



PRACTICE NOTE 2021

WARDHA

VALLEY COALFIELD: AN OVERVIEW



Legal Initiative for Forest and Environment

Research: Rakesh Kumar Singh ^{Ph.D}

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N-71, LGF, Greater Kailash 1
New Delhi, 110048
Phone: +91-11-49537774, 41025852
E-mail: Info@lifeindia.org.in
Website: www.lifeindia.org.in

SUMMARY

The Wardha Valley Coalfield, located in western India, is a key source of coal for power plants. It has 37 active mines that produce up to 59.5 Million Tonne (MT) of coal annually. This coalfield falls in a tiger belt, and is surrounded by two wildlife sanctuaries and a national park. In spite of being an active mining region for more than a century, there is limited research on Wardha Valley Coalfield and its impact on surrounding ecology. *Legal Initiative for Forest and Environment* (LIFE) has studied the extent of mining, status of Environmental and Forest Clearances, and the ecological issues in the coalfield. This study found key gaps in data and gross ignorance in granting of environmental clearances by the Ministry of Environment, Forests and Climate Change. There are also major concerns about mining activity increasing pollution, depleting the groundwater table and straining human-wildlife conflicts.

Key findings:

- The “Life of Mine” or mining duration for three mines has not been specified in their Environment Clearances.
- The geographical coordinates of 25 mines have not be specified in the Environmental Clearances, which may allow illegal mining activity beyond the project area limit.
- At least 15 mines have forest areas in their project limits, and require mandatory Forest Clearances in addition to Environment Clearances. The status of Forest Clearances for these projects is not given in the Environment Clearance letters, and thus, is ambiguous.
- Calculations done by LIFE show gross underutilisation of truck carrying capacity during transportation of coal by road. This is a source of increased dust and subsequent air pollution in the region.
- Murpar Open Cast Mine (OCP) in the coalfield lies in the eco-sensitive zone of Tadoba Tiger Reserve, causing serious concerns about its impact on wildlife and biodiversity.
- Wardha Valley Coalfield is located in the water starved Vidarbha region, where frequent droughts often cause severe agricultural distress. Most projects uses mine pit water to meet the huge water requirement for mining. Further investigation is necessary to determine the impact of this on agriculture and ecology of the region.

BACKGROUND

The Wardha Valley Coalfield (WVC), primarily managed by the Western Coalfield Ltd., is spread across Chandrapur, Yawatmal and Wardha districts in Vidharbha region of Maharashtra¹. Mondal (2017) in his report has said that the total area of the coalfield was 7560.33 square kilometres (sq km) in 2013 which subsequently reduced to 5225.36 sq km in 2016, having 111 coal blocks. Latest information on the Online Coal Block Information System (OCBIS) of the Central Mine Planning & Design Institute (CMPDI) states the area to be still lesser at 5220.88 sq km. Ballarpur Underground-1 and Ballarpur Underground-2, started in 1906, are the oldest mines in WVC. Currently, it has 37 operational coal mines with the total production capacity of 59.5 Million Tonne (MT).

Topographically, the WCV lies in the valley of River Wardha, which is part of the Godavari river basin. Other major rivers within this coalfield are the Penganga and the Erai. Its north-eastern part is drained by Erai river and its tributaries whereas the southern part is drained by Penganga flowing along the southern boundary of the coalfield. Figure-1 shows the expanse of WCV over three districts and its intersection with major rivers in the region.

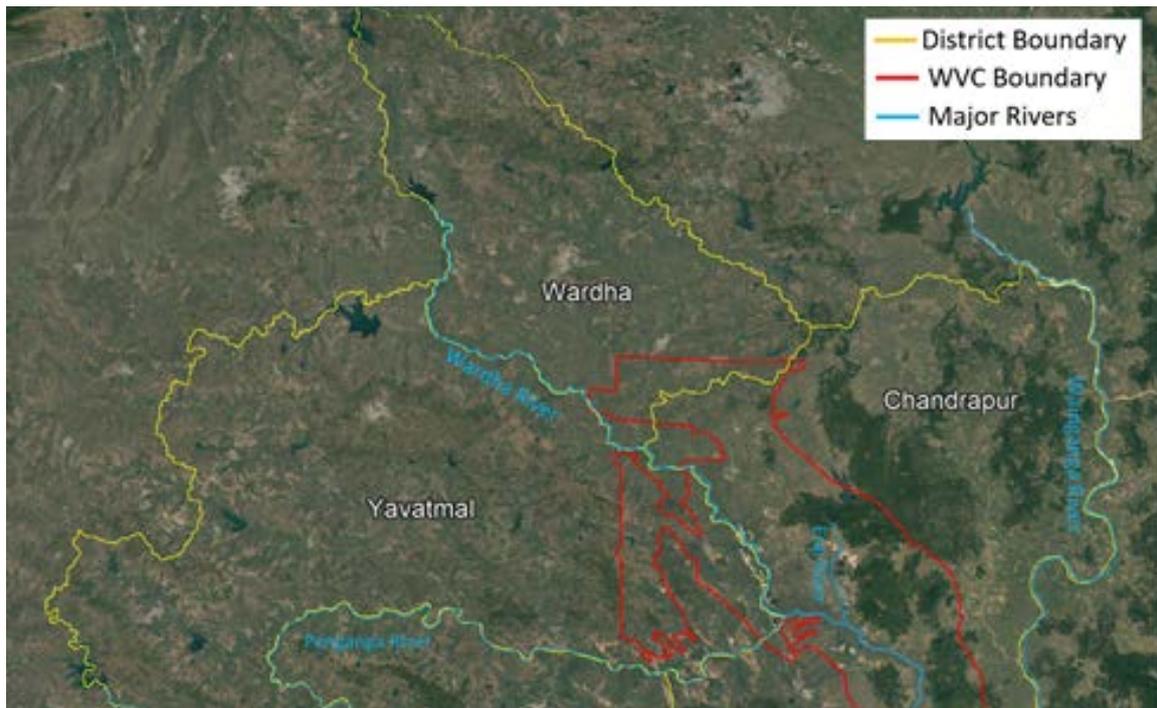
Ecologically the WVC falls within the Central Indian Tiger Landscape (CITL) of tigers, which is home to almost 34.81% (1033 tigers) of total tiger population of India (2967 tigers)³. There are three Protected Areas (PAs) located

