	Lohat	930	88.55	0.00	45.73	0.00	0.00	0.00	2.02	0.00	0.00	40.80	38.78	2.02	0.00	0.00	2.02	0.00	0.00
318523	Radhaballavpur	2422	60.33	0.00	43.30	0.00	0.00	0.00	2.83	0.00	0.00	14.20	14.20	0.00	0.00	0.00	0.00	0.00	0.00
318524	Shyamdi	3265	162.99	0.00	122.89	0.00	0.00	0.00	4.29	0.00	0.00	35.81	0.00	35.81	0.00	0.00	0.00	0.00	35.81
318525	Pahargara	966	164.09	0.00	79.99	0.00	0.00	0.00	32.02	0.00	0.00	52.08	0.00	52.08	0.00	0.00	0.00	0.00	52.08

ANNEXURE : II

POPULATION AND LANDUSE OF 10 KM RADIUS STUDY AREA, CENSUS 2011 (Ha.)

GOURANGDIH ABC COAL MINE, WEST BENGAL

Town/ village code	Town/village name	Populat ion	Total area	Forest land	Area under Non- Agricultural Uses	Barren & Un- cultivable Land	Permanent Pastures and Other Grazing Land	Land Under Misc. Tree Crops etc.	Culturable Waste Land	Fallows Land other than Current Fallows	Current Fallows	Net Area Sown	Total Unirrigated Land	Area Irrigated by Source	Canals	Wells/ Tube Wells	Tanks/ Lakes	Waterf all	Other Source
318526	Mohanpur	181	109.65	0.00	8.00	0.00	0.00	0.00	11.33	0.00	0.00	90.32	58.31	32.01	0.00	0.00	32.01	0.00	0.00
318527	Parbbatpur	989	124.52	0.00	13.61	0.00	0.00	0.00	17.40	0.00	0.00	93.51	0.00	93.51	0.00	0.00	93.51	0.00	0.00
318528	Bolkunda	1351	320.33	0.00	125.07	0.00	0.00	0.00	4.86	0.00	0.00	190.40	130.40	60.00	0.00	0.00	60.00	0.00	0.00
318530	Madhaichak	521	83.12	0.00	12.97	0.00	0.00	0.00	4.45	0.00	0.00	65.70	45.46	20.24	0.00	5.00	15.24	0.00	0.00
318531	Patal	908	211.89	0.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	204.89	0.00	204.89	0.00	0.00	204.89	0.00	0.00
318532	Mahishmura	941	143.53	0.00	27.68	0.00	0.00	0.00	39.78	0.00	0.00	76.07	55.00	21.07	0.00	0.00	21.07	0.00	0.00
318534	Miliakhola	1532	125.33	12.53	33.81	0.00	0.00	0.00	22.53	0.00	0.00	56.46	0.00	56.46	0.00	0.00	56.46	0.00	0.00
318537	Ethora	4547	515.54	0.00	116.50	0.00	0.00	0.00	10.12	0.00	0.00	388.92	260.00	128.92	0.00	0.00	128.92	0.00	0.00
318538	Angaria	576	92.98	0.00	8.00	0.00	0.00	0.00	22.78	0.00	0.00	62.20	32.20	30.00	0.00	4.00	26.00	0.00	0.00
801670	Kulti (M)	31381	960.00	-	960.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
318539	Chittaranjan (CT)	39098	1965.00	-	1965.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
318540	Hindusthan Cables To	22599	390.00	-	390.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub total		181069	11269.18	24.15	5479.28	0.00	0.00	0.00	617.73	0.00	0.00	5148.02	2958.08	2189.94	28.89	244.81	1506.46	0.00	409.78
Sub Distt. Barabani																			
318541	Parulbaria	1897	380.51	0.00	3.51	0.00	0.00	0.00	0.00	0.00	0.00	377.00	60.00	317.00	0.00	0.00	50.00	0.00	267.00
318542	Roshna	937	436.43	0.00	5.43	0.00	0.00	0.00	133.78	0.00	0.00	297.22	118.78	178.44	0.00	0.00	50.00	0.00	128.44
318543	Daskiari	3644	564.19	7.42	10.00	0.00	0.00	0.00	0.42	0.00	0.00	546.77	210.92	335.85	0.00	0.00	116.00	0.00	219.85
318544	Kanskuli	1159	324.98	40.68	4.00	0.00	0.00	0.00	0.00	0.00	0.00	280.30	91.32	188.98	0.00	0.00	0.00	0.00	188.98
318545	Chhotkara	2118	344.14	10.91	40.93	0.00	0.00	0.00	47.52	0.00	0.00	244.78	226.67	18.11	0.00	0.00	18.11	0.00	0.00
318546	Khaerbad	1474	249.24	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	245.24	48.00	197.24	0.00	0.00	49.00	0.00	148.24
318547	Baradang	1746	318.39	20.71	3.00	0.00	0.00	0.00	0.00	0.00	0.00	294.68	10.29	284.39	0.00	0.00	62.00	0.00	222.39
318548	Alipur	906	227.52	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	225.52	21.95	203.57	0.00	0.00	195.93	0.00	7.64
318549	Kantapahari	1864	153.86	0.00	55.70	0.00	0.00	0.00	4.00	0.00	0.00	94.16	64.30	29.86	0.00	0.00	6.00	0.00	23.86
318550	Aliganja	2130	337.92	67.00	19.82	0.00	0.00	0.00	0.00	0.00	0.00	251.10	202.25	48.85	0.00	0.00	48.85	0.00	0.00
318551	Hosenpur	1143	173.40	8.15	62.21	0.00	0.00	0.00	0.00	0.00	0.00	103.04	43.00	60.04	0.00	0.00	60.04	0.00	0.00
318552	Putulia	560	297.44	0.00	49.42	0.00	0.00	0.00	25.00	0.00	0.00	223.02	202.94	20.08	0.00	15.40	4.68	0.00	0.00
318553	Gourbazar	530	134.75	0.00	60.22	0.00	0.00	0.00	0.00	0.00	0.00	74.53	27.00	47.53	0.00	0.00	47.53	0.00	0.00
318554	Amulia	178	141.54	0.00	58.62	0.00	0.00	0.00	10.00	0.00	0.00	72.92	24.38	48.54	0.00	0.00	7.00	0.00	41.54
318555	Rashunpur	1531	416.92	0.00	68.19	0.00	0.00	0.00	13.00	0.00	0.00	335.73	98.73	237.00	0.00	0.00	7.00	0.00	230.00
318556	Madanpur	3687	482.70	0.00	191.46	0.00	0.00	0.00	53.63	0.00	0.00	237.61	237.61	0.00	0.00	0.00	0.00	0.00	0.00
318557	Sarshatali	1039	245.64	61.93	10.00	0.00	0.00	0.00	0.00	0.00	0.00	173.71	110.71	63.00	0.00	0.00	14.00	0.00	49.00
318558	Kapishtha	1932	283.63	0.00	64.90	0.00	0.00	0.00	8.00	0.00	0.00	210.73	90.73	120.00	0.00	0.00	15.00	0.00	105.00
318559	Jamgram	7614	1623.60	0.00	313.60	0.00	0.00	0.00	10.00	0.00	0.00	1300.00	1290.00	10.00	0.00	0.00	10.00	0.00	0.00
318560	Puchra	3814	811.87	0.00	58.27	0.00	0.00	0.00	500.79	0.00	0.00	252.81	243.41	9.40	0.00	0.00	0.40	0.00	9.00
318561	Itapora	1724	46.65	0.00	11.46	0.00	0.00	0.00	0.00	0.00	0.00	35.19	8.18	27.01	0.00	0.00	12.00	0.00	15.01
318562	Bila	676	148.19	0.27	2.00	0.00	0.00	0.00	0.00	0.00	0.00	145.92	88.39	57.53	0.00	0.00	54.53	0.00	3.00
318563	Amdiha	1553	172.97	0.00	30.29	0.00	0.00	0.00	0.00	0.00	0.00	142.68	121.76	20.92	0.00	0.00	16.92	0.00	4.00
318564	Baliapur	2332	293.09	2.00	81.69	0.00	0.00	0.00	0.00	0.00	0.00	209.40	149.40	60.00	0.00	0.00	60.00	0.00	0.00
318565	Amlala	1193	195.44	0.00	23.37	0.00	0.00	0.00	0.00	0.00	0.00	172.07	132.07	40.00	0.00	0.00	33.20	0.00	6.80
318566	Raniganja	1597	217.31	0.00	35.91	0.00	0.00	0.00	0.00	0.00	0.00	181.40	116.40	65.00	0.00	0.00	55.19	0.00	9.81
318567	Raghnunath Chak	559	104.26	0.00	23.24	0.00	0.00	0.00	0.00	0.00	0.00	81.02	66.02	15.00	0.00	0.00	11.50	0.00	3.50

