Chapter 4

Sustainable and Scientific Mining

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Minor minerals were brought under the Environment Impact Assessment Notification in 2006, requiring environmental clearance for leases over five Ha. The Ministry of Environment, Forest and Climate Change (MoEFCC) constituted a group to develop guidelines for sustainable mining of minor minerals. The report recommended that the Union Ministry of Mines, Indian Bureau of Mines (IBM), and state governments adopt model guidelines and make necessary provisions under the Minor Mineral Concession Rules. The Indian Bureau of Mines finalized (June 2011) the Minor Minerals Conservation and Development Rules (Minor MCDR), 2010. Consequently, Chapter 4A in February 2014, 4B in May 2014 and 4C in March 2019 on Mining Plan and Environment Conservation were inserted in JMMC Rules 2004, adopting IBM's model guidelines format.

As per JMMC Rules 2004, scientific mining means carrying out mining activities as per mining plan and schemes. As per provisions contained in Rules 5 and 6 of the JMMC Rules, 2004, clearances and approvals from various agencies are required to ensure that mining activities are sustainable and scientific in nature. Details of these approvals required, and role of various agencies therein, are as shown in **Chart-4.1**.

Chart-4.1: Roles of various agencies in ensuring sustainable and scientific mining

Environmental Clearance from Central Government/SEIAA

- Category A mines from Central Government and Category B mines from SEIAA.

Clearance from State Pollution Control Board

- Consent to Establish and Consent to Operate.

Clearance from Ground Water Directorate, GoJ/ Central Ground Water Board

- The mining operations should be restricted to above ground water table so that it does not intersect it. In case of working below the ground water table, prior approval of Ground Water Directorate, GoJ/Central Ground Water Board shall be obtained.

Clearance from Divisional Forest Officer

- Distance of the lease from the nearest forest boundary should be at least 250 meters. No mining shall be undertaken in forest area without obtaining prior forest clearance from GoI**.**

Clearance from Circle Officer of Land Revenue Department

- There should be no human habitation within a distance of 500 meter from the applied mining lease area and clearance about type of land involved in mining lease is required.

Safety measures to be adpoted in line with instructions of DGMS

- As per instructions of DGMS, height of benches and slope should be maintained as per approved mining plan.

4.1 Mining Plan

After receiving letter of intent from DMO, Applicant of a mining lease is required to submit a Mining Plan (MP). The MP serves as the basis for scientific and sustainable mining practices. The annual projected volume of minerals approved in the MP also forms the basis for determining production quantities given in Environmental Clearance (EC), Consent to Establish (CTE), and Consent to Operate (CTO)[39]. Procedure for preparation and approval of MP for minor minerals in Jharkhand is given in **Chart-4.2**.

Chart-4.2: Procedure for preparation and approval of Mining Plan for Minor Minerals

Submission and Approval of Mining Plan

1. Submission of MP by applicant to AMO/DMO of concerned district for approval, which has to be done within seven days of submission of MP.

2. In case of delay in approval by AMO/DMO, the Deputy Dirctor, Mines should ensure approval of MP .

Review and Updation of Mining Plan

Holder of mining lease shall apply for review or updation of MP at least 120 days before the expiry of the first five years period of the MP to AMO/DMO.

Submission of mine closure plan by holder of mining lease and its approval by AMO/DMOs

1. Progressive mine closure plan had to be submitted along with the initial MP.

2. Final mine closure plan had to be submitted one year prior to the proposed closure and had to be approved within 90 days from date of receipt, by AMO/DMO.

4.1.1 Shortcomings in process of preparation and approval of Mining Plan

JMMC Rules adopted the Mining Plan format as provided in the model Minor MCDR, 2010 circulated by the IBM. Mining leases for minor minerals are generally granted for a period of 10 years (with provision for subsequent renewals). The MP of the entire lease period of 10 years was approved in two parts of five years each. The first part (Mining Plan, henceforth 1st Plan) had chapters on geology and exploration, expected yearly production, mining, processing and environmental management plan.

[39] CTE and CTO are given by Pollution Control Board under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 for establishing and operating the project.

The second part (Scheme of Mining, henceforth called 2nd Plan) had a chapter on review of 1st five-year plan, in addition to further chapters on yearly production, exploration, environmental management *etc*., on the lines of the 1st Plan. Both parts of the MP were required to be approved separately.

Audit test checked 74 stone mining leases, granted during February 2009 to March 2022 and their mining plans of six test checked districts and noticed the following shortcomings:

i) As per Para 3.3 of IBM Manual on Appraisal of Mining Plan (2014), the MP for fresh lease cases shall be approved only after site inspection is carried out along with the Recognised Qualified Person[40] (RQP) and representative of the applicant. However, in case of 64 fresh lease cases with lease period between February 2009 and January 2032, no records in support of site inspection of the lease area with the applicant/RQP by the approving authorities were made available to Audit. Further, in none of the cases, dates of submission of MPs by applicants to approving authorities were mentioned. Only approved MPs along with conditional approval letters were produced to Audit. The absence of a documented trail of these events raises concerns about the thoroughness and transparency of the review and approval process.

ii) The borehole and sampling reports that were to be mandatorily included in support of detailed exploration of the proved reserve and measurement of bulk density, were not available in the MPs of all the 74 test checked leases. In the absence of corroboratory evidence, correctness of the estimation of proved reserve and bulk density included in the MPs was questionable.

iii) AutoCAD software is used to generate Development Plans and sections, incorporating three-dimensional images of the lease area and applicable tools for measuring sectional area/volume. It was, however, noticed that given the crucial role of this software, the Department had not equipped mining offices with AutoCAD or compatible software to facilitate comprehensive vetting of these MPs and sections therein. Lessees were submitting (as of March 2022) only two-dimensional printouts of maps in the MP, which could not ensure comprehensive vetting of the Plan and effective monitoring of mining operations.

iv) Rule 34E(1) of JMMC Rules, 2004 provides that IBM instructions in respect of preparation and approval of MPs should be complied with. IBM (April 2010) instructed that boundary pillars of each mining lease were to be fixed precisely. Each boundary pillar was to be surveyed

[40] As per Rule 34C(1) of JMMC Rules, 2004, every MP shall be prepared by persons having required qualification and experiences.

using the Differential Global Positioning System or, DGPS (for its ground position), by an agency recognised by the State Government. Further, JMMC Rules, 2004 provided that coordinates on boundary pillars should also be recorded. In this context, Audit noted that available coordinates of boundary pillars in MPs were not recorded precisely in 47 cases, as detailed in **Paragraph-4.1.3.2**.

4.1.2 Irregular approval of Mining Plan

In compliance of Rule 34D of JMMC Rules, 2004, the State Government instructed through notification (27 September 2014) to submit MPs to AMOs/DMOs of concerned district who would approve it within seven days. In case of any delays foreseen or accumulation of unapproved MPs, these MPs were to be submitted to the DDM who shall ensure their approval by himself, or by a designated officer of the Directorate of Geology posted in the district. In this context, Audit noticed the following irregularities.

Out of 138 Mining Plans[41] for 74 test checked stone leases, 120 plans[42] were produced before Audit. In violation of Departmental instructions (August 2014), out of 120 plans, 65 plans (54 *per cent*) were approved by non-designated authorities posted in Department/other districts, as these were other than designated authorities as specified in State Government's instructions of 2014. Further, as per Rule 34 E of the JMMC Rules, 2004, approval of the MP should be given after thorough investigation but, in nine cases these were either approved on the same day[43] or on the very next day of submission, which indicates lack of thorough investigation.

To bypass the fulfilment of conditions required for approval of Plans, the approving authorities granted conditional approvals to MPs based on certain criteria (like submission of DGPS within six months, submission of detailed study of ground water study at the time of compliance of EC *etc*.). This practice was in contravention of Rule 34E of JMMC Rules, 2004 that states that approval should be granted only after thorough investigation.

Thus, the Department did not fully implement its own instructions on approval of MP by authorized officers of the respective districts and also did not adhere to the statutory provisions.

4.1.3 Irregularities in Mining Plan

Audit also noticed cases of irregularities in the MPs approved by DMG wherein information furnished in the MPs did not match the physical status

[41] 74 plans for 1st five-year and 64 plans for 2nd five-year (as in these cases 1st five-year period ended).
[42] 65 plans for 1st five-year and 55 plans for 2nd five-year.
[43] Counted from date of deposit of fee for approval of MP.

of mines. Cases noticed during test-checks have been discussed in succeeding paragraphs.