1. The extent of this coal field lies in the Latitudes ranging from 20° 29'06" N to 20° 48' 22" N and Longitudes 79° 09'15" E to 79° 26'39" E.

2. <https://www.cmpdi.co.in/OCBIS/LIS.php?cf=WARDHA&block=ANANDWAN>

3. https://projecttiger.nic.in/content/39_1_Reports.aspx

Figure-1: Location of the Wardha Valley Coalfield



within 15 kms from the boundary of WVC—Tadoba National Park, Andhari Wildlife Sanctuary and Chaprala Wildlife Sanctuary. In fact, the Tadoba-Andhari Tiger Reserve shares its boundary with WVC for a stretch of approximately 18-20 kms. Mondal (2017) reported that in 2016, 26.92% of WVC was forest area, which was after losing 117.41sq km of forest since 2013. This paper attempts to study in-depth the Wardha Valley Coalfield and present a holistic picture of it, which is currently not available in the public domain. This paper gives an understanding about the extent of mining, the status of Environmental Clearance (EC) and Forest Clearance (FC), and the environmental and ecological issues in WVC.

METHODOLOGY

Information was sought under the Right to Information Act, 2005 from M/s Western Coal Field (WCL) to get copies of Environmental and Forest Clearance letters. Websites of the Ministry of Environment, Forest & Climate Change (MoEFCC), WCL and CMPDI were also explored to collate desired information.

Google Earth and QGIS were used for plotting boundaries of various coal blocks in WCV along with ecological parameters i.e. Protected Area boundary, important corridors and human-animal conflict zones.

OBSERVATION AND DISCUSSION

Mining Issues

Coal Blocks

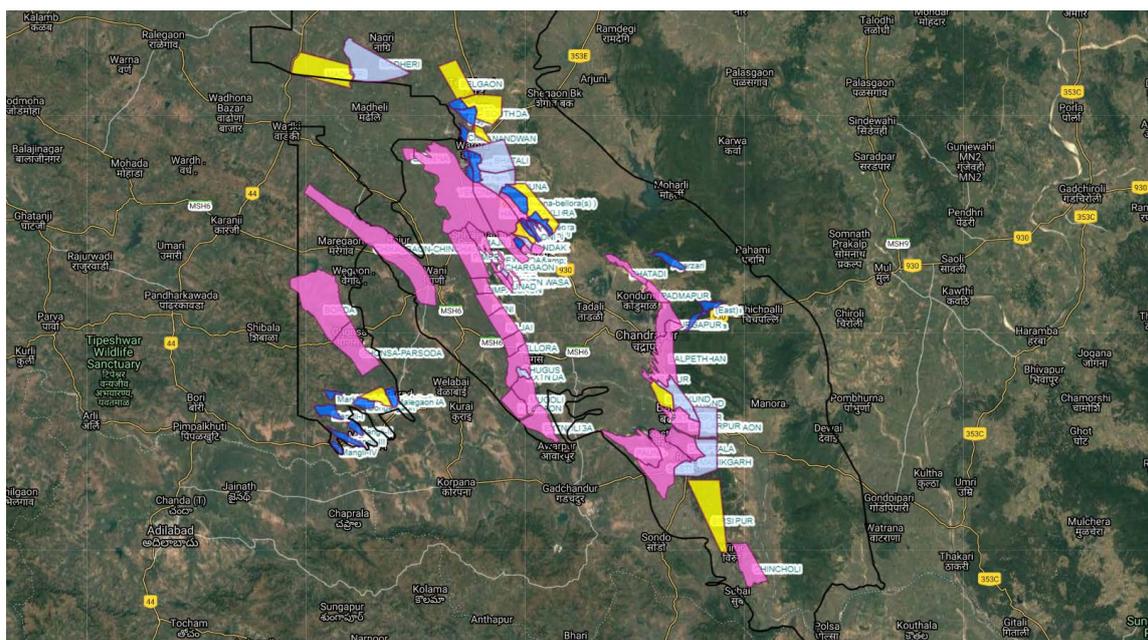
The GIS analysis shows that approximately 3699.58 sq km area of WCV falls in Chandrapur, 1083.69 sq km in Yawatmal and 432.25 sq km in Wardha districts. There are 77 coal blocks within WVC, out of which exploration is completed in 53 blocks. Partial exploration has been done for 10 coal blocks and is ongoing in nine coal blocks. The total area of 77 coal block is 1059.69 sq km constituting 20.29% area of the WCV. They hold coal reserves of 11699.803 Million Tonne (MT) as estimated till date¹. The status of coal exploration is given in Table-1.