ANNEXURE : II Contd..

POPULATION AND LANDUSE OF 10 KM RADIUS STUDY AREA, CENSUS 2011 (Ha.)

GOURANGDIH ABC COAL MINE, WEST BENGAL

Town/ village code	Town/village name	Populat ion	Total area	Forest land	Area under Non- Agricultural Uses	Barren & Un- cultivable Land	Permanent Pastures and Other Grazing Land	Land Under Misc. Tree Crops etc.	Culturable Waste Land	Fallow Land other than Current Fallow	Current Fallow	Net Area Sown	Total Unirrigated Land	Area Irrigated by Source	Canals	Wells/ Tube Wells	Tanks/ Lakes	Waterf all	Other Source
318568	Chinchuria	2696	332.11	0.00	49.73	0.00	0.00	0.00	0.00	0.00	0.00	282.38	160.38	122.00	0.00	40.00	50.00	0.00	32.00
318569	Bijari	985	164.09	0.00	19.39	0.00	0.00	0.00	0.00	0.00	0.00	144.70	117.61	27.09	0.00	0.00	17.09	0.00	10.00
318570	Paniphala	320	116.65	0.00	25.17	0.00	0.00	0.00	47.58	0.00	0.00	43.90	41.72	2.18	0.00	0.00	2.18	0.00	0.00
318571	Karrabaid	666	85.35	0.00	32.59	0.00	0.00	0.00	0.00	0.00	0.00	52.76	52.76	0.00	0.00	0.00	0.00	0.00	0.00
318572	Napara	627	233.54	0.89	96.38	0.00	0.00	0.00	4.00	0.00	0.00	132.27	132.27	0.00	0.00	0.00	0.00	0.00	0.00
318573	Jayramdanga	786	104.63	0.00	16.03	0.00	0.00	0.00	22.00	0.00	0.00	66.60	25.60	41.00	0.00	0.00	41.00	0.00	0.00
318574	Bhaskajuri	1670	116.47	0.00	5.38	0.00	0.00	0.00	8.99	0.00	0.00	102.10	0.00	102.10	0.00	0.00	0.00	0.00	102.10
318575	Barabani	2330	294.70	1.55	8.74	0.00	0.00	0.00	83.78	0.00	0.00	200.63	181.43	19.20	0.00	0.00	0.00	0.00	19.20
318576	Kelejora	5533	677.39	0.00	316.26	0.00	0.00	0.00	10.00	0.00	0.00	351.13	343.13	8.00	0.00	2.00	6.00	0.00	0.00
318577	Khoshnagar	1737	115.61	0.00	4.44	0.00	0.00	0.00	36.00	0.00	0.00	75.17	74.77	0.40	0.00	0.00	0.40	0.00	0.00
318578	Khamra	91	117.84	0.00	37.04	0.00	0.00	0.00	0.00	0.00	0.00	80.80	11.00	69.80	0.00	0.00	30.00	0.00	39.80
318579	Gopalbaid	510	81.03	0.00	21.65	0.00	0.00	0.00	0.00	0.00	0.00	59.38	43.38	16.00	0.00	0.00	10.00	0.00	6.00
318580	Shyamsundarpur	1444	163.19	0.00	86.56	0.00	0.00	0.00	0.00	0.00	0.00	76.63	60.00	16.63	0.00	5.00	11.63	0.00	0.00
318581	Taldanga (B)	768	184.68	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	174.68	128.32	46.36	0.00	0.00	46.36	0.00	0.00
318582	Lalganja (B)	2667	216.91	0.00	73.83	0.00	0.00	0.00	0.00	0.00	0.00	143.08	51.08	92.00	0.00	0.00	40.00	0.00	52.00
318583	Janarddan Sayer (B)	216	82.96	0.81	12.50	0.00	0.00	0.00	2.00	0.00	0.00	67.65	40.65	27.00	0.00	0.00	16.00	0.00	11.00
318584	Kanyapur (B)	1593	198.51	0.05	34.09	0.00	0.00	0.00	1.00	0.00	0.00	163.37	118.37	45.00	0.00	0.00	4.00	0.00	41.00
318585	Nuni (B)	2557	296.91	0.00	91.54	0.00	0.00	0.00	0.00	0.00	0.00	205.37	155.37	50.00	0.00	0.00	30.00	0.00	20.00
318586	Monohar Bahal (B)	2522	252.44	0.00	64.09	0.00	0.00	0.00	20.00	0.00	0.00	168.35	118.35	50.00	0.00	0.00	25.00	0.00	25.00
318587	Panuria (CT)	8399	520.71	-	520.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-
318588	Domohani (CT)	12480	637.89	-	637.89	-	-	-	-	-	-	-	-	-	-	-	-	-	-
318589	Bhanowara (CT)	8855	411.00	-	411.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
318590	Majjara (CT)	5444	718.83	-	718.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-
318591	Pangachhiya (CT)	9165	122.00	-	122.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub total		123598	15372.02	222.37	4709.08	0.00	0.00	0.00	1041.07	0.00	0.00	9399.50	5961.40	3438.10	0.00	62.40	1334.54	0.00	2041.16
Sub Distt. Jamuria																			
318593	Andharia	1145	304.33	6.56	207.49	0.00	0.00	0.00	0.03	0.00	0.00	90.25	48.97	41.28	0.00	0.00	41.28	0.00	0.00
318594	Baguli	260	188.58	0.00	98.33	0.00	0.00	0.00	0.00	0.00	0.00	90.25	48.97	41.28	0.00	0.00	41.28	0.00	0.00
318595	Madhabpur	354	93.32	0.00	47.19	0.00	0.00	0.00	13.76	0.00	0.00	32.37	18.21	14.16	0.00	0.00	14.16	0.00	0.00
318596	Rakhakura	1453	233.91	1.07	53.98	0.00	0.00	0.00	2.02	0.00	0.00	176.84	110.88	65.96	0.00	0.00	65.96	0.00	0.00
318597	Chichurbil	1663	487.65	0.00	327.18	0.00	0.00	0.00	20.45	0.00	0.00	140.02	67.58	72.44	0.00	0.00	72.44	0.00	0.00
318598	Churulia	8173	1042.07	0.00	278.01	0.00	0.00	0.00	4.05	0.00	0.00	760.01	538.24	221.77	0.00	0.00	221.77	0.00	0.00
318599	Madhudanga	1209	98.34	0.00	25.20	0.00	0.00	0.00	2.12	0.00	0.00	71.02	33.01	38.01	0.00	0.00	38.01	0.00	0.00
318600	Madantor	2813	617.96	0.00	330.16	0.00	0.00	0.00	10.18	0.00	0.00	277.62	264.26	13.36	0.00	0.00	13.36	0.00	0.00
318601	Laikapur	816	203.56	47.32	9.21	0.00	0.00	0.00	0.00	0.00	0.00	147.03	136.02	11.01	0.00	0.00	11.01	0.00	0.00
Sub total		17886	3269.72	54.95	1376.75	0.00	0.00	0.00	52.61	0.00	0.00	1785.41	1266.14	519.27	0.00	0.00	519.27	0.00	0.00
District Jamtara																			
Sub Distt. Jamtara																			
372681	Sapdiha	863	262.93	0.00	105.85	0.00	20.51	2.35	134.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
372682	Kusbedia	4111	283.13	0.00	76.15	4.22	24.05	3.36	170.34	2.78	2.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
372683	Bagjuri	2630	278.01	0.00	62.34	0.00	14.13	0.78	198.91	0.00	1.34	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
372684	Bhaga	929	222.21	0.00	98.76	0.00	13.17	110.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
801793	Mihijam (NP)	40463	1094.00	-	1094.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub total		48996	2140.28	0.00	1437.10	4.22	71.86	116.77	503.47	2.78	3.57	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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GOURANGDIH ABC COAL MINE, WEST BENGAL