4.1.3.1 Unreliable information in Mining Plan

The Surface Plan of a lease area outlines the initial surface conditions, safety barriers and boundary pillars at the start of a MP period. For the second five-year plan period, a survey is conducted and the actual lease area position during the survey becomes the surface plan. Although surface plans of 2nd MP for stone mining in six districts exhibited boundary pillars, a 7.5-meter safety barrier and benches (created during 1st MP), joint physical verification (JPV) with DMG officials revealed that 55 out of 63 test checked leases lacked these features, as discussed in **Paragraph 4.1.4.1**, indicating non-compliance with plan requirements as illustrated in **Case Study-4.1**.

Case Study-4.1

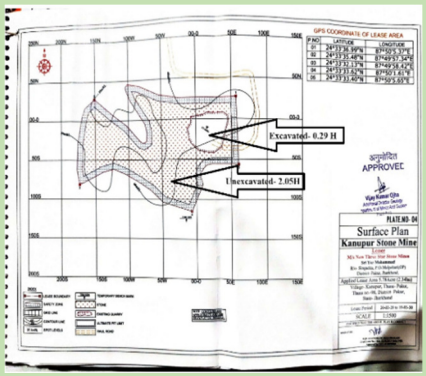
New Three Star Mines (Lessee code - 0623160603), Pakur

The District Mining Officer (DMO), Pakur granted a 10 year stone mining lease to a lessee over an area[44] covering 2.34 Ha. in October 2019. The lease was based on the 1st five-year mining plan approved in December 2015 and a 2nd five-year plan approved in November 2020. As per lease agreement, the lease period was from 20 March 2020 to 19 March 2030.

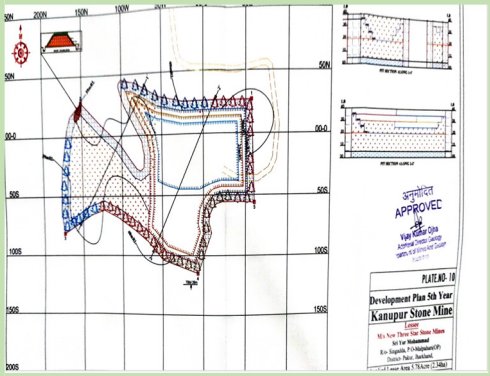
Audit findings were as follows:

- **Inaccurate Surface Plan**: The surface plan of the 2nd five-year plan showed 0.29 Ha. as excavated land and 2.05 Ha. unbroken land **(Picture-4.1)**. Scrutiny of records revealed that this was not a fresh lease as 1.975 out of 2.34 Ha. of lease area was previously allotted to an ex-lessee for lease tenure of 20 years (2 April 1990 to 1 April 2010). Information about mining activities performed by ex-lessee during his lease tenure of 20 years and satellite images prior to grant of this lease (9 March 2019) revealed that 42.73 *per cent* of lease area was already excavated **(Picture-4.3)** indicating lack of thorough examination by the RQP/approving authority.
- **Non-Compliance with MP**: The annual development plan (fifth year) of the 2nd five-year plan specified that the total area to be broken up in the next five years would be 1.17 Ha. (by March 2025) **(Picture-4.2)** and by March 2025, the maximum depth of the mining pit would be 15 meters with three benches (five meters each).

[44] Plot no. 329 (P), 338 (P), 340, 341, 342, 343(P), 344(P) and 347(P) of *Mauza* Kanupur, Pakur P.S, District Pakur.

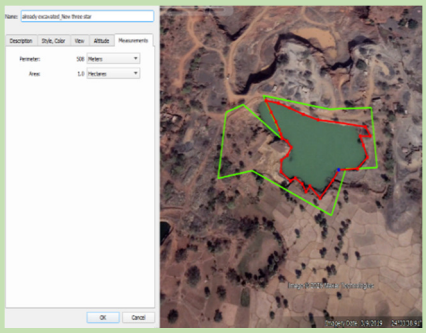


Picture-4.1: Showing unexcavated land (87.61 *per cent* of lease area) in Suface Plan of 2nd five year Mining Plan



Picture-4.2: Showing proposed broken up area (1.17 Ha.) in development plan (fifth year) of 2nd five year Mining Plan

During joint physical verification (JPV) in October 2023, the team found that excavation was carried out in the entire lease area (2.34 Ha.) and depth of pit was ranging from 25.45 meters to 30.45 meters with steep slope (ranging from 85° to 90°) without formation of benches (**Picture-4.4**) indicating non-adherence to the conditions of MP and lack of monitoring by the concerned DMO.



Picture- 4.3: Google Image dated 9 March 2019, showing 42.73 *per cent* of lease area was excavated prior to grant of lease (kml file)

Picture- 4.4: Showing steep slope of boundary wall without any bench, safety barrier (0-0.5m width instead of proposed 7.5 m), no plantation on safety barrier.

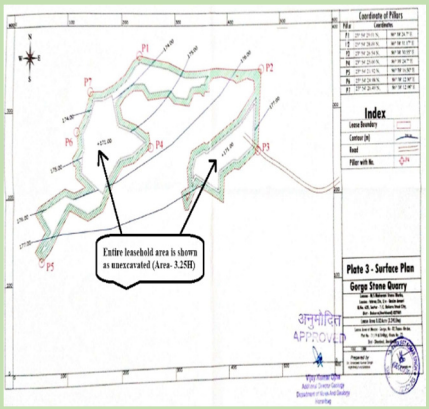
Ishraq Zia (Lessee code- 0204599601), Dhanbad

DMO Dhanbad granted[45] (March 2016) a stone mining lease (10 years) for an area covering 3.25 Ha.[46] based on 1st five-year MP which was approved by DDM Ranchi (undated). Subsequent to grant of lease, a revised MP was again approved by DDM Ranchi in July 2016. Scrutiny of surface plan of the revised approved MP revealed that there was a deliberate misrepresentation of facts. While the surface of lease area was depicted as unbroken **(Picture-4.5)** in the Plan, which meant that mining activities had not been carried out before, the satellite images of 21 March 2014 **(Picture-4.6)** of lease area (prior to grant of lease)

[45] Plot no. 11, 19, 20, 21, 1048(P) under the lease area was previously allotted to M/s JKC Project Ltd. Application for reallotment of lease were invited through gazette notification.

[46] Plot no. 11, 19, 1048(P) of *Mauza*- Gorga, Circle-Nirsa, District- Dhanbad.

showed excavated pit within the lease area. The reason behind the existence of this excavated pit was allotment of this lease previously to an ex-lessee.



Picture-4.5: Showing unexcavated lease area in Surface plan

Picture-4.6: Google Image dated 21 March 2014 of lease area

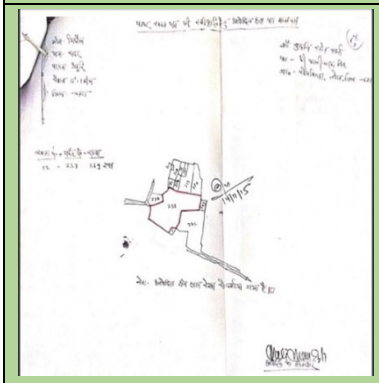
In both the cases covered under the case study, the surface plans' depiction of unbroken land was inaccurate, indicating that the MPs were prepared and approved without conducting a proper survey of the lease area. This had significant implications on subsequent approval of EC, mining operations and monitoring of excess excavation. Incorrect plans led to deviations from scientific mining practices, including the absence of benches, safety barriers, gentle slopes, and plantations. Under Rule 34(A)(2) it is the duty of the Deputy Commissioner of the concerned district and DMOs to ensure implementation of the mining plan, but they could not ensure its correctness and implementation.