Table-1: Status of exploration of coal blocks in WVC

S. No.	Number of Coal Blocks	Area (in km ²)	Exploration Status	Estimated Coal Reserve (in MT)
1	53	424.98	Explored	5249.143
2	10	314.49	Partly Explored	3872.800
3	2	29.40	Regionally Explored	220.000
4	9	208.81	Under Exploration	2357.86
5	3	82.01	Under Exploration	0.00
Total	77	1059.69		11699.803

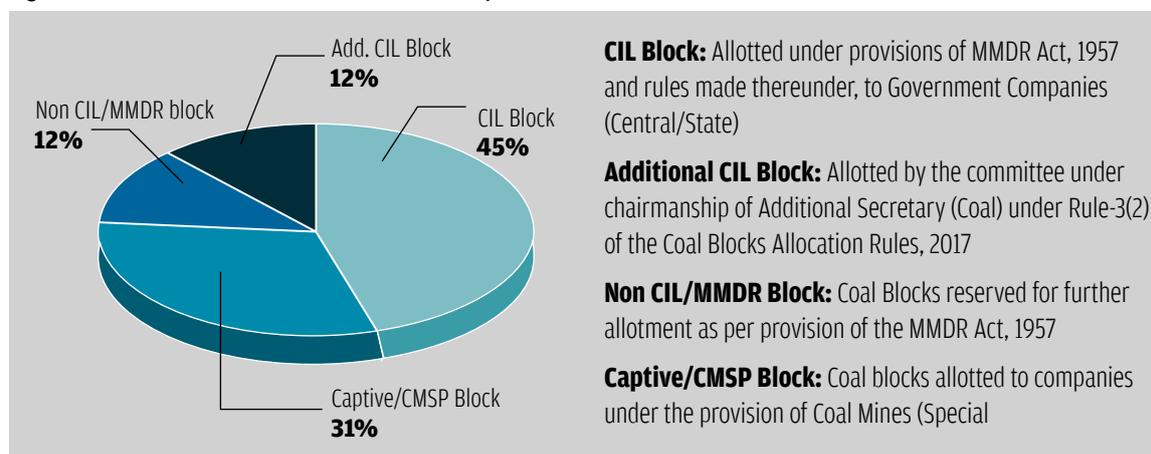
The smallest coal blocks of WVC is Dhurwasa & Extn. (0.68 sq.km) and the biggest coal block is Yekona (88.76 sq.km). In terms of estimated coal reserves, the lowest and highest coal reserves are Marki Mangli-IV (3.42 MT) and Yekona (1123.39 MT) respectively. Figure-2 shows the distribution of various coal blocks within the WCV.

Figure-2 shows the distribution of various coal blocks within the WCV



According to Online Coal Block Information System (OCBIS), 45% of WVC's coal blocks (40 blocks) spread over 734.92 sq km with estimated coal reserve of 8262.101 MT, have been reserved for Coal India Limited (CIL). Another 31% coal blocks (24 blocks) spread over in 87.14 sq km holding an estimated coal reserve of 802.393 MT is reserved for Captive/CSTM⁴. The ownership/usage distribution of 77 identified coal blocks is shown in Figure-3.

Figure-3: Reservation of coal blocks in Wardha Valley Coalfield



There are 24 coal blocks at WCV which are reserved under Captive/CMSP category and allotment has been made for 10 blocks spread over in 31.12 sq km with estimated coal reserves of 236.553 MT. The Karnataka Power Corporation Ltd. was allotted six coal blocks (11.10 sq km; 159.943 MT) which is 60% area of the total blocks allotted under Captive/CMSP category. Table-2 lists these 10 coal blocks along with names of allottees. However, no information is available on the operational status of these mines, and needs further investigation.

Table-2: Details of coal blocks allotted under Captive/CMSP category in WVC

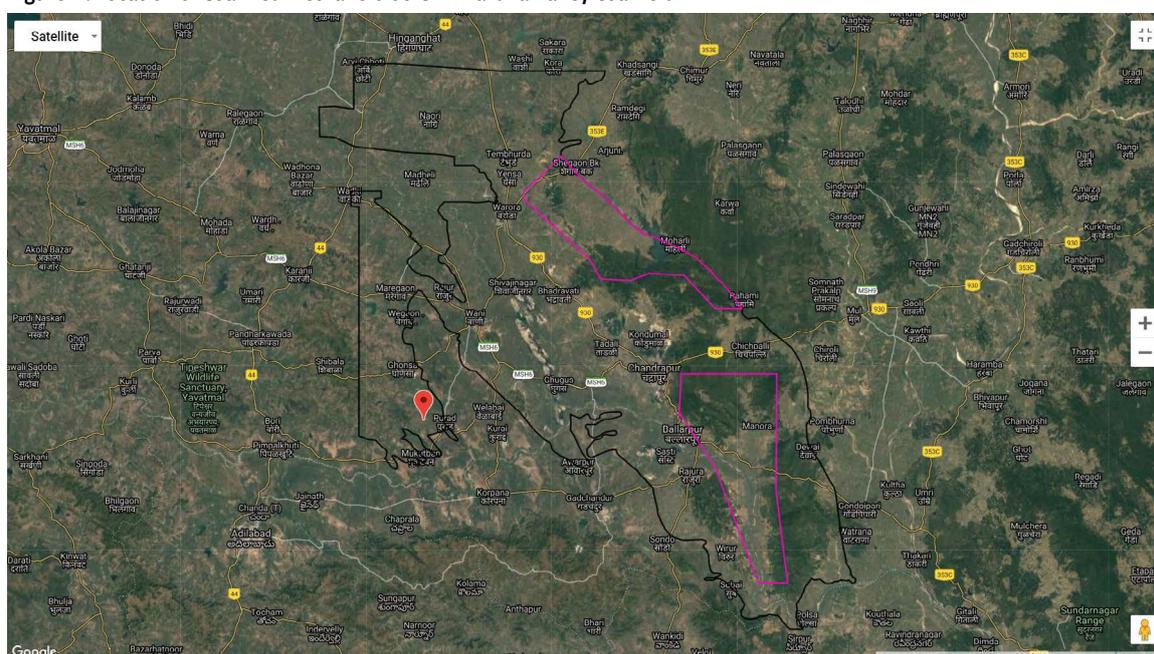
S. No.	Block Name	Allottee	Area (km ²)	Reserve (MT)	Exploration Status
1	Baranj - I	Karnataka Power Corporation Ltd	0.82	10.124	Explored
2	Baranj - II	Karnataka Power Corporation Ltd	1.21	14.195	Explored
3	Baranj - III	Karnataka Power Corporation Ltd	2	28.704	Explored
4	Baranj - IV	Karnataka Power Corporation Ltd	0.86	12.59	Explored
5	Kiloni	Karnataka Power Corporation Ltd	2.21	39.51	Explored
6	Manora Deep	Karnataka Power Corporation Ltd	4	49.82	Explored
7	Belgaon	Sunflag Iron & Steel Co. Ltd	3.75	20.72	Explored
8	Marki Mangli-I	Topworth Urja & Metals Ltd	6.84	34.34	Explored
9	Marki Mangli-III	BS Ispat Ltd	5.02	6.19	Explored
10	Nerad Malegaon	Indrajit Power Pvt Ltd	4.41	20.36	Explored