Town/ village code	Town/village name	Populat ion	Total area	Forest land	Area under Non- Agricultural Uses	Barren & Un- cultivable Land	Permanent Pastures and Other Grazing Land	Land Under Misc. Tree Crops etc.	Culturable Waste Land	Fallow Land other than Current Fallow	Current Fallow	Net Area Sown	Total Unirrigated Land	Area Irrigated by Source	Canals	Wells/ Tube Wells	Tanks/ Lakes	Waterf all	Other Source
Sub Distt. Nala																			
372778	Jabardaha	1355	565.00	0.00	99.71	0.00	0.00	0.00	81.12	0.00	0.00	384.17	286.42	97.75	97.75	0.00	0.00	0.00	0.00
372779	Salkunda	731	278.00	0.00	24.77	0.00	0.00	0.00	24.53	0.00	0.00	228.70	228.70	0.00	0.00	0.00	0.00	0.00	0.00
372784	Kusumdaha	485	215.00	0.00	10.96	0.00	0.00	0.00	8.19	0.00	0.00	195.85	195.85	0.00	0.00	0.00	0.00	0.00	0.00
372785	Banberiya	448	137.00	0.00	10.56	0.00	0.00	0.00	16.55	0.00	0.00	109.89	109.89	0.00	0.00	0.00	0.00	0.00	0.00
372786	Panchmohali	501	187.00	0.00	15.08	0.00	0.00	0.00	14.62	0.00	0.00	157.30	154.43	2.87	0.00	0.00	0.81	2.06	0.00
372787	Badurmara	472	129.55	0.00	10.51	0.00	0.00	0.00	7.51	0.00	0.00	111.53	100.39	11.14	0.00	0.00	0.84	0.00	10.30
372788	Kharberiya	33	86.00	0.00	5.65	0.00	0.00	0.00	2.09	0.00	0.00	78.26	78.26	0.00	0.00	0.00	0.00	0.00	0.00
372789	Bandlako	277	157.00	0.00	14.71	0.00	0.00	0.00	8.46	0.00	0.00	133.83	133.83	0.00	0.00	0.00	0.00	0.00	0.00
372790	Agaiya	340	162.00	0.00	8.46	0.00	0.00	0.00	0.00	14.71	0.00	138.83	138.83	0.00	0.00	0.00	0.00	0.00	0.00
372791	Bankasemal	41	38.00	0.00	3.74	0.00	0.00	0.00	3.72	0.00	0.00	30.54	30.54	0.00	0.00	0.00	0.00	0.00	0.00
372792	Hijaljuri	575	184.00	0.00	7.36	0.00	0.00	0.00	14.71	0.00	0.00	161.93	161.93	0.00	0.00	0.00	0.00	0.00	0.00
372793	Shibdangal	149	39.00	0.00	2.45	0.00	0.00	0.00	5.73	0.00	0.00	30.82	30.82	0.00	0.00	0.00	0.00	0.00	0.00
372794	Khola Khamar	112	78.00	0.00	4.78	0.00	0.00	0.00	2.57	0.00	0.00	70.65	70.65	0.00	0.00	0.00	0.00	0.00	0.00
372795	Phutberiya	857	173.00	0.00	23.79	0.00	0.00	0.00	8.15	0.00	0.00	141.06	141.06	0.00	0.00	0.00	0.00	0.00	0.00
372796	Kolkunda	214	78.00	0.00	3.01	0.00	0.00	0.00	7.37	0.00	0.00	67.62	67.62	0.00	0.00	0.00	0.00	0.00	0.00
372798	Ghat Sagariya	604	178.00	0.00	4.72	0.00	0.00	0.00	18.34	0.00	0.00	154.94	154.94	0.00	0.00	0.00	0.00	0.00	0.00
372799	Kharubazar	614	130.00	0.00	4.29	0.00	0.00	0.00	14.29	0.00	0.00	111.42	111.42	0.00	0.00	0.00	0.00	0.00	0.00
372800	Tarra	806	175.00	0.00	4.99	0.00	0.00	0.00	12.81	0.00	0.00	157.20	151.91	5.29	0.00	0.00	1.24	4.05	0.00
372801	Maralai	2028	598.00	0.00	28.59	0.00	0.00	0.00	70.90	0.00	0.00	498.51	497.09	1.42	0.00	0.81	0.61	0.00	0.00
372802	Mohanpur	1346	273.00	0.00	15.72	0.00	0.00	0.00	17.15	0.00	0.00	240.13	234.42	5.71	0.00	2.43	3.28	0.00	0.00
372803	Rangasol	1307	672.00	267.23	9.05	0.00	0.00	0.00	32.47	0.00	0.00	363.25	363.25	0.00	0.00	0.00	0.00	0.00	0.00
372832	Saluka	1262	374.00	0.00	21.06	0.00	0.00	0.00	13.17	0.00	0.00	339.77	339.77	0.00	0.00	0.00	0.00	0.00	0.00