4.1.3.2 Deficient recording of coordinates of lease area

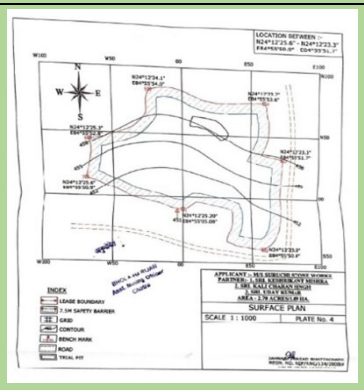
Recording of coordinates of every turning/corner point would ensure a proper shape and size of the leased area. Audit conducted a comparison of the shape, area, and location of mining leases available in the *khasra* and surface plan maps with maps generated on Google Earth using co-ordinates of 61 out of 63 jointly physically verified[47] mining leases. A comparison of these maps revealed variations in shape, area, and locations of mining leases in 47 out of 61 leases. The discrepancies in lease area, shapes, and locations across different maps indicated lack of diligence while preparing the MP and subsequent lacunae in the process of vetting and approval of mining leases/plans. A copy of the *Khasra* map, Surface plan and satellite image of a leased area (M/s Suruchi Stones works, Chatra) illustrating variations in the shape, size, and location of mining is shown in **Picture-4.7**.

[47] Two MPs not produced.

Picture-4.7: Showing variation in shape, size and place of mining



Khasra map (0.684 Ha.)



Surface plan of 1st five-year MP (lease area 1.09 Ha.) approved on 25 June 2015 by AMO, Chatra

Map generated using coordinates available in mining plan, Lease area-0.48 Ha. (kml file)

M/s Suruchi Stones works, Misrol, Lessee code: 308337301, lease area-0.684 Ha., granted on 14 November 2015, by DC, Chatra.

The variations in mining lease maps were attributed to several factors like (i) non-recording of coordinates of every turning point, (ii) non-recording of coordinates of every boundary pillar, and (iii) incorrect recording of coordinates. Audit noticed in cases of three leases in Chatra and Palamu districts that the maps generated on Google Earth based on recorded coordinates, have errors of aerial distances ranging up to 2.90 km from actual locations of mines, indicating possible violation of the lease area (as discussed in subsequent paragraphs).

4.1.3.3 Overlapping lease area with unregulated mining related activities around these leases

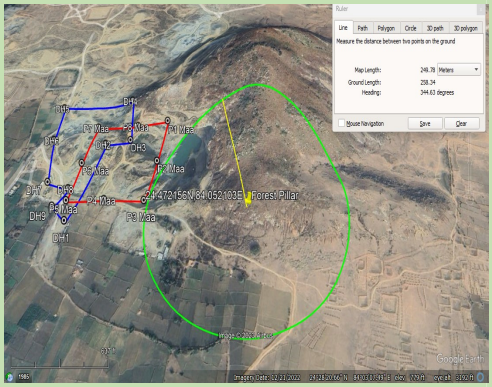
In three[48] out of the six test-checked districts, four instances were identified where the lease areas of two different leases overlapped. The extent of the overlapping portion varied, ranging from 0.30 to 1.14 Ha. Notably, the MPs for these two leases were either prepared/approved by the same RQP/authority (one set of leases in Palamu and one set in Chaibasa) or approved by the same authority but prepared by different RQP (one set of leases in Chaibasa and one set in Sahibganj) illustrated in **Case Studies-4.2** and **4.3**.

[48] **Chaibasa** (1) Trustline Dealer Pvt. Ltd., lessee code- 0101335502 and CTS Industries Ltd., lessee code- 0101334704 overlapped portion- 0.43 Ha., (2) CTS Industries Ltd., lessee code-0101334703 and Trustline Dealer Pvt. Ltd., lessee code-0101335501 overlapped area-0.30 Ha.), **Palamu** (1) Maa Stone Works, lessee code- 411172501 and Damdami Morrum and Stone Deposit, lessee code- 411722401 overlapped portion-1.14 Ha.) and **Sahibganj** (1) M/s Kwality Stone Products, lessee code- 620396401 and M/s Shree Guru, lessee code- 620420902 Plot 541 overlapped).

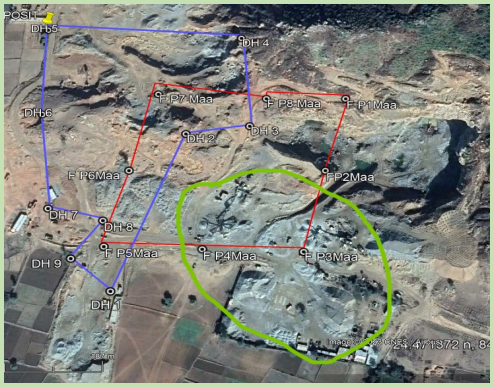
Case Study-4.2

The DMO Palamu granted two stone mining leases: (i) M/s Maa Stone Works, Damdami (June 2015) over 4.047 Ha. for 10 years, based on a 1st five-year Mining Plan approved by the Deputy Director, Geology; (ii) M/s Damdami Morrum and Stone Deposit (December 2016) over 4.65 Ha., on the part of the same plot. Both leases had MPs prepared and approved by the same RQP and authority. Audit conducted JPV with DMO of these two leases in December 2022 and noticed that:

- **Overlapping Lease Areas**: Boundary pillars in the two abutting leases were absent, except for only one pillar in M/s Damdami Morrum and Stone Deposit. In absence of boundary pillars, Audit prepared kml file from the coordinates in MPs of these leases on Google Earth software to demarcate their lease areas and found that 1.14 Ha. overlapped between M/s Maa Stone Works and M/s Damdami Morrum and Stone Deposit's lease areas. Due to this overlap, the possibility of disputes and unnecessary litigations cannot be ruled out.
- **Irregular operation of crushing units**: As per MPs and CTOs, M/s Maa Stone Works was permitted to sell stone boulder and not permitted to sell the stone chips but, scrutiny of historical images available on Google Earth pro revealed irregular operation of crushers in the lease area in January 2018 and January 2019.
- **Excavation in Non-Mining Zone**: Excavation of 2.19 Ha. outside the lease boundary of M/s Maa Stone works was found within 250 meters of forest land, which showed that not only was this mined illegally, but also that provisions prohibiting mining activities near forest areas were not being adhered to.



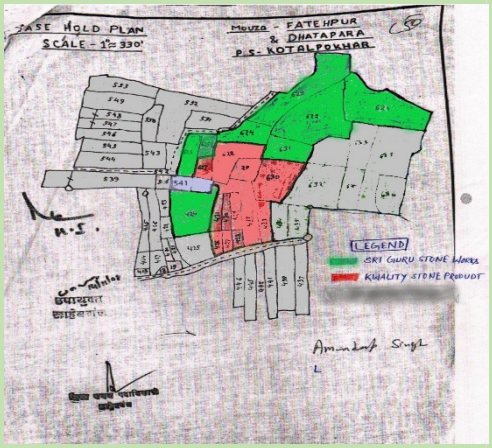
Picture-4.8: Showing lease area – M/s Maa Stone Works (lease boundary red line) overlapped (1.14 Ha.) with M/s Damdami Morrum and Stone Deposit (lease boundary in blue line); distance from forest pillar to excavated land (2.19 Ha., outside eastern boundary of M/s Maa Stone Works) was less than 250 meter image date 21 December 2022



Picture-4.9: Google Image date 10 January 2018 (crushers within lease area marked in green line)

Case Study-4.3

A lease was transferred to M/s Kwality Stone Products in September 2008 for the entire plot number 541 (along with 12 plots), later renewed for another 10 years (up to 14 October 2022). Despite the period of the existing lease not having expired, the DMO, Sahibganj irregularly granted a lease to M/s Shree Guru Stone Works in December 2018 on a part of the same plot (along with 07 plots) for 10 years (lease period 25 January 2019 to 24 January 2029). Thus, during the period 25 January 2019 to 14 October 2022, the lease portion over part of plot number 541 overlapped between M/s Kwality Stone Products and M/s Shree Guru Stone Works. This may lead to future disputes and legal issues. During JPV in September 2023, it was seen that excavation had been carried out in the entire plot, and boundaries between the two leases were not demarcated.