4. <https://www.cmpdi.co.in/OCBIS/LIS.php?cf=WARDHA&block>

Coal Bed Methane Blocks

The OCBIS shows that Wardha Valley Coalfield has two Coal Bed Methane (CBM) blocks spread over an area of 916.62 sq km (Figure-4). Both CBM blocks are located on the eastern part of WVC and the size of the largest CBM block is 519.86 sq km. CBM is extracted by depressurising the coal seam where the methane is adsorbed. This depressurising is done by drilling wells into the coal seam and pumping out water, which decreases pressure in the coal seam. That allows methane to desorb from the coal and flow up as a gas. The entire CBM extraction process adversely affects the groundwater system of the region, ultimately lowering the groundwater table⁵. The depletion of groundwater table may adversely affect the availability of water for agriculture and the water system in surrounding Protected Areas. This is especially concerning as the CBM blocks are located in the drought-prone Vidharbha region of Maharashtra. Proper disposal of large quantities of pumped out water is a major challenge because it contains a cocktail of chemicals including carcinogenic hydrocarbons such as benzene, toluene, ethylbenzene and heavy metals such as arsenic, cadmium, mercury and lead⁶.

Figure-4: Location of Coal Bed Methane blocks in Wardha Valley Coalfield



Coal Mines and Environmental Clearance

Analysis of information obtained from Western Coal Field (WCL) and MoEFCC websites shows that a total of 37 mines (28 opencast and nine underground) operating in the Wardha Valley Coalfield have Environmental Clearances (ECs). The total mining lease (ML) area as per EC letters of these mines is 25361.52 ha (253.6152 sq km), which also includes 1091.45 ha (10.9145 sq km) of forest land. Total sanctioned production capacity of these 37 mines is 55.035 Million Tonnes Per Annum (MTPA).

The total lease area of 37 operational mines (253.6152 sq.km) accounts for less than 25% of the total coal block area of the WVC (1059.69 sq km). The 10 coal blocks allotted under Captive/CMSM category (31.12 sq km) have not obtained EC yet. Hence, there is possibility to start new mining projects in WVC if coal demand increases. The basic details of ECs given to operational mines is stated in Table-3.

Analysis reveals that two mines—Bhatadi Expansion and New Majri-II(A) Expansion—have obtained their prior EC under EIA Notification, 1994 but the “life of mine” is not specified. Similarly, the prior EC letter of

5. <https://cdn.frack-off.org.uk/wp-content/uploads/2016/02/20ImpactsText2016.pdf?x67998>

6. <https://cdn.frack-off.org.uk/wp-content/uploads/2016/02/20ImpactsText2016.pdf?x67998>