372833	Jasipur	1033	282.00	0.00	14.46	0.00	0.00	0.00	6.96	0.00	0.00	260.58	259.98	0.60	0.00	0.20	0.40	0.00	0.00
372834	Nischintapur	764	73.00	0.00	27.09	0.00	0.00	0.00	10.12	0.00	0.00	35.79	19.22	16.57	2.07	9.13	3.29	2.08	0.00
372835	Haripur	535	221.00	0.00	33.38	0.00	0.00	0.00	75.99	0.00	0.00	111.63	110.78	0.85	0.00	0.00	0.45	0.00	0.40
372895	Jadunandanpur	91	48.00	0.00	5.27	0.00	0.00	0.00	8.14	0.00	0.00	34.59	25.94	8.65	0.00	0.00	0.40	0.00	8.25
372896	Mukundadi	289	112.00	0.00	16.32	0.00	0.00	0.00	21.10	0.00	0.00	74.58	74.58	0.00	0.00	0.00	0.00	0.00	0.00
372897	Majhladi	520	110.00	0.00	5.88	0.00	0.00	0.00	41.43	0.00	0.00	62.69	62.69	0.00	0.00	0.00	0.00	0.00	0.00
372898	Kenduyatanr	346	104.00	0.00	3.77	0.00	0.00	0.00	8.90	0.00	0.00	91.33	220.92	0.00	0.00	0.00	0.00	0.00	0.00
372899	Kenduyatanr Chhit	14	9.70	0.00	4.80	0.00	0.00	0.00	4.90	0.00	0.00	0.00	10.32	0.00	0.00	0.00	0.00	0.00	0.00
372900	Nala	2202	233.00	0.00	4.05	0.00	0.00	0.00	8.03	0.00	0.00	220.92	184.92	0.00	0.00	0.00	0.00	0.00	0.00
372901	Nalhati	221	94.00	0.00	16.29	0.00	0.00	0.00	17.35	0.00	0.00	60.36	60.36	0.00	0.00	0.00	0.00	0.00	0.00
372902	Dalabar	1907	198.00	0.00	26.26	0.00	0.00	0.00	17.04	0.00	0.00	154.70	143.07	11.63	0.00	11.63	0.00	0.00	0.00
372903	Suriyapani	447	157.00	0.00	24.99	0.00	0.00	0.00	24.88	0.00	0.00	107.13	107.13	0.00	0.00	0.00	0.00	0.00	0.00
372905	Jambediya	257	141.00	0.00	14.46	0.00	0.00	0.00	4.59	0.00	0.00	121.95	121.95	0.00	0.00	0.00	0.00	0.00	0.00
372906	Payrakhop	191	47.00	0.00	0.50	0.00	0.00	0.00	9.32	0.00	0.00	37.18	37.18	0.00	0.00	0.00	0.00	0.00	0.00
372907	Amlajora	462	108.00	0.00	7.71	0.00	0.00	0.00	12.86	0.00	0.00	87.43	87.43	0.00	0.00	0.00	0.00	0.00	0.00
372908	Bhaljuriya	504	139.00	0.00	11.39	0.00	0.00	0.00	25.08	0.00	0.00	102.53	102.53	0.00	0.00	0.00	0.00	0.00	0.00
372910	Kaliapathar	422	153.00	17.47	7.32	0.00	0.00	0.00	70.38	0.00	0.00	57.83	57.83	0.00	0.00	0.00	0.00	0.00	0.00
372911	Kamubediya	210	111.00	0.00	2.96	0.00	0.00	0.00	21.50	0.00	0.00	86.54	86.54	0.00	0.00	0.00	0.00	0.00	0.00
372912	Baratanr	245	91.00	0.00	2.96	0.00	0.00	0.00	21.50	0.00	0.00	66.54	66.54	0.00	0.00	0.00	0.00	0.00	0.00
372913	Raghunathpur	72	45.00	0.00	0.87	0.00	0.00	0.00	9.56	0.00	0.70	33.87	33.87	0.00	0.00	0.00	0.00	0.00	0.00
372914	Hidaljori	326	102.00	0.00	1.69	0.00	0.00	0.00	34.21	0.00	0.00	66.10	66.10	0.00	0.00	0.00	0.00	0.00	0.00
372915	Nutandi	244	56.00	0.00	1.49	0.00	0.00	0.00	10.08	0.00	0.00	44.43	44.43	0.00	0.00	0.00	0.00	0.00	0.00
372916	Chital Kanali	364	72.00	0.00	2.75	0.00	0.00	0.00	3.63	6.00	0.00	59.62	59.62	0.00	0.00	0.00	0.00	0.00	0.00
372917	Ranidi	158	83.00	0.00	2.33	0.00	0.00	0.00	16.32	0.00	0.00	64.35	64.35	0.00	0.00	0.00	0.00	0.00	0.00
372918	Tilabani	651	266.00	4.80	19.59	0.00	0.00	0.00	101.13	0.00	0.00	140.48	140.48	0.00	0.00	0.00	0.00	0.00	0.00
372919	Ank Pokhariya	364	102.00	0.00	6.12	0.00	0.00	0.00	21.44	0.00	0.00	74.44	74.44	0.00	0.00	0.00	0.00	0.00	0.00