Picture- 4.10: Showing two abutting leases on plot-wise map (Plot number 541 allotted to two lease holders), (*Khasra* map) Sahibganj

Picture- 4.11: Showing excavation in lease of M/s Kwality Stone Products

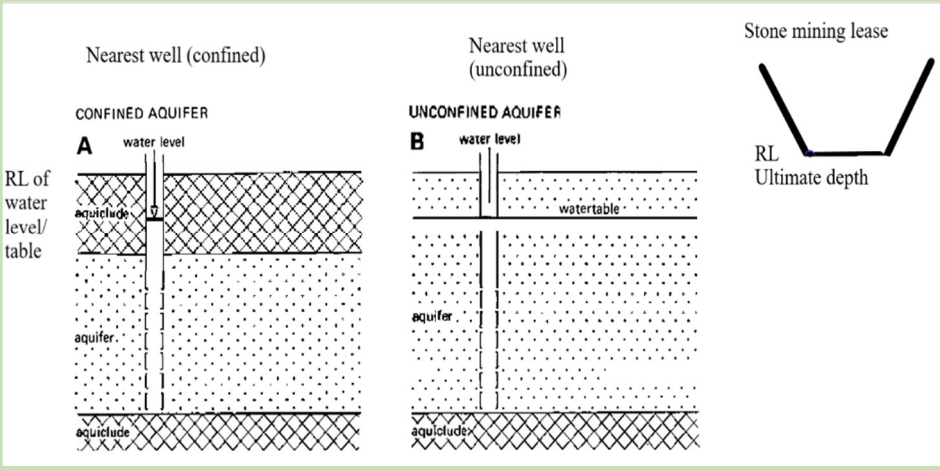
Audit observed that lack of diligence on the part of authorities responsible for vetting and approving mining plans resulted in irregular approval of mining plans with overlapping areas which may lead to disputes, illegal and unsustainable mining outside the lease areas *etc*.

4.1.3.4 Presumptive water table level in mining plan

As per Rule 6(घ) of the JMMC Rules, 2004 (amended on February 22, 2017), the maximum depth of mining should not exceed the permanent water level of that area. However, the Rules do not define what the permanent water level is. According to standard EC conditions, prior approval from the Ground Water Directorate, GoJ or the Central Ground Water Board (CGWB), Ministry of Jal Shakti, GoI is required to work below the groundwater table.

Scrutiny of MPs of 61 test-checked leases revealed that the water level was proposed on a presumptive basis (like assessing the level from the nearest wells, tube well, water bodies *etc*.) in MPs of these 61 leases without any consultation with CGWB to determine the Permanent water level. Moreover**,** in 13 cases lessees who had conducted mining activities below the ground water level failed to obtain necessary permission from CGWB before continuing mining activities.

In absence of exact definition of Permanent water level, audit obtained the data available with CGWB and Drinking Water & Sanitation Division (DWSD), GoJ. CGWB maintains data of two types of aquifers: (i) confined aquifer[49] and (ii) unconfined aquifer[50]. A comparison was made between the recommended depth of mining pits in conceptual plans[51]/the depth noticed during JPVs and the deepest water level/table[52] reported by CGWB/DWSD from 2017 to 2024.



Picture-4.12: Showing RL of stone mining leases and water level/table of nearest wells (confined and unconfined)

[49] A confined aquifer is bounded above and below by aquiclude (impermeable geological unit).

[50] An unconfined aquifer, also known as water table aquifer, is bounded below by aquiclude (impermeable geological unit) but not restricted by any confining layer above it. Its upper boundary is water table.

[51] Shows Plan and sections at the end of life of mine. This is part of the MP.

[52] Well nearest to the test checked mining leases.

The observations are discussed in **Table-4.1**.

Table- 4.1: Showing comparison of existing water table and depth of mining recommended in Mining Plan/found in JPV

Name of District	Number of mining lease/ Number of blocks	Maximum depth of pit (in meter)		Maximum Water level reported by CGWB during 2017-24 (in meter below ground level)		Maximum Water table reported by DWSD during 2017-24 (mbgl)	Excess depth in comparison to water level/ table (in meter)	
		MPs (Conceptual Plans)	JPV	Unconfined aquifer	Confined aquifer		Mining plan	JPV
Chatra	3/2	30 to 52	39.90 to 70.10	3.3 to 11.2	6.9 to 7.45	18.15 to 18.48	11.52 to 33.85	21.42 to 51.95
Dhanbad	3/2	27 to 34	30 to 48	3.5 to 9	9.26	16.20 to 16.80	10.20 to 17.80	13.20 to 31.80
Palamu	5/1	24 to 60	41 to 94	6.6 to 12.4	14.85	21.25	2.75 to 38.75	19.75 to 72.75
Pakur	2/1	25 to 42	33 to 40.23	8.27 to 10.95	4.07 to 6.12	21.50	3.50 to 20.50	11.5 to 18.73

Source: information from CGWB, DWSD, Mining plan, JPV report.

It is evident from the above table that in 13 cases out of 61 test-checked leases, depth recommended in the concerned MP and noticed during JPV exceeded the water level/table[53] of the concerned block which is discussed in **Case Study-4.4**.

Case Study-4.4

DMO, Palamu granted two adjoining stone mining leases[54] in Chattarpur block of Palamu district to a person in December 2011. The person obtained ECs for both leases on 30 December 2015, based on MPs prepared by the same RQP and approved by the same authority.

According to the 1st and 2nd MPs, the ultimate mining pit depth in conceptual plans and pre-monsoon water table for both leases were specified as follows:

Mining leases	Plans	Ultimate mining pit depth (Conceptual Plan) in meter	Pre-monsoon water table (in meter)
Kharwadih	1st	66 (RL 242-176)	75 (RL 167)
	2nd	42 (RL242- 200)	55-59 (RL 183-187)
Bagaiya	1st	72 (RL 246-174)	75 (RL 171)
	2nd	60 (RL 246-186)	76 (RL170)

[53] Maximum pit depth recommended in Conceptual Plan/noticed in JPV had been compared with the deepest water table/level reported by CGWB/DWSD.

[54] M/s Kharwadih (lease area- 4.650 Ha., lease period- 07.01.2012 to 06.01.2022, mauza: Kharwadih, 1st five-year MP approved on 14.05.2015 and 2nd plan approved on 05.08.2020), M/s Bagaiya (lease area- 4.046 Ha., lease period 08.01.2012 to 07.01.2022, mauza: Bagaiya, 1st five year MP approved on 14.05.2015, 2nd MP approved on 03 October 2020).

The table reveals that mining activities were reduced by 24 meters (from 66 to 42 meters) for Kharwadih and 12 meters (from 72 to 60 meters) for Bagaiya. The reduction in Kharwadih was done to avoid intersecting with groundwater. However, in the adjoining Bagaiya lease, mining was allowed up to 60 meters, despite the fact that this was an adjoining lease. Notably, DWSD reported a maximum water table depth of 21.25 meters below ground level (mbgl) in the Chattarpur block during 2017-2023.

Thus, mining activities were allowed at different depths in adjoining leases based on presumptive assumptions in MPs without obtaining the necessary permission from CGWB.

Picture-4.13: Bagaiya stone mine, partly filled with water, depth of water-30 meter, (JPV- November 2022)

Picture-4.14: Kharwadih mines, filled with water (JPV- November 2022)

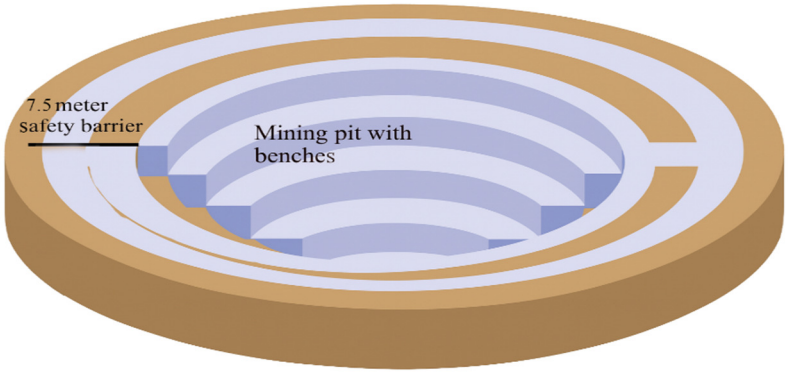
During beneficiary survey, 55 *per cent* (327 out of 597) residents stated that deterioration of the water table was one of the major negative impacts of mining activities. Thus, inability of the DMG in cross verifying the relevant data before approval of MP based on presumptive levels of water table resulted not only in deterioration of water table of the mines affected area but was also against the objective of environment management plan for sustainable and scientific mining.

4.1.3.5 Irregular accounting of mineable reserve in Mining Plan

The MPs for stone leases outlined mineable reserve and non-mineable resources. The lease area was categorised into (i) ***Mining Pit Area***: which includes mineable reserve for excavation and non-mineable resources in the form of benches[55] (ii) ***Safety Barrier***: 7.5 meter area surrounding the pit area, exclusively containing non-mineable resources which is not available for mining, as shown in **Picture-4.15**.