Table-3: Environmental Clearance details of operational mines in WVC

SI No	Name of the Mine	Type	District	Date of Latest EC	MLArea (in ha)	Sanc-tioned Capacity (In MTPA)	Mine Life (In years)
1	Juna Kunada	Opencast	Chandrapur	10-01-2005	325.87	1.2	13
2	Bhatadi Expansion	Opencast	Chandrapur	19-05-2005	847.37	0.975	NA
3	New Majri- II(A) Expn	Opencast	Chandrapur	19-05-2005	432.02	2	NA
4	Junad	Opencast	Yavatmal	09-09-2005	449.63	1.5	11
5	Hindustan Lalpeth	Opencast	Chandrapur	14-07-2006	311.66	1	3
6	Mahakali	Underground	Chandrapur	02-08-2006	404.98	0.4	20
7	Hindustan Lalpeth	Underground	Chandrapur	17-10-2006	748.97	0.18	20
8	Yekona I	Opencast	Chandrapur	17-10-2006	265.5	0.4	15
9	Yekona II	Opencast	Chandrapur	17-10-2006	414.56	0.6	20
10	Sasti	Opencast	Chandrapur	17-03-2007	919.69	2.5	18
11	Pimpalgaon	Opencast	Yavatmal	20-03-2007	451.87	1.5	8
12	Sasti	Underground	Chandrapur	21-03-2007	1554.36	0.36	20
13	Navin Kunada(A)	Opencast	Chandrapur	23-03-2007	258.45	2	7
14	Bhandewara Incline/ Rajur	Underground	Yavatmal	17-05-2007	1695.6	0.21	30
15	Durgapur Rayat-wari	Underground	Chandrapur	06-11-2007	779.29	0.92	35
16	Naigaon	Opencast	Yavatmal	02-02-2009	398.66	1.25	5
17	Gouri I and II	Opencast	Chandrapur	17-06-2009	676.53	2.5	6
18	Padmapur	Opencast	Chandrapur	14-07-2009	733.58	2.5	5
19	Ballarpur 3&4 pit	Underground	Chandrapur	22-07-2009	1619.66	0.26	17
20	Manna Incline	Underground	Chandrapur	22-07-2009		0.2	
21	Nandgaon Incline	Underground	Chandrapur	22-07-2009		0.3	
22	Kolar Pimpri	Opencast	Yavatmal	29-04-2010	1488.42	1.5	27
23	Gouri Deep	Opencast	Chandrapur	18-02-2011	356.11	0.6	21
24	Kolgaon	Opencast	Yavatmal	16-02-2012	392.67	0.6	11
25	Ghonsa	Opencast	Yavatmal	29-02-2012	128.79	0.45	18
26	Durgapur	Opencast	Chandrapur	16-03-2012	1354.64	3	NA
27	Telwasa	Opencast	Chandrapur	03-05-2012	287.6	2	5
28	Dhorwasa	Opencast	Chandrapur	03-05-2012	308.6	2	3
29	Penganga	Opencast	Chandrapur	31-01-2013	781	4.5	19
30	Ukni Deep	Opencast	Yavatmal	15-01-2014	1285.12	3.5	16
31	Pauni	Opencast	Chandrapur	24-12-2014	255	0.9	3

32	Ballarpur	Opencast	Chandrapur	30-01-2015	242.64	0.625	5
33	Niljai Deep	Opencast	Yavatmal	12-10-2015	1761.22	3.5	4
34	New Majri UG to OC	Opencast	Chandrapur	13-02-2017	479.16	1.2	11
35	Murpar	Underground	Chandrapur	23-01-2018	482.09	0.28	4
36	Pauni-II	Opencast	Chandrapur	28-03-2019	1152.66	3.25	13
37	Mungoli Nirguda Extension Deep	Opencast	Yavatmal	26-02-2020	1317.55	4.375	15
				Total	25361.52	55.035	

Durgapur OCP obtained under EIA Notification, 2006 also does not contain “life of mine”. Life of mine is the time duration for which the mine can be operated, decided on the basis of total estimated reserve, production capacity and mining plan. In the absence of life of mine in the EC letter, implementation of the mine closure plan will get affected. Further, it has been observed that according to the latest EC letters, 13 of the 37 mines have already completed their mine life. It is important to investigate if they have continued operations without extension of their EC.

Geographical coordinates are essential to the mining operations as they demarcate the mining lease boundary on ground and are necessary to prepare a mining and mine closure plan. This implies that prior EC letters without geographical coordinates for the projects are bound to result in illegal mining activity beyond the area for which the prior EC has been issued. Detailed analysis done by *Legal Initiative for Forest and Environment (LIFE)* shows that out of 37 operational mines, EC letters of 25 mines (67.56%) do not specify their geographical coordinates. Four of these obtained their prior EC under EIA Notification, 1994 and 21 mines obtained their EC under EIA Notification, 2006. This is a gross oversight on part of the MoEFCC, which might allow illegal mining beyond project limit in WVC, and needs detailed investigation.

Analysis of the 31 mines that have prior EC letters under EIA notification, 2006 reveals that 27 of them are expansion projects and four are new mining projects. The 27 expansion projects show a cumulative increase of 2,496.81 ha in mining lease area and 15.45 MTPA in production. Before expansion, the lease area was 18,276.01 ha with 26.41 MTPA production capacity. The total mining lease area of the four new projects is 1,817.17 ha with total sanctioned production capacity of 6.1 MTPA.

Presently, proposals from three operational mines—Yekona I & II amalgamated OCP, New Majri UG to OCP and Padmapur Extn OCP—for prior EC to increase their production capacities are under consideration with MoEFCC. Minutes of the 53rd meeting of Expert Appraisal Committee (EAC) held on February 20, 2020 state, “Yekona I & II OCP amalgamated OCP received TOR vide MoEFCC letter no J-11015/381/2015.IAII (M) dated 06.06.2016 which was further granted one-year extension i.e. up to 6th June, 2020 vide MoEFCC letter no J-11015/381/2015.IA-II (M) dated 21.06.2019”⁷. However, the copy of this Terms of Reference (TOR) is missing from the MoEFCC website, so its compliance in the Environment Impact Assessment (EIA) report cannot be analysed. It is also astonishing to note that MoEFCC has issued standard TOR to New Majri UG to OCP and Padmapur Extn OCP without referring the proposal to EAC for scoping^{8,9}. Scoping refers to the process mentioned in the Environmental Impact Assessment (EIA) Notification, 2006 for determining detailed and comprehensive terms of reference addressing all relevant environmental concerns for preparing an EIA report.