ANNEXURE : II Contd.,

POPULATION AND LANDUSE OF 10 KM RADIUS STUDY AREA, CENSUS 2011 (Ha.)

GOURANGDIH ABC COAL MINE, WEST BENGAL

Town/ village code	Town/village name	Populat ion	Total area	Forest land	Area under Non- Agricultural Uses	Barren & Un- cultivable Land	Permanent Pastures and Other Grazing Land	Land Under Misc. Tree Crops etc.	Culturable Waste Land	Fallows Land other than Current Fallows	Current Fallows	Net Area Sown	Total Unirrigated Land	Area Irrigated by Source	Canals	Wells/ Tube Wells	Tanks/ Lakes	Waterf all	Other Source
372920	Sagjuriya	992	271.00	0.00	60.60	0.00	0.00	0.00	14.99	0.00	0.00	195.41	195.41	0.00	0.00	0.00	0.00	0.00	0.00
372921	Pakbara	1164	367.00	0.00	125.98	0.00	0.00	0.00	0.00	0.00	0.00	241.02	241.02	0.00	0.00	0.00	0.00	0.00	0.00
372922	Tarachutia	808	224.00	0.00	16.08	0.00	0.00	0.00	23.72	0.00	0.00	184.20	184.20	0.00	0.00	0.00	0.00	0.00	0.00
372923	Murgabani	815	193.00	7.42	9.24	0.00	0.00	0.00	49.02	0.00	0.00	127.32	127.32	0.00	0.00	0.00	0.00	0.00	0.00
372924	Mathura	284	104.00	2.34	2.50	0.00	0.00	0.00	5.53	0.00	0.00	93.63	93.63	0.00	0.00	0.00	0.00	0.00	0.00
372925	Juridangal	761	215.00	0.00	23.91	0.00	0.00	0.00	46.28	0.00	0.00	144.81	144.81	0.00	0.00	0.00	0.00	0.00	0.00
372926	Sendur Khaniya	683	151.00	0.00	10.61	0.00	0.00	0.00	17.26	0.00	0.00	123.13	123.13	0.00	0.00	0.00	0.00	0.00	0.00
372927	Radhaballavpur	407	66.00	0.00	11.40	0.00	0.00	0.00	7.39	0.00	0.00	47.21	47.21	0.00	0.00	0.00	0.00	0.00	0.00
372928	Debaikunda	670	169.00	0.00	0.00	0.00	0.00	14.43	0.00	24.74	0.00	129.83	129.83	0.00	0.00	0.00	0.00	0.00	0.00
372929	Mahisamura	925	216.00	0.00	11.93	0.00	0.00	0.00	34.74	0.00	0.00	169.33	169.33	0.00	0.00	0.00	0.00	0.00	0.00
372930	Patuyasol	410	160.00	0.00	64.45	0.00	0.00	0.00	12.03	0.00	0.00	83.52	83.52	0.00	0.00	0.00	0.00	0.00	0.00
372931	Gardoara	270	132.00	0.00	22.30	0.00	0.00	0.00	15.81	0.00	0.00	93.89	93.89	0.00	0.00	0.00	0.00	0.00	0.00
372932	Baghatana	156	95.00	39.91	0.89	0.00	0.00	0.00	8.32	0.00	0.00	45.88	45.88	0.00	0.00	0.00	0.00	0.00	0.00
372933	Siyaljuri	168	64.00	6.42	4.93	0.00	0.00	0.00	9.67	0.00	0.00	42.98	42.98	0.00	0.00	0.00	0.00	0.00	0.00
372934	Bankhet	571	235.00	4.03	38.14	0.00	0.00	0.00	51.00	0.00	0.00	141.83	141.83	0.00	0.00	0.00	0.00	0.00	0.00
372935	Kurthibhita	67	62.00	2.23	7.37	0.00	0.00	0.00	19.08	0.00	0.00	33.32	33.32	0.00	0.00	0.00	0.00	0.00	0.00
372936	Patharghata	770	228.00	0.00	43.26	0.00	0.00	0.00	33.76	0.00	0.00	150.98	150.98	0.00	0.00	0.00	0.00	0.00	0.00
372937	Baghakuri	528	217.00	58.16	15.24	0.00	0.00	0.00	10.17	0.00	0.00	133.43	133.43	0.00	0.00	0.00	0.00	0.00	0.00
372958	Raghunath Chak	583	175.00	0.00	0.00	23.54	0.00	0.00	0.00	25.35	0.00	126.11	126.11	0.00	0.00	0.00	0.00	0.00	0.00
372959	Kenduya	607	330.00	0.00	2.37	0.00	0.00	0.00	14.54	0.00	0.00	313.09	313.09	0.00	0.00	0.00	0.00	0.00	0.00
372962	Pachatali	69	42.00	0.00	1.50	0.00	0.00	0.00	4.43	0.00	0.00	36.07	28.14	10.93	0.00	0.00	0.00	0.00	10.93
372963	Mathurakuri	200	55.00	0.00	7.35	0.00	0.00	0.00	1.93	0.00	0.00	45.72	45.72	0.00	0.00	0.00	0.00	0.00	0.00
372964	Baralia	243	127.00	0.00	6.57	0.00	0.00	0.00	10.27	0.00	0.00	110.16	110.16	0.00	0.00	0.00	0.00	0.00	0.00
372965	Jambedia	645	173.00	0.00	2.12	0.00	0.00	0.00	3.14	0.00	0.00	167.74	167.74	0.00	0.00	0.00	0.00	0.00	0.00
372966	Kumrachak	93	43.00	0.00	2.12	0.00	0.00	0.00	3.14	0.00	0.00	37.74	37.74	0.00	0.00	0.00	0.00	0.00	0.00
372967	Sarbediya	669	205.00	0.00	44.11	0.00	0.00	0.00	35.52	0.00	0.00	125.37	125.37	0.00	0.00	0.00	0.00	0.00	0.00
372968	Baghchhera	437	177.00	0.00	4.22	0.00	0.00	0.00	13.14	0.00	0.00	159.64	159.64	0.00	0.00	0.00	0.00	0.00	0.00
372969	Kesiya	161	111.00	0.00	5.12	0.00	0.00	0.00	13.25	0.00	0.00	92.63	92.63	0.00	0.00	0.00	0.00	0.00	0.00
372970	Bhelaberiya	373	127.00	33.74	2.29	0.00	0.00	0.00	9.25	0.00	0.00	81.72	81.72	0.00	0.00	0.00	0.00	0.00	0.00
372971	Malipahari	968	297.00	2.07	0.84	0.00	0.00	0.00	54.93	0.00	0.00	239.16	239.16	0.00	0.00	0.00	0.00	0.00	0.00
372972	Pariharpur	516	172.00	0.00	12.46	0.00	0.00	0.00	9.79	0.00	4.65	145.10	145.10	0.00	0.00	0.00	0.00	0.00	0.00
372973	Chhota Rampur	123	117.00	8.30	0.00	0.00	0.00	36.91	0.00	0.00	0.00	71.79	70.17	1.62	0.00	0.00	0.00	1.62	0.00
372974	Kharmali Rampur	332	117.00	16.47	37.27	0.00	0.00	0.00	14.31	0.00	0.00	48.95	48.95	0.00	0.00	0.00	0.00	0.00	0.00
372975	Chhotalia	318	149.00	36.43	8.54	0.00	0.00	0.00	12.76	0.00	0.00	91.27	91.27	0.00	0.00	0.00	0.00	0.00	0.00
372976	Palasthali	366	100.00	2.48	0.00	3.85	0.00	0.00	43.42	0.00	0.00	50.25	50.25	0.00	0.00	0.00	0.00	0.00	0.00
372977	Kasta	1108	191.00	6.58	16.54	149.49	0.00	0.00	8.64	0.00	0.00	9.75	0.00	10.13	0.00	0.00	10.13	0.00	0.00
372983	Bara Rampur	762	266.00	0.00	31.68	0.00	0.00	0.00	35.35	0.00	0.00	198.97	198.97	0.00	0.00	0.00	0.00	0.00	0.00
372984	Sultanpur	633	74.00	0.00	10.92	0.00	0.00	0.00	11.70	0.00	0.00	51.38	51.38	0.00	0.00	0.00	0.00	0.00	0.00
372985	Chichurbil	545	90.00	0.00	12.16	0.00	0.00	0.00	15.13	0.00	0.00	62.71	62.71	0.00	0.00	0.00	0.00	0.00	0.00
372986	Barkurichak	276	83.00	0.00	4.05	0.00	0.00	0.00	7.45	0.00	0.00	71.50	71.50	0.00	0.00	0.00	0.00	0.00	0.00
Sub total		47872	14454.25	516.08	1279.72	176.88	0.00	51.34	1671.75	70.80	5.35	10682.33	10604.46	185.16	99.82	24.20	21.45	9.81	29.88
GRAND TOTAL		419421	46505.45	817.55	14281.93	181.10	71.86	168.11	3886.63	73.58	8.92	27015.77	20790.08	6332.47	128.71	331.41	3381.72	9.81	2480.82
%			100.00	1.76	30.71	0.39	0.15	0.36	8.36	0.16	0.02	58.09	44.70	13.62	2.03	5.23	53.40	0.15	39.18

ANNEXURE : II Contd..