[55] Equal height and width, dimension (6 m height and 6 m width, 5 m x 5 m *etc*.).

Picture 4.15: Pictorial representation of a mine showing safety barrier and mining pit with benches



An audit scrutiny of the MPs of 61 out of 63 physically verified leases revealed that within the mining pit area, mining activities were proposed to be performed at a 45° angle, considering the existence of benches. It was also noticed that despite similar conditions for non-mineable resources, in 25 cases, ratio of mineable to non-mineable resources exhibited wide variation ranging from 88:12 to 51:49. Further, based on the area of the safety barrier (as mentioned in the land use pattern), Audit calculated[56] that non-mineable resources of 83.87 lakh tonnes should have been blocked in safety barriers in 14 out of 25 cases. However, it was observed that the MPs included the total approved non-mineable resources of 53.21 lakh tonnes in these mines, indicating understatement of non-mineable resources by 30.66 lakh tonnes in the MPs.

The overstatement of mineable reserve, valued at ₹ 34.96 crore[57], due to understatement of non-mineable resources, could result in: (i) Unwarranted allowance of mineable quantities in ECs (ii) Promotion of unsustainable mining practices (iii) Negative impact on safety measures due to absence of safety barriers and benches and (iv) Adverse environmental effects due to lack of space for plantation.

The irregular accounting of mineable reserve against non-mineable resources within the mining pit area in one case out of the 14 cases commented upon above, has been scrutinised in detail in **Case Study-4.5**.

Case Study-4.5

Lutful Haque (Lessee code-623955701), Pakur

According to MP, the total mineable reserve of the mine was 30,07,368 tonnes, with 24,74,928 tonnes (equivalent to 9,16,640 m^3) available for extraction during the 10 year lease period. The remaining quantity was reserved for subsequent period of two years. Further, area of 4.02 Ha. out of the total 5.46 Ha. was designated for excavation, with a specified depth ranging between two to 20 meters, to maintain a gentle side wall slope of 45°.

[56] Calculated by multiplying area of safety barrier (mentioned in land use pattern) multiplied by depth of the resources (mentioned in geological plan).

[57] 11.17 lakh m^3 (30.66 lakh tonnes/bulk density) x rate of stone ₹ 313 per m^3.

The mining plan indicated 9,16,640 m^3 (as per the volume mentioned in MP) of mineable reserve for 10 year lease period. Even if excavation is done at a 90° slope with uniform depth of 20 meters, there was overstatement of mineable reserve as shown below:

- Excavation area: 4.02 Ha. = 40,200 m^2
- Uniform depth: 20 meters
- Maximum possible mineable reserve without following the condition of maintaining the 45° slope: 40,200 m^2 x 20 m = 8,04,000 m^3

Comparing this to the approved mineable reserve of 9,16,640 m^3, it is evident that there was an overstatement of mineable reserve by at least 1,12,640 m^3 (9,16,640-8,04,000). This suggests that the estimation process followed was unreliable.

4.1.3.6 Recommendation for utilisation without sampling and testing

The Granite Conservation and Development Rules, 1999 were introduced for conserving and developing granite resources. Key provisions include: (i) Rule 3(h): Defines granite as rocks recoverable as dimensional stone, capable of taking polish, and commercially exploitable (ii) Rule 22: Promotes utilisation of smaller blocks for manufacturing bricks, flooring, tiles *etc*., and use of small pieces as stone aggregates and quarry backfill (iii) Rule 43: Requires quarry owners to maintain borehole records and prohibits their destruction without approval.

Among the 63 stone leases examined, MPs of 61 leases reported that the lease areas consisted of rock mass of granite. However, in all cases, the MPs uniformly recommended the use of granite as chips/boulders without conducting proper sampling and tests to ascertain whether they were suitable for dimensional stone, capable of taking polish, and commercially exploitable. Thus, the State Government ignored exploring the possibility of commercial exploitation of high value products that could have fetched higher royalty.

4.1.3.7 Non-incorporation of baseline data in Environmental Management Plan

As per Mining plan format provided in the model Minor MCDR, 2010 circulated by IBM, the chapter on Environmental Management Plan (EMP) in MP should have baseline data (air, water and noise pollution level) of lease area which would serve as reference point for evaluating environmental deterioration due to mining operations in future.

Scrutiny of Chapter on EMP in MPs of 61 test checked leases revealed that no data for air, water and noise pollution level through on-site measurements around lease area were recorded, except for documenting pre-recorded

water quality data measured by the CGWB at various locations in the respective district. This indicated that on-site measurements for air, water and noise pollution were not taken. Had these data points been collected and recorded, these could have been used as baseline data for evaluating environmental deterioration due to mining operation.

Thus, inclusion of EMP in mining plans without relevant data, resulted in lack of the baseline to effectively assess the impact of mining operation on environment.

4.1.4 Implementation of Progressive Mine Closure Plan

As per Rule 17 of minor MCDR, 2010, every mine shall have a Mine Closure Plan which shall be of two types:

- Progressive mine closure plan for the purpose of providing protective, reclamation and rehabilitation measures in a mine or part thereof and
- Final mine closure plan for the purpose of decommissioning, reclamation and rehabilitation of a mine or part thereof after cessation of mining and mineral processing operations.

The progressive mine closure plan essentially entails the systematic implementation of the MP. The lease area should be properly demarcated through boundary pillars and fenced, excavation should be limited within mining pit area, leaving benches with gentle slope and safety barriers around the mining pit area for plantation purposes. Audit observed that in 61 out of 63 test checked stone leases (in two cases MP not produced), progressive mine closure plans were submitted along with the MP but were not complied with.

Mine Closure Plan

Audit conducted JPV with DMG officials in 63 selected stone leases[58] and observed several deviations from the provisions outlined in the MP, both in working and closed stone mining leases, as discussed below.

4.1.4.1 Mining in excess of permissible limit

Indian Bureau of Mines issued a circular (No. 02/2010) in April 2010 requiring submission of geo referenced cadastral maps and DGPS surveys for boundary pillars of mining lease by the lessee. The JIMMS has facilities in place to use this data and generate maps in Google Earth using geographical coordinates of the boundary pillars of mining leases. Audit noted that in case of 61 out of 63 test-checked stone leases (in two leases MP not produced), the Mining Plans included mineable reserve,

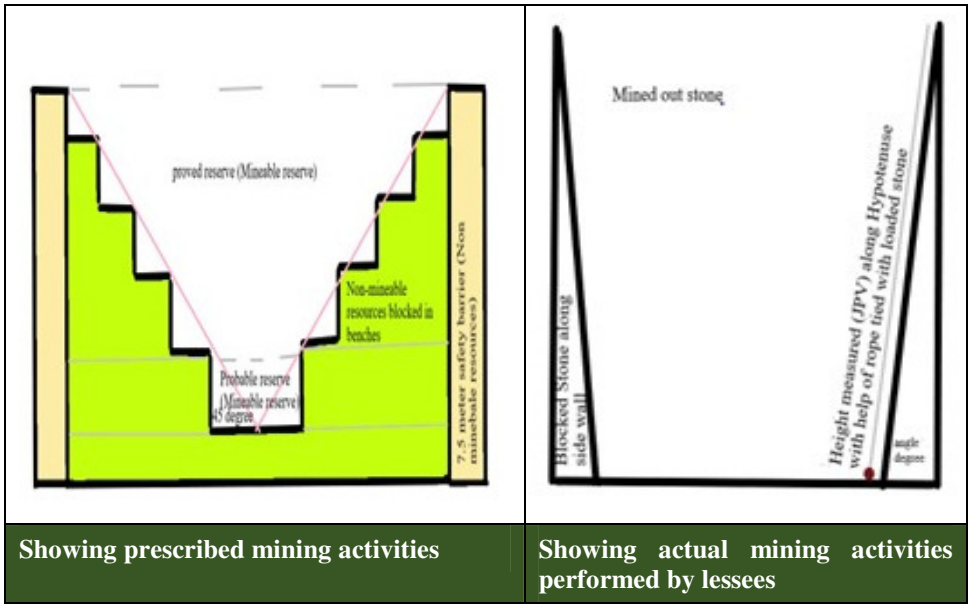
[58] 54 fresh leases (where no mining activity performed earlier) and nine renewed leases, out of 63 leases 51 working and 12 expired leases.

non-mineable resources, and proposed mining activities at a 45° angle, providing for equal size of benches.