7. <http://environmentclearance.nic.in/writereaddata/Form-1A/Minutes/05032020T7D289WYFinalApprovedMinutes53rdEAC-20February2020.pdf>

8. <http://environmentclearance.nic.in/DownloadPfdFile.aspx?FileName=cZ2wPzQOEQVCKgCEX8qkiAPU/g/mbGBvgP09DxxdKeNYB30plx2t3ZeF4gc-QN64&FilePath=93ZZBm8LWEXfg+HAIQix2fE2t8z/pgnoBhDIYdZCxzUI4D0yODyH4SbeEYqvwEmb63j4fms9Murl/YnHqFqoQ==>

9. <http://environmentclearance.nic.in/DownloadPfdFile.aspx?FileName=LL0xu4uMK7Mni+ly2gdBEsAF9lZVNOpdIN3L8hes+Ah112tmuGgyJvVZbkFth-vLJ&FilePath=93ZZBm8LWEXfg+HAIQix2fE2t8z/pgnoBhDIYdZCxzUI4D0yODyH4SbeEYqvwEmb63j4fms9Murl/YnHqFqoQ==>

Coal Mines and Forest Area

The WVC has large patches of good forest area in Chandrapur district (Figure-1). The CMPDI report on Vegetation Cover Mapping of Wardha Valley Coalfield based on Satellite Data for 2016 shows that WVC has lost 117.41sq km forest area in just three years, between 2013-2016. Mondal (2017) reported that in 2013, 1,523.97 sq km area of WVC was under dense and open forest cover category which constituted 29.16% area of the WVC.

According to details given in EC letters, total 1,885.1 ha of forest land is involved in 15 mines, which need mandatory Forest Clearance (FC), as per the Forest (Conservation) Act, 1980. Surprisingly, most EC letters do not specify the status of the FC. Table-3 lists the mines with forest land in their mining lease area and their FC status. There is complete ambiguity with respect of FC status, which needs further investigation.

Table-3: List of operational mines with forest land in mining lease (ML) area and their Forest Clearance statuses

Sl No	Name of the Mine	Total ML Area (in ha)	Forest Areas with ML Area (in ha)	Status of FC
1	Durgapur Rayatwari	779.29	462.43	Stage-II issued on 11-08-2006
2	Mahakali	404.98	193.19	Stage-I issued on 22-06-2018 and is a violation case. However, MoEF&CC letter dated 30.01.2017 says revoke of Stage-I granted on 23.11.2005 for 47.07 ha forest land.
3	Ballarpur Under-ground 3&4	1619.66	138.03	Proposal is pending with MoEF&CC
4	Manna Incline			
5	Nandgaon Incline			
6	Hindustan Lalpeth	748.97	334.25	MoEF&CC letter dated 30.01.2017 says revoke of Stage-I granted on 02.05.2008 for 216.25 ha forest land.
7	Durgapur	1354.64	257.77	Details unavailable
8	Hindustan Lalpeth	311.66	72.22	Stage-II issued on 08-05-2001.
9	Pauni II	1152.66	12.7	Details unavailable
10	Telwasa	287.60	22.64	Stage-I issued on 20.02.2014
11	Dhorwasa	308.60	26.44	Stage-II issued on 16.01.2002
12	Naigaon	398.66	40.5	Stage-II issued on 09.09.1993
13	Bhandewara Incline/Rajur	1695.60	12.73	Details unavailable
14	Murpar	482.09	248	Details unavailable
15	Padmapur	733.58	64.2	Details unavailable

Environmental Issues

Fugitive Dust Emission

Coal mining is a significant source of fugitive dust emissions. Transportation of coal by road is a major reason for dust and air pollution in the WVC region and its surroundings. Analysis of EC letters shows that transportation of coal by road has been permitted for 27 mines. However, the quantity of coal to be transported has been specified only for 16 of these mines. The total coal transported by road for these 16 mines amounts to approximately 36,039 metric tonne per day (TPD). Further analysis of the number of trucks/tippers engaged in transportation of coal per day does not show any correlation with this quantity. For example, EC of Navin Kunada (A) mine says that 1,300 trucks/tippers are engaged to transport 1,820 TPD coal whereas the EC of Juna Kunada mine specifies that 300 trucks/tippers are engaged to transport 1,818 TPD coal. Therefore, as per the calculation based on above-mentioned available data it seems that each truck/tipper is transporting only 4.17 tonnes of coal. Based on this, it can be estimated that almost 8,630 coal loaded trucks/tippers must be moving through the WVC per day. However, it is known that the current load capacity of two axle truck is 16.2 Tonnes¹⁰, which would mean that 4.17 tonnes of coal per truck (as obtained from calculation) is an unrealistic quantity. The question arises as to why the amount of coal transported per truck has been limited to 4.17 tonnes/truck when their actual carrying capacity is nearly four times this quantity. Therefore, further investigation is needed on the actual number of trucks/tippers, and the precaution measures adopted to mitigate fugitive dust emission due to road transportation of coal.

Water Regime

In any opencast mining project, there is a huge requirement of water for dust suppression on haul roads. There are 28 operational opencast mines in the WVC and the EC letters of 26 operational opencast mines specify their daily requirement of water. The total requirement of 26 mines is 15,700 m³/day. However, for 11 of these mines whose total water requirement amounts to 6,146 m³/day, the EC letters do not specify the source. In cases where sources have been mentioned, nearly all the ECs specify that mine pit water will meet majority of the water demand. Further investigation can throw light on actual situation of water regime in the field.