**LIST OF FLORA IN CORE ZONE OF GOURANGDIH ABC COAL MINE
OF M/S WEST BENGAL MINERAL DEVELOPMENT AND TRADING
CORPORATION LIMITED (WBMDTC LTD.),
DIST. PASCHIM BARDHAMAN, WEST BENGAL**

Sl. No.	Botanical Name	Common Name	Family
	Trees		
1.	<i>Acacia auriculiformis</i>	Sonajhuri (Akashmoni)	Fabaceae
2.	<i>Ailanthus excelsa</i>	Ailanthus	Simaroubaceae
3.	<i>Aegle marmelos</i>	Bel	Myrtaceae
4.	<i>Alstonia Scholaris</i>	Chatim	Apocynaceae
5.	<i>Anthocephalus cadamba</i> (Roxb.)	Kadam	Rubiaceae
6.	<i>Artocarpus heterophyllus</i>	Kathal	Moraceae
7.	<i>Azadirachta indica</i>	Neem	Meliaceae
8.	<i>Borassus flabellifer</i>	Tad (Tal)	Arecaceae
9.	<i>Butea monosperma</i>	Palas	Fabaceae
10.	<i>Calotropis gigantea</i>	akaon	Apocynaceae
11.	<i>Cassia Fistula</i>	Bahara, Amaltas	Cesalpiniaceae
12.	<i>Dalbergia sissoo</i>	Sisam	Fabaceae
13.	<i>Diospyros melanoxylon</i>	Tendu	Ebenaceae
14.	<i>Eucalyptus globulus</i>	Safeda	Myrtaceae
15.	<i>Ficus religiosa</i>	Pipal (Avastha)	Moraceae
16.	<i>Ficus racemosa</i>	Gular (Dumumr)	Moraceae
17.	<i>Ficus bangalensis</i>	Bargad	Moraceae
18.	<i>Gmelin Arborea</i>	Gambhar	Verbenaceae
19.	<i>Madhuca longifolia</i>	Mohua (Mehul)	Sapotaceae
20.	<i>Mangifera indica</i>	Mango	Anacardiaceae
21.	<i>Morniga aneiphera</i>	Sahjan	Moringaceae
22.	<i>Peltoform Pterocarpum</i>	Radhachura	Caesalpiniaceae
23.	<i>Prasopis sinereria</i>	Sanalu	Fabaceae
24.	<i>Pisidium guava</i>	Guava	Myrtaceae
25.	<i>Phoenix dactylifera</i>	khajoor	Arecaceae
26.	<i>Ricinus communis</i>	Castor	Euphorbiaceae
27.	<i>Syzygium cumini</i>	Jamun	Myrtaceae
28.	<i>Shorea robusta</i>	Sal	Dipterocarpaceae
29.	<i>Spondias Axillaris Roxb</i>	Amra	Anacardiaceae
30.	<i>Tamarindus indica</i>	Imli/tentul	Caesalpiniaceae
31.	<i>Terminalia arjuna</i>	Arjun	Combretaceae
32.	<i>Terminalia bellirica</i>	Bahera	Combretaceae
33.	<i>Terminalia Chebula</i>	Haritaki	Combretaceae
34.	<i>Tectona grandis</i>	Teek (sagwan)	Verbenaceae
35.	<i>Zizyphus mauritiana</i>	Ber	Rhamnaceae
36.	<i>Careya arborea</i>	Akhara (Kalikatbhi)	Barringtoniaceae
37.	<i>Terminalia tomentosa</i>	Asan	Combretaceae
38.	<i>Cassia fistula</i>	Bandorlathi (Amaltas)	Cesalpiniaceae
39.	<i>Fagus sylvatica</i>	Buche	Fagaceae
40.	<i>Acacia Acuminata</i>	Jam	Fabaceae
41.	<i>Carissa carandas</i>	Karanja	Apocynaceae
42.	<i>Schleichera oleosa</i>	Kosai (Kusum)	Sapindaceae
43.	<i>Holarrhena antidysenterica</i>	Kurchi/Kuruchi	Apocynaceae
	Shrubs & Herbs		

Sl. No.	Botanical Name	Common Name	Family
1.	<i>Bambusa arundinacea</i>	Bamboo	Poaceae
2.	<i>Carissa carandas</i>	Karancha	Apocynaceae
3.	<i>Ocimum sanctum</i>	Tulsi	Lamiaceae
Grasses and Sedges			
1.	<i>Cynadon dactylon</i>	Doob	Poaceae
2.	<i>Apluda mutica</i>	Banjura grass	Poaceae

In addition to the above, trees identified in Part-II of Forest Dereservation Proposal of Gourangdih ABC Coal Mine (filled by Deputy Conservator of Forest) are (44) Khel Kadam, (45) Kanchmala, (46) Akar, (47) Chakalta/Chakalda, (48) Charra, (49) Dha, (50) Gokul, (51) Holdu, (52) Karam, (53) Kend, (54) Murga, (55) Nuniafal, (56) Minjiri, (57) pairachoki, (58) Pakur, (59) Piyal, (60) Sida, (61) Shyamal, (62) Shwara and (63) Vela (Local names available only).

LIST OF FLORA IN THE STUDY AREA OF GOURANGDIH ABC COAL MINE OF M/S WEST BENGAL MINERAL DEVELOPMENT AND TRADING CORPORATION LIMITED (WBMDTC LTD.), DIST. PASCHIM BARDHAMAN, WEST BENGAL

Sl. No.	Botanical Name	Common Name	Family
Trees			
1.	<i>Acacia nilotica</i>	Babul	Mimosaceae
2.	<i>Acacia auriculiformis</i>	Sonajhuri (Akashmoni)	Fabaceae
3.	<i>Acacia catechu</i>	Khair	Mimosaceae
4.	<i>Aegle marmelos</i>	Bel	Myrtaceae
5.	<i>Albizia lebbek</i>	Siris	Mimosaceae
6.	<i>Artocarpus heterophyllus</i>	Kathal	Moraceae
7.	<i>Anthoosphalus cadamba</i>	Kadam	Rubiaceae
8.	<i>Azadirachta indica</i>	Neem	Meliaceae
9.	<i>Azedarachta melia</i>	Bakneem	Meliaceae
10.	<i>Bombax ceiba</i>	Semar (Silk Cotton)	Bombacaceae
11.	<i>Butea monosperma</i>	Palas	Fabaceae
12.	<i>Borassus flabellifer</i>	Tad (Tal)	Arecaceae
13.	<i>Carica papaya</i>	Papaya	Caricaceae
14.	<i>Dalbergia sissoo</i>	Sisam	Fabaceae
15.	<i>Delonix regia</i>	Gulmohar	Fabaceae
16.	<i>Eucalyptus</i>	Safeda	Myrtaceae
17.	<i>Emblica officinalis</i>	Amla	Euphorbiaceae
18.	<i>Ficus bangalensis</i>	Bargad	Moraceae
19.	<i>Ficus religiosa</i>	Pipal (Avastha)	Moraceae
20.	<i>Ficus racemosa</i>	Gular (Dumur)	Moraceae
21.	<i>Genelina arborea</i>	Gamhar	Lamiaceae
22.	<i>Lagerstroemia parviflora</i>	Sidha	Lythraceae
23.	<i>Mangifera indica</i>	Mango	Anacardiaceae
24.	<i>Morniga aneiphera</i>	Sahjan	Moringaceae
25.	<i>Musa paradisiaca</i>	Kela	Musaceae
26.	<i>Madhuca longifolia</i>	Mohua	Sapotaceae
27.	<i>Pisidium guava</i>	Guava	Myrtaceae
28.	<i>Phoenix dactylifera</i>	Khajoor/ date palm	Arecaceae