Additionally, the Department had instructed field offices (in July 1986) to conduct annual sectional measurements (of at least 20 *per cent*) of leases to verify the actual quantity excavated against dispatch of minerals. The DMOs were further required to verify 10 *per cent* of these measurements for data accuracy.

During the JPV, Audit observed that 55 out of 63 leases[59] had side walls with steep slopes of approximately 65° to 90°, deviating from the recommended gentle slope of 45°. To verify the depth recommended in the mining plan, the team measured the depth by dropping a rope with a stone load from ground level to the ultimate pit level. The comparison of mining activities (prescribed in Mining plan) and JPV observations for 55 stone leases is shown in **Chart 4.3**.

Chart-4.3



Showing prescribed mining activities	Showing actual mining activities performed by lessees

The pictorial chart reveals two key issues:

a. Lessees excavated stone without creating required benches and safety barriers, increasing the side wall angle from 45° to 65-90° and horizontally infringing on non-mineable resources, violating mining plan terms.

b. Lessees also excavated beyond the allowable depth, vertically infringing on non-mineable resources, with pit depths exceeding permissible limits by 2.5 to 50 meters (*i.e.*, 11 to 494 *per cent*).

[59] 55 cases: no benches, one case: no mining performed, five cases: one bench and two cases: 2 to 3 benches.

For comparing the excavation within and outside lease area (horizontal infringement), geographical coordinates of every boundary pillar of the lease were necessary. Audit noticed that despite IBM instructions and inbuilt feature of recording of coordinates in JIMMS, sufficient and correct geographical coordinates of boundary pillars were not recorded.

Further, in order to obtain Environmental clearance from SEIAA, the applicants were to submit kml files[60] to generate lease maps on Google Earth. However, these kml files submitted for EC were not available on Parivesh Portal.[61] Had these files been made available to Audit, they could have proved helpful for generating maps on Google Earth.

The lessees in the test checked cases neither submitted geo-referenced maps of mining leases, nor did they ensure their superimposition on Geo-referenced cadastral map. As a result, the required superimposed outputs (soft copy of shape file and its hard copy) was not available with DMOs in the 61 test checked stone leases.

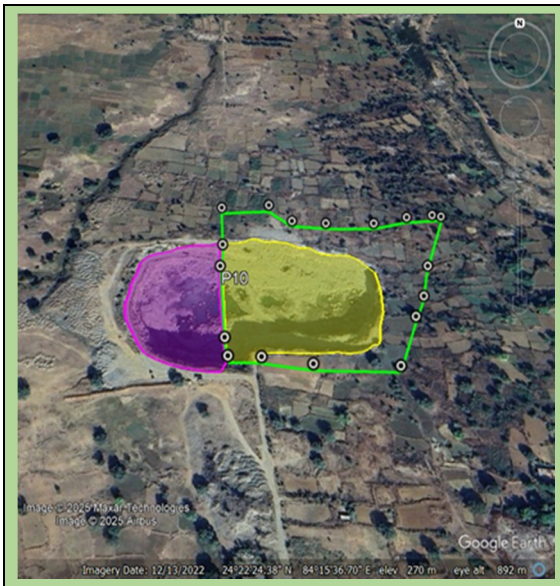

kml file

In the absence of shape files with DMOs, kml files in the Parivesh Portal, and coordinates for each boundary pillar pertaining to 63 stone leases in the JIMMS, Audit obtained coordinates from mining plans of these leases. Audit then generated maps on Google Earth by preparing Comma Separated Value (CSV) files from the available coordinates of boundary pillars in the mining plan. These CSV files were imported into Google Earth to produce maps in kml format. However, in 47 leases incorrect coordinates were recorded in the MPs and MPs in respect of two leases were not made available. On Audit's request for corrections in coordinates, DMOs provided accurate coordinates in respect of eight leases only. Audit successfully generated matching maps for 22 leases of five districts (except Dhanbad) and noticed horizontal infringement (15.44 Ha. outside lease area) in 14 leases[62]. Two of such Google Images are shown in **Picture-4.16** and **4.17**.

[60] kml files is a format used to display geographical data in Earth browser such as Google Earth.

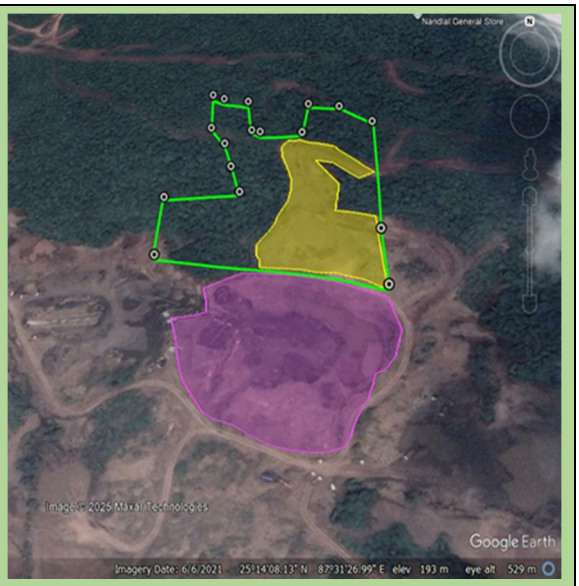
[61] MoEFCC, GoI launched (August 2018) Parivesh Portal, a single window portal for the EC.

[62] **In Chatra-** (i) Shri Ajay Kumar (lessee code-101333001, outside lease area 0.14 Ha.), **In Palamu-** (ii) Shri Anoop Kumar Singh (lessee code- 411510801, outside lease area 0.55 Ha.), (iii) M/s Mahadev Construction Pvt. Ltd. (lessee code-411510701, outside lease area 1.50 Ha.),
In Sahibganj- (iv) M**/s** Sri Ram Stone Product (lessee code- 620053304, outside lease area 1.64 Ha.), (v) M/s Kwality Stone Product (lessee code-620396401, outside lease area-0.21 Ha.) and nine leases mentioned in **Table-4.2**.



M/s Mahadev Construction Pvt. Ltd., lessee code-411510701, Palamu

Picture-4.16: Google Image (13 December 2022) showing lease area (kml area 4.65 Ha.) outlined in green, excavated area inside lease area shaded in Yellow (2.52 Ha.) and outside lease area in purple colour (1.50 Ha.)



Sri Ram Stone product, lessee code- 620053304, Sahibganj

Picture-4.17: Google Image (06 June 2021) showing lease area (kml area 2.43 Ha.) outlined in green, excavated area inside lease area shaded in Yellow (0.80 Ha.) and outside lease area in purple colour (1.64 Ha.)

Audit faced constraints[63] in estimating extraction volumes and accordingly selected[64] 13 out of 63 stone mining leases using specific criteria[65]. Audit estimated extraction volumes by measuring excavated areas in Google Earth and multiplying them with depths observed during JPV, adjusting for trapped volumes in slopes (70-90° angles[66]) and haul roads (**Appendices-4.1, 4.2** and **4.3**).

Volumetric assessment of excess extraction with the help of an expert

Audit appointed Birsa Institute of Technology[67] (BIT), Sindri as consultant and issued work order (05 April 2024 and 14 August 2024) for obtaining technical opinion of BIT, Sindri for volume calculation of excavated

[63] Non-availability of three-dimensional image of hills and inaccessible terrain, non-availability of production data of previous leases in renewal cases, overlapping leases *etc*.

[64] Nine stone leases where shape and size of kml files of mining leases matched with *Khasra* Maps and four stone leases where shape and size of kml files of mining leases did not match.

[65] Jointly physically verified leases (depth measured), fresh (unbroken leases *i.e.*, where excavation started for the first time). In case of renewed leases, if renewal data is available since beginning, availability of historical Google Image, no adjoining leases (in case of adjoining leases data of adjoining leases available).

[66] DMG officials estimated the volume of extraction in selected leases of Pakur through sectional measurement method by assuming the angle of extraction as 90º.