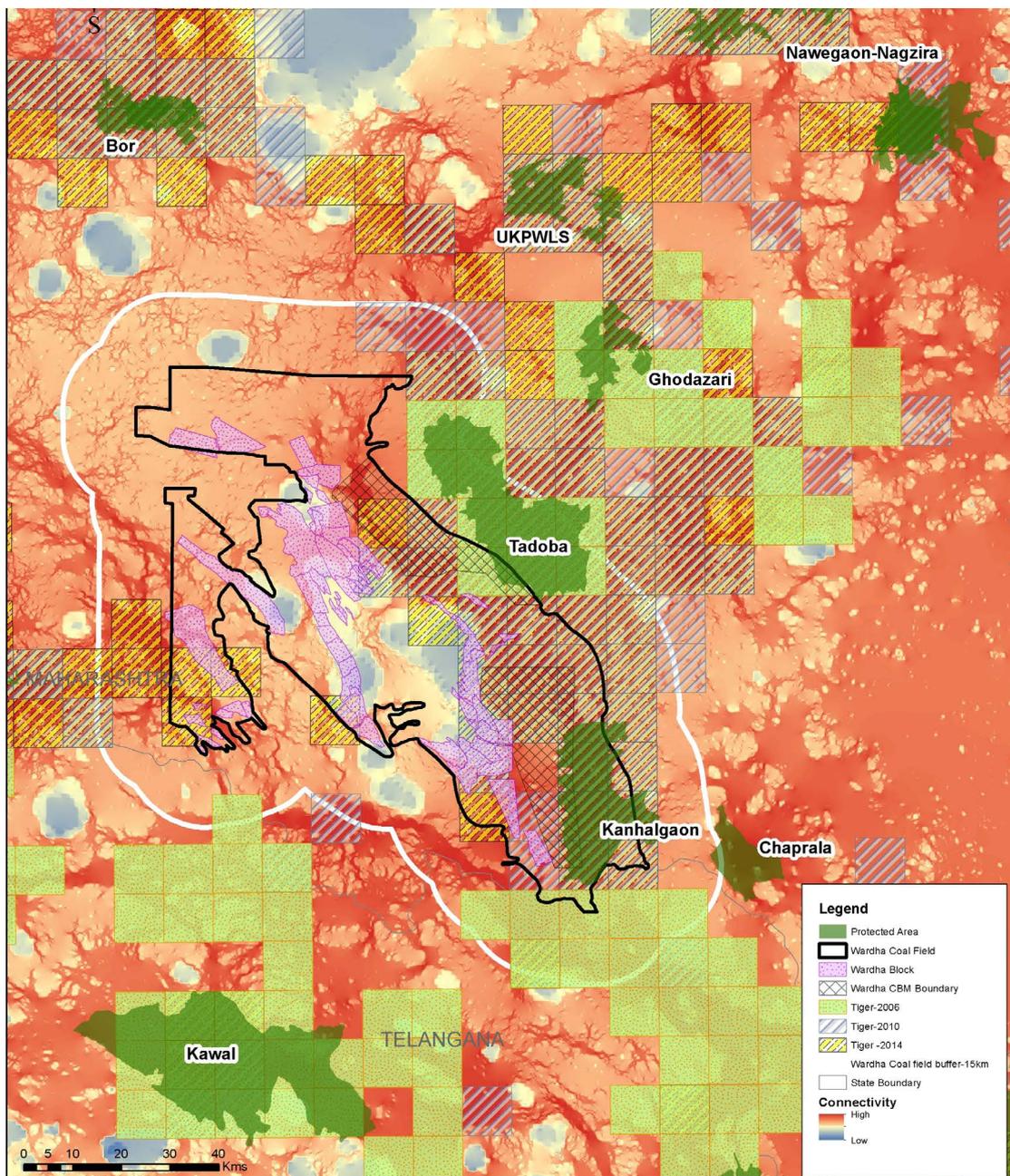
10. <https://economictimes.indiatimes.com/news/economy/policy/government-raises-load-capacity-for-heavy-vehicles-by-20-25/articleshow/65017330.cms?from=mdr>

Wildlife Issues

The WVC region is crucial for tiger conservation as it lies within the Central Indian Tiger Landscape. A study by the Wildlife Conservation Trust (WCT) has found that 48 adult tigers including 15 breeding tigress reside outside the Protected Area in Chandrapur district¹¹. This study further says that Junona-Central Chanda Forest Block within the Wardha Valley Coalfield has tiger density of 1.77, which is higher than the Sahyadri Tiger Reserve. High rate of cattle killings in the Central Chanda area is indicative of the ever-looming threat of conflict erupting between people and tigers, which can escalate due to the opening of more coal mines.