Sl. No.	Botanical Name	Common Name	Family
29.	<i>Phoenix acaulis</i>	Bankhajoor	Arecaceae
30.	<i>Pongamia pinnata</i>	Karanj	Fabaceae
31.	<i>Saraca indica</i>	Ashoka	Caesalpiniaceae
32.	<i>Shorea robusta</i>	Sal	Dipterocarpaceae
33.	<i>Schlechera oleosa</i>	Kusum	Sapindaceae
34.	<i>Syzygium cumini</i>	Jamun	Myrtaceae
35.	<i>Tamarindus indica</i>	Imli/ Tentul	Caesalpiniaceae
36.	<i>Terminalia tomentosa</i>	Asan	Combretaceae
37.	<i>Terminalia arjuna</i>	Arjun	Combretaceae
38.	<i>Tectona grandis</i>	Teek	Verbenaceae
39.	<i>Zizyphus mauritiana</i>	Ber	Rhamnaceae
40.	<i>Ailanthus excelsa</i>	Ailanthus	Simaroubaceae
41.	<i>Alstonia Scholaris</i>	Chatim	Apocynaceae
42.	<i>Anthocephalus cadamba</i>	Khel Kadam	Rubiaceae
43.	<i>Calotropis gigantea</i>	akaon	Apocynaceae
44.	<i>Cassia Fistula</i>	Bahara, Amaltas	Caesalpiniaceae
45.	<i>Diospyros melanoxylon</i>	Tendu	Ebenaceae
46.	<i>Peltiform Pterocarpum</i>	Radhachura	Caesalpiniaceae
47.	<i>Prasophis sinereria</i>	Sonalu	Fabaceae
48.	<i>Ricinus communis</i>	Castor	Euphorbiaceae
49.	<i>Spondias Axillaris Roxb</i>	Amra	Anacardiaceae
50.	<i>Terminalia bellirica</i>	Bahera	Combretaceae
51.	<i>Terminalia Chebula</i>	Haritaki	Combretaceae
52.	<i>Careya arborea</i>	Akhara (Kalikatbhi)	Barringtoniaceae
53.	<i>Terminalia tomentosa</i>	Asan	Combretaceae
54.	<i>Fagus sylvatica</i>	Buche	Fagaceae
55.	<i>Acacia Acuminata</i>	Jam	Fabaceae
56.	<i>Holarrhena antidysenterica</i>	Kurchi/Kuruchi	Apocynaceae
Shrubs & Herbs			
1.	<i>Datura metal</i>	Datura	Solanaceae
2.	<i>Carissa carandas</i>	Karancha	Apocynaceae
3.	<i>Dendrocalamus strictus</i>	Bamboo	Poaceae
4.	<i>Millusa tomentosa</i>	Kari	Annonaceae
5.	<i>Ocimum basilicum</i>	Ban tulsi	Lamiaceae
6.	<i>Ocimum sanctum</i>	Tulsi	Lamiaceae
Grasses			
1.	<i>Cynadon dactylon</i>	Doob	Poaceae
2.	<i>Apluda mutica</i>	Banjura grass	Poaceae

In addition to the above, trees identified in Part-II of Forest Dereservation Proposal of Gourangdih ABC Coal Mine (filled by Deputy Conservator of Forest) are (57) Khel Kadam, (58) Kanchmala, (59) Akar, (60) Chakalta/Chakalda, (61) Charra, (62) Dha, (63) Gokul, (64) Holdu, (65) Karam, (66) Kend, (67) Murga, (68) Nuniafal, (69) Minjiri, (70) pairachoki, (71) Pakur, (72) Piyal, (73) Sida, (74) Shyamal, (75) Shwara and (76) Vela (Local names available only).

**LIST OF FUNA IN CORE ZONE OF GOURANGDIH ABC COAL MINE OF
M/S WEST BENGAL MINERAL DEVELOPMENT AND TRADING CORPORATION
LIMITED, DIST. PASCHIM BARDHAMAN, WEST BENGAL**

Sl. No.	Zoological Name	Common Name	Reference to schedule as per Wild Life (protection) Act,1972, As Amended upto 2006	
			Schedule	Part/Serial
	MAMMALS			
1.	<i>Funambulus pennanti</i>	Squirrel	IV	3-A
2.	<i>Herpestes edwardsi</i>	Mongoose	IV	6-A
3.	<i>Mus rattus rattus</i>	Common House Rat	V	6
4.	<i>Mus booduga</i>	Indian Field Mouse	V	5
5.	<i>Lepus nigricollis</i>	Common Indian hare	IV	4
6.	<i>Canis aureus (Linnaeus)</i>	Indian Jackal	II	2-B
7.	<i>Vulpes bengalensis (Shaw)</i>	Bengal Fox	II	1-B
8.	<i>Hystrix indica kerr</i>	Porcupine	IV	4-E
9.	<i>Sus scrofa</i>	Wild Boar	III	19
	BIRDS			
1.	<i>Acridotheres tristis</i>	Common myna	IV	11
2.	<i>Bubo bubo</i>	Owl	IV	11
3.	<i>Colombia livia</i>	Pigeon	IV	54
4.	<i>Carvus splendens</i>	House crow	V	1
5.	<i>Eudynamys scolopaceae</i>	Koel	IV	-
6.	<i>Passer domesticus</i>	House sparrow	IV	11
7.	<i>Pycnonotus cafer</i>	Bulbul	IV	11 (8)
8.	<i>Tringa glareola</i>	Wood sandpiper	IV	11
	REPTILES			
1.	<i>Calotes versicolor</i>	Garden lizard	IV	12
2.	Chameleon calcaratus	Chameleon	II	I
3.	<i>Naja naja</i>	Spectacled cobra	II	11
4.	<i>Vipera russelli</i>	Russel Viper	II	14

**LIST OF FAUNA IN THE STUDY AREA OF GOURANGDIH ABC COAL MINE OF
M/S WEST BENGAL MINERAL DEVELOPMENT AND TRADING CORPORATION
LIMITED DIST. PASCHIM BARDHAMAN, WEST BENGAL**