[67] A Government Engineering College in Dhanbad (Established in 1949) under Department of Higher and Technical Education, Government of Jharkhand.

minerals in stone quarries for these 13 mines, providing the requisite information (kml files, depth, angle, area of pit, mining plan *etc*.) available with Audit. BIT, Sindri used following techniques for providing the technical opinion:

- High resolution satellite images of each quarry site were obtained to provide a visual spatial reference for digitising the pit boundaries
- Preparation/validation of kml files and digitization of quarry pit boundaries
- Import of Satellite image and kml files into AutoCAD Civil 3D software
- Creation of 3D surface model[68] of each quarry pit
- Volume calculation using cut and fill method[69]

This technique allows for differentiation between the material removed (cut) and the void created (fill), providing a precise of the total excavated volume for each quarry site.

The consultant submitted (2 May 2024 and 7 October 2024) the study report on extracted minerals.

Observations based on excess extraction estimated by Audit and BIT, Sindri in these 13 leases are as under:

A. Observations on nine leases where shape and size matched with Khasra Map

The estimated excess excavation in nine mining leases, where kml file matched with *Khasra* map, as calculated by Audit is shown in **Table-4.2**.

[68] Represents the current topography of the quarry, including elevation data, pit depth and surface contours.

[69] Cut Volume: Represents the volume of material that has been excavated from the quarry pit. Fill Volume: Represents any voids or depression created during the excavation process.

Table 4.2: Estimated excess excavation in nine mining leases (where kml file matched with *Khasra* map) calculated by Audit

Sl. No.	Name of lease/district/ lessee code/ lease period	Lease area (in Ha.)	Estimated excavated area[70] (Ha.)		Estimated excavated volume (in lakh m^3)		Reported production[71] (in lakh m^3)		Estimated excess production (in lakh m^3)		Total excess production (in lakh m^3)
			In	Out	Lease area		Lease area		Lease area		Total area
					In	Out	In	Out	In	Out	(In+ Out)
1	**M/s Jaishankar Stone Works, Chatra, 308336601, 14.7.14 to 13.7.24**	0.713	0.71	2.98	2.71	10.61	0.80	0.00	1.91	10.61	12.52
2	**M/s Chatania Mines, Chatra, 308156501, 24.10.19 to 23.10.29**	2.83	0.65	0.78	1.92	2.15	1.92	0.19	0.00	1.96	1.96
3	**M/s Jai Shiv Construction, Chatra, 308336901, 12.2.15 to 11.2.25**	1.03	0.86	1.10	4.41	5.82	1.44	0.00	2.97	5.82	8.79
4	**M/s Trustline Mining and Minerals, Chaibasa, 101597101, 18.1.16 to 17.1.26**	18.93	4.22	1.09	18.15	4.10	14.30	0.00	3.85	4.10	7.95
5	**M/s Raj Kumar Khurana, Palamu, 411354101, 17.8.13 to 16.8.23**	4.05	2.23	0.95	13.42	5.80	13.42	0.02	0.00	5.78	5.78
6	**M/s Shyam Stone Mines, Palamu 411355001, 23.7.15 to 22.7.25**	4.856	3.51	3.30	14.27	10.74	6.72	0.00	7.55	10.74	20.52
7	**M/s Sona Stone Chips, Palamu, 411354301 12.12.13 to 11.12.23**	0.96	0.84		2.84		0.61		2.23		
8	**M/s Bagaiya Stone Mine, Palamu, 411353903, 08.1.12 to 07.1.22**	4.046	3.61	0.33	25.88	0.30	11.94	0.00	13.94	0.30	14.24
9	**M/s New Three Star Mines, Pakur, 623160603, 20.3.20 to 19.3.30**	2.34	1.95	0.87	3.36	1.48	1.52	0.00	1.84	1.48	3.32
	Total	**39.755**	**18.58**	**11.40**	**86.96**	**41.00**	**52.67**	**0.21**	**34.29**	**40.79**	**75.08**

It is evident from **Table-4.2** that in nine leases, total excess excavation of 75.08 lakh m^3 was estimated by Audit. While validating the audit observations, BIT Sindri estimated excess excavation of 76.54 lakh m^3. Thus, the overall difference (between Audit and BIT, Sindri) in estimated excess extraction was only 1.46 lakh m^3 (1.94 *per cent*) in these leases of four districts.

- **Within the lease area of nine leases:** Audit estimated stone excavation of 86.96 lakh m^3 while the lessees reported 52.67 lakh m^3 of Stone excavation for the period from January 2012 to September 2023.

[70] Satellite images (February 2021 to November 2022) considered for measuring area.
[71] Detailed in **Appendix-4.1** and **4.2**.

Therefore, there was underreporting of 34.29 lakh m^3 of stone extraction by the lessees, valued at ₹ 107.33 crore[72].

- **Outside lease area of nine leases:** Audit estimated 41.00 lakh m^3 of stone excavation while the lessees reported[73] 0.21 lakh m^3, leading to under reporting of 40.79 lakh m^3 of stone by the lessees for the period from January 2012 to September 2023, valued at ₹ 127.67 crore[74].

Five cases are illustrated in **Case Study-4.6**.

Case Study-4.6

1. M/s Jai Shankar Stone Works, Chatra

M/s Jai Shankar Stone Works, Chatra was granted (June 2014) a lease over 0.713 Ha. of land in Mauza Dalkoma, Block Hunterganj of Chatra district for a period of 10 years (14.07.2014 to 13.07.2024). During the JPV (on 23 May 2023), the team noticed that the lessee had exceeded permissible limits by vertically excavating up to 39.60 meters deep, exceeding the 15 meters permissible limit, approved in the MP. Audit generated kml file of lease area on Google Earth from available coordinates of boundary pillars in the MP and noticed an excavation of 0.71 Ha. within and 2.98 Ha. outside the lease area. Audit estimated the volume of extraction (February 2022) after deducting volume trapped inside slope and haul road.

Based on this, audit findings were as follows:

- **Total extraction: 13.32 lakh m^3 (2.71 lakh m^3 inside and 10.61 lakh m^3 outside lease area).**
- **Reported extraction: 0.80 lakh m^3 during the period.**
- **Under reporting: 12.52 lakh m^3 (1.91 lakh m^3 inside and 10.61 lakh m^3 outside).**

Picture- 4.18: Google Image (17 February 2022) showing lease area (kml area 0.713 Ha.) outlined in green, excavated area inside lease area shaded in Yellow (0.71 Ha.) and outside lease area in purple colour (2.98 Ha.)

[72] 34.29 lakh m^3 x ₹ 313 per m^3= ₹ 107.33 crore.

[73] Audit figured out volume produced outside lease area after adjusting the produced volume reported by lessee with excavated volume within lease area (calculated by Audit).

[74] 40.79 lakh m^3 x ₹ 313 per m^3= ₹ 127.67 crore.

Audit also noticed that for avoiding detection of excess excavation, the lessee started filling of excavated mines, as depicted in the following satellite images.

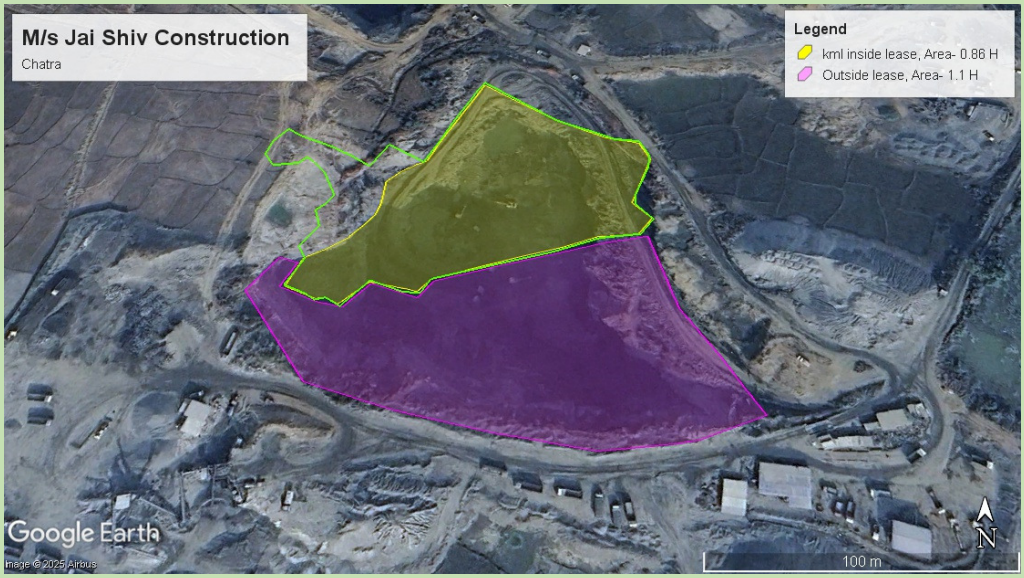
Picture-4.19: Google Image 28.12.2018 unfilled portion (shown in red outline)