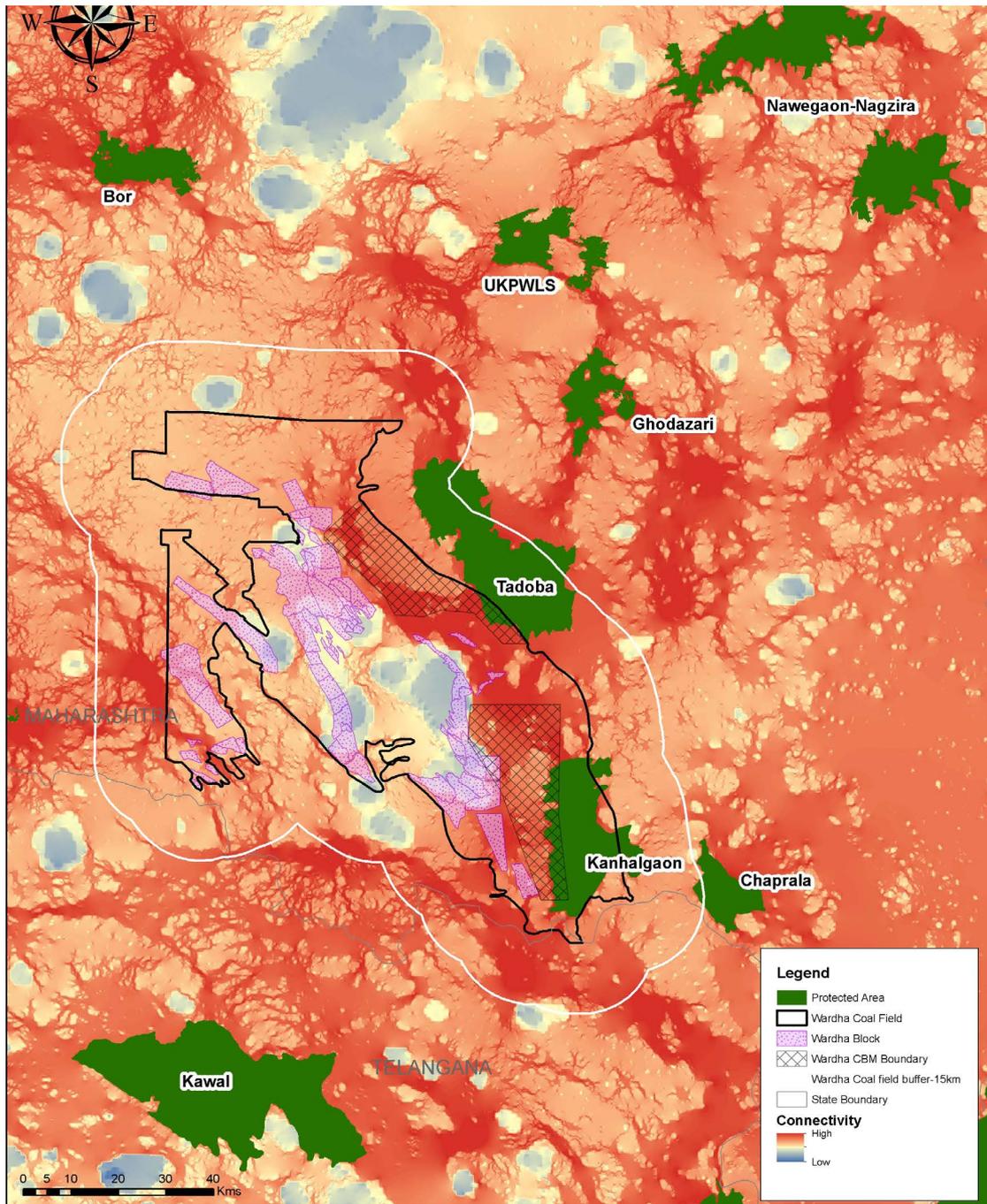
GIS analysis shows that approximately 21sq km area of Tadoba Andharai Tiger Reserve falls within the boundary of WVC. Figure-5 shows the presence of tigers in and around WVC.

Figure-5: Landscape connectivity potential in and around WVC for dispersion of tiger population



11. <https://www.sanctuaryasia.com/conservation/field-reports/9970-tigers-outside-protected-areas-in-chandrapur.html>

Figure-6: Landscape connectivity potential in and around WVC for dispersion of tiger population



It is important to consider, the EC letter of Murpar underground mine mentions that mining lease area of this mine falls within the Eco-Sensitive Zone of Tadoba Tiger Reserve. Continuation of any commercial mining operation within eco-sensitive zone is a prohibited activity mentioned in the eco-sensitive zone notification of Tadoba-Andhari Tiger Reserve vide S.O. No. 3249(E) dated 11th Sept. 2019.

The GIS analysis shows that the eastern part of this coalfield has high connectivity potential in terms dispersion of tiger population in and around WVC (Figure-6). Therefore, it is essential to develop a comprehensive wildlife conservation plan for mitigating the impact on connectivity of landscape due to opening of any new coal/CBM blocks for mining purpose in the southern and eastern part of WVC.

Conclusion and Recommendations

The Wardha Valley Coalfield still has great potential for more coal exploration. However, this analysis shows that increased mining activity can negatively impact the environment and wildlife of this region. Therefore, it is important to focus on this landscape's future/new mines in the virgin coal blocks to prevent disruption of tiger movement routes.

In absence of mine life and geographical coordinates in the EC letters issued to many projects, there is high probability of illegal mining operations in the region, which should also be properly investigated and documented.

There is complete ambiguity and lack of information on the diversion of forest land for mining purpose in WVC. Hence, there is a need to develop a strategy for legal intervention to stop use of forest land for mining purpose without diversion of forest land according to existing law.

Road transport of coal by trucks/tippers is a major cause for fugitive dust emissions. This must be minimized by adopting more efficient technology such as closed conveyor systems for coal transport to railway siding. The provision for coal handling plants near mines must be implemented.

References

Mondal Tilak (2017): Vegetation Cover Mapping of Wardha Valley Coalfield based on Satellite Data for the Year- 2016. Central Mine Planning & Design Institute, Ranchi. Page-21.

Photos: Durgapur OCP Wardha Valley coalfield by Dinesh Khate



PRINCIPAL OFFICE

N-71, LGF, Greater Kailash 1
New Delhi, 110048
Phone: +91-11-49537774, 41025852
E-mail: Info@lifeindia.org.in
Website: www.lifeindia.org.in

REGIONAL OFFICE

AC-160, Sector-1, Salt Lake, Kolkata - 700064

Flat No.5, Gulmohar Court.Lane-B,
Koregaon Park, Pune - 411001