Sl. No.	Zoological Name	Common Name	Reference to schedule as per Wild Life (protection) Act,1972, As Amended upto 2006	
			Schedule	Part/Serial
	MAMMALS			
1.	<i>Canis aureus (Linnaeus)</i>	Indian Jackal	II	2-B
2.	<i>Hystrix indica kerr</i>	Porcupine	IV	4-E
3.	<i>Capralogus species</i>	Hare	IV	3-A
4.	<i>Felis chaus</i>	Jungle Cat	II	2-C
5.	<i>Funambulus pennanti</i>	Squirrel	IV	3-A
6.	<i>Herpestes edwardsi</i>	Mongoose	IV	6A
7.	<i>Mus musculas</i>	Mice	V	6
8.	<i>Mus Rattus rattus</i>	Rat	V	6
9.	<i>Mus booduga</i>	Indian Field Mouse	V	5
10.	<i>Presbytis chtellus</i>	Common langur	II	I- (4-A)
11.	<i>Rousettus leschenaultia</i>	Bat	V	3
12.	<i>Sus scrofa</i>	Wild Boar	III	19
13.	<i>Vulpes bengalpensis</i>	Bengal Fox	II	1-B
14.	<i>Melursus ursinus (Shaw)</i>	Sloth Bear	I	31-C
	BIRDS			
1.	<i>Acridotheres tristis</i>	Common myna	IV	11
2.	<i>Bubo bubo</i>	Owl	IV	11
3.	<i>Colombia livia</i>	Pigeon	IV	11
4.	<i>Corvus splendens,</i>	Common Crow	V	1
5.	<i>Eudynamys scolopacea</i>	Koel	IV	11
6.	<i>Gallus gallus</i>	Jungli Murgi	II	II
7.	<i>Nettopus Coromandelianus</i>	Ducks	IV	11(21)
8.	<i>Passer domesticus</i>	House Sparrow	IV	11
9.	<i>Pycnonotus cafer</i>	Bulbul	IV	11
10.	<i>Tringa glareola</i>	Wood sandpiper	IV	11

Sl. No.	Zoological Name	Common Name	Reference to schedule as per Wild Life (protection) Act, 1972, As Amended upto 2006	
			Schedule	Part/Serial
11.	<i>Francolinus pondicerianus</i>	Grey partridge	IV	11
12.	<i>Chrysocolaptes festivus</i>	Black backed wood pecker	IV	11
13.	<i>Bubulcus ibis</i>	Cattle egret	IV	11
14.	<i>Streptopelia chinensis</i>	Spotted dove	IV	11
REPTILES				
1.	<i>Naja naja</i>	Spectackled cobra	II	II-11
2.	<i>Natrix piscator</i>	Water snake	IV	12
3.	<i>Ptyas mucosus</i>	Rat Snake	II	II-9
4.	<i>Hemidactylus domesticus</i>	House lizard	II	I
5.	<i>Calotes versicolor</i>	Garden lizard	IV	12
6.	Chameleon calcaratus	Chameleon	II	I
7.	Python molurus (Linnaeus)	Rock Python	I	14-A
8.	Vipera russelli	Russel Viper	II	14
FISHES				
1.	<i>Clarias betrachus</i>	Mangur	Not Applicable	-
2.	<i>Catla catla</i>	Catla	Not Applicable	-
3.	<i>Puntius spp.</i>	Potia	Not Applicable	-
4.	<i>Labeo rohita</i>	Rohu	Not Applicable	-
5.	<i>Oreochromis niloticus</i>	Tilapia	Not Applicable	-



Government of West Bengal
DIRECTORATE OF FORESTS
Office of the Principal Chief Conservator of Forests
& Head of Forest Force, West Bengal
Aranya Bhawan, Block LA-10A, Sector-III,
Salt Lake City, Kolkata-700 106.



No. 3167/L</2M-1334/17

Dt. 27.08.2021

To : The Chairman & Managing Director,
West Bengal Mineral Development & Trading Corporation Ltd.
WBIDC Building, 3rd Floor,
DJ-10, DJ Block, Sector-II,
Salt Lake City, Kolkata- 700091

Sub: Certificate regarding the absence of Schedule-I species & non-existence of any Wildlife /
National Sanctuary within 10 Km. of the project area of Gourangdih ABC Coal Mines as
required by the EAC, MoEF & CC, New Delhi

Ref : Your office letter no. i) MDTC/PM-5/144/Env/742 dated. 25.11.2020 &
ii) MDTC/PM-5/144/Env/589 dated. 18.08.2021

Sir,

With reference to above, it has been certified by the PCCF & CWLW vide his letter No. 896/WL/2M-33(Pt.-II)/2021 dated. 13.04.2021(copy enclosed) which states that there is no direct evidence of Schedule-I species and there is no Wildlife Sanctuary/National Park within 10 Km. of the project site.

Yours faithfully,

(K. Talukdar)

Addl. Principal Chief Conservator of Forests,
FCA & Nodal Officer.

Encl.: As stated above

No. 3170/L</2M-1334/17

Dt. 27.08.2021

Copy forwarded for information and necessary actions to, Principal Chief Conservator of Forests,
Wildlife & CWLW, West Bengal.

(S. Mukherjee)

Principal Chief Conservator of Forests
& Head of Forest Force, West Bengal



GOVERNMENT OF WEST BENGAL

DIRECTORATE OF FORESTS

Office of the Principal Chief Conservator of Forests (Wildlife)

& Chief Wildlife Warden, West Bengal

Bikash Bhawan, North Block, Third Floor, Saltlake City, Kolkata - 700 091.

Tel No. 2334-6900/2358-3208, Fax. 91-033-2334-5946

e-mail.: pccfwl-wb@nic.in/pccfwloffice.fd-wb@bangla.gov.in, Visit us at www.wildbengal.com

Memo No.: 896 / WL / 2M-33(Pt-II) / 2021

Date: 13 / 04 / 2021

To: The Principal Chief Conservator of Forests
& Head of Forest Force, West Bengal.

Attention: Addl. Principal Chief Conservator of Forests
and Nodal Officer, Forest Conservation Act, 1980

Sub: Proposal for diversion 109.459 ha.s of Forest Land for opencast Mining Project at Gourangdih ABC
Coal Mine in favour of WBMDTC under Durgapur Forest Division- Reg.

Ref.: 1. WBMDTCL's letter no. MDTC/PM-5/144/Env/18 dated 05/01/2021.
2. DFO/ Durgapur Division's memo no. 3720/26 dated 04/01/2021.
3. APCCF & CCF/ South-East Circle's letter no. 541/SEC/2M-10 dated 19/02/2021.
4. WBMDTCL's letter no. MDTC/PM-5/144/Env/267 dated 22/03/2021.

With reference to the subject under reference, please find enclosed the report submitted by the
Divisional Forest Officer, Durgapur Division and field verified by the APCCF and CCF, South- East Circle.
Both the officers have informed that :-

1. There is no direct evidence of existence of Schedule-I species in the project and buffer area but it is
learnt that regular rescue of Rock Python within 10 km of the project site exists.
 2. There is no Wildlife Sanctuary / National Park within 10 km area of the project site.
- This is for your information and taking needful action from your end.

Encl.: as stated

(V.K. Yadav)

Principal Chief Conservator of Forests, Wildlife
& Chief Wildlife Warden, West Bengal

Memo No.: 896(3) / WL / 2M-33(Pt-II) / 2021

Date: 13 / 04 / 2021

Copy forwarded for information to :-

1. Addl. Chief Secretary, Forest Department, West Bengal.
2. The Chief Conservator of Forests, South-East Circle, West Bengal.
3. The Divisional Forest Officer, Durgapur Division.

(V.K. Yadav)

Principal Chief Conservator of Forests, Wildlife
& Chief Wildlife Warden, West Bengal

d/c