Picture-4.20: Google Image of 17.02.2022 (excavated portion filled shown with in red outline)

2. M/s Chatania Mines, Chatra

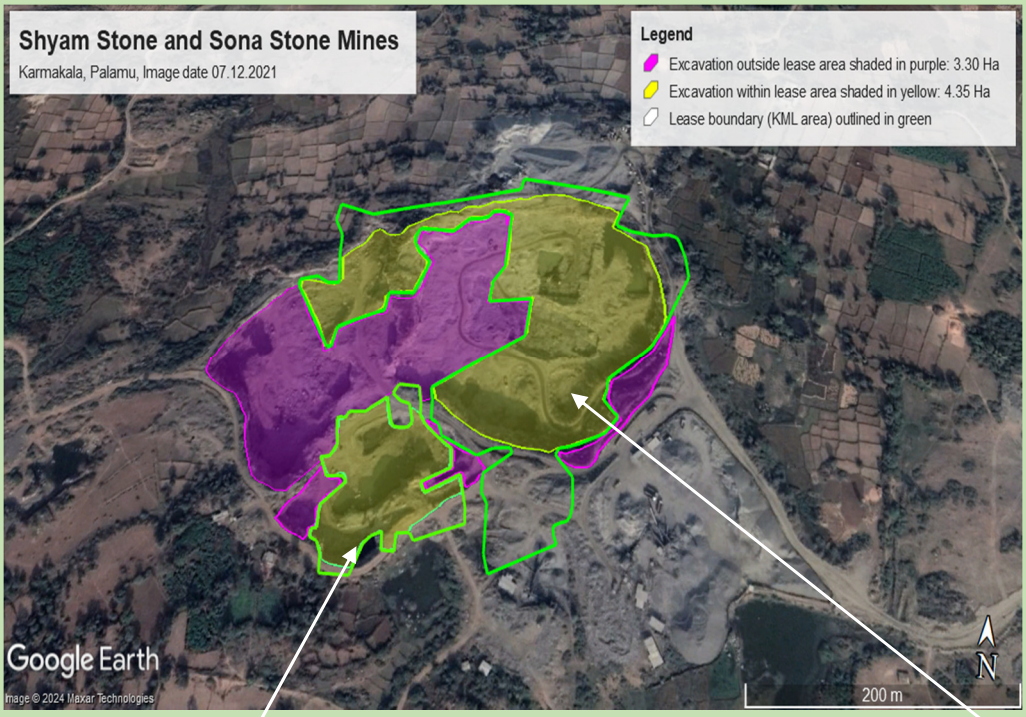
Picture-4.21: Google Image (17 February 2022) showing lease area (kml area 2.83 Ha.) outlined in green, excavated area inside lease area shaded in Yellow (0.65 Ha.) and outside lease area in purple colour (0.78 Ha.), Depth measured in JPV (23 May 2023): (39.90 meter against permissible depth of 20 meter)

3. M/s Jai Shiv Construction, Chatra



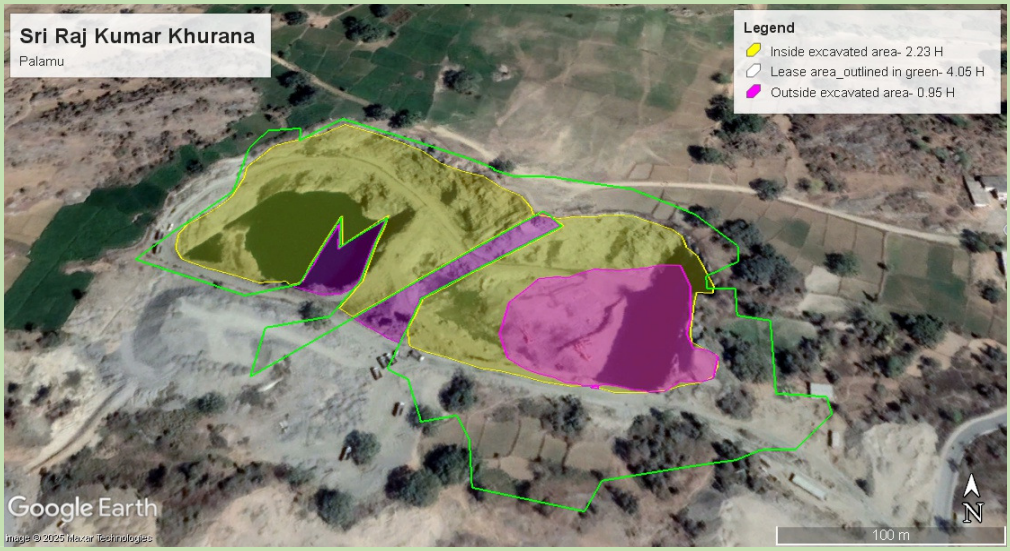
Picture-4.22: Google Image (30 November 2022) showing lease area (kml area 1.03 Ha.) outlined in green, excavated area inside lease area shaded in Yellow (0.86 Ha.) and outside lease area in purple colour (1.1 Ha.), Depth measured in JPV (11 May 2023): (64 meter against permissible depth of 18 meter)

4. M/s Shyam Stone Works, Palamu and M/s Sona, Palamu



Picture-4.23: Google Image (07 December 2021) showing lease area (kml area 4.856 Ha. of M/s Shyam and 0.96 Ha. of M/s Sona) outlined in green, excavated area inside lease area shaded in Yellow (3.51 Ha. of M/s Shyam and 0.84 Ha. of M/s Sona) and outside lease area in purple colour (3.30 Ha.), depth measured in JPV (02 December 2022): (35-45 meter against permissible depth of 12.5-24 meter)

5. M/s Raj Kumar Khurana, Palamu



Picture- 4.24: Google Image (25 February 2021) showing lease area (kml area 4.05 Ha.) outlined in green, excavated area inside lease area shaded in Yellow (2.23 Ha.) and outside lease area in purple colour (0.95 Ha.), Depth measured in JPV (26 November 2022): (61 meter against permissible depth of 18 meter)

B. Observations on four leases where shape and size did not match with Khasra map

The estimated excess excavation in four mining leases, where kml file did not match with Khasra map, as calculated by Audit is shown in **Table-4.3**.

Table-4.3: Showing estimated excess excavation in four mining leases (*where kml file not matched with Khasra map*) calculated by Audit

Name of lease/district/ lessee code/ lease period	Lease area (hectare)	Estimated excavated area[75] (hectare)	Estimated excavated volume (in lakh m^3)	Reported production[76] (in lakh m^3)	Excess production (in lakh m^3)
M/s Ashutosh Stone Works, Chatra, 308013401, 26.06.14 to 25.06.24	4.04	3.30	12.44	3.06	9.38
M/s CTS Industries Ltd., Chaibasa, 101334703, 23.02.16 to 22.02.26	3.64	1.74	4.15	1.40	2.75
M/s Ramashish Singh, Palamu, 411596801 23.03.16 to 22.03.26	4.85	6.00	13.33	9.98	3.35
M/s Sky Stone Works, Sahibganj, 620829301, 06.11.17 to 05.11.27	2.86	1.50	3.18	0.21	2.97
Total	**15.39**	**12.54**	**33.10**	**14.65**	**18.45**

[75] Satellite image (February 2022 to December 2022) considered for measuring area.
[76] Detailed in **Appendix-4.3**.

It is evident from the **Table 4.3** that the overall excess extraction (as per Audit) was 18.45 lakh m^3 (valued at ₹ 57.75 crore @ ₹ 313 per m^3) in four leases of four districts, while it was 18.97 lakh m^3 as per calculations of BIT, Sindri. Thus, there was an overall difference (between Audit and BIT, Sindri) in estimated excess extraction of only 0.52 lakh m^3 (2.82 *per cent*) which validated the audit observations.

Due to mismatch of kml file with *khasra* map, Audit faced limitations in analysing extraction outside/inside lease area. Audit only compared excavated volume (estimated by audit) with reported production by lessee.

Two cases are illustrated in **Case Study-4.7**.

Case Study-4.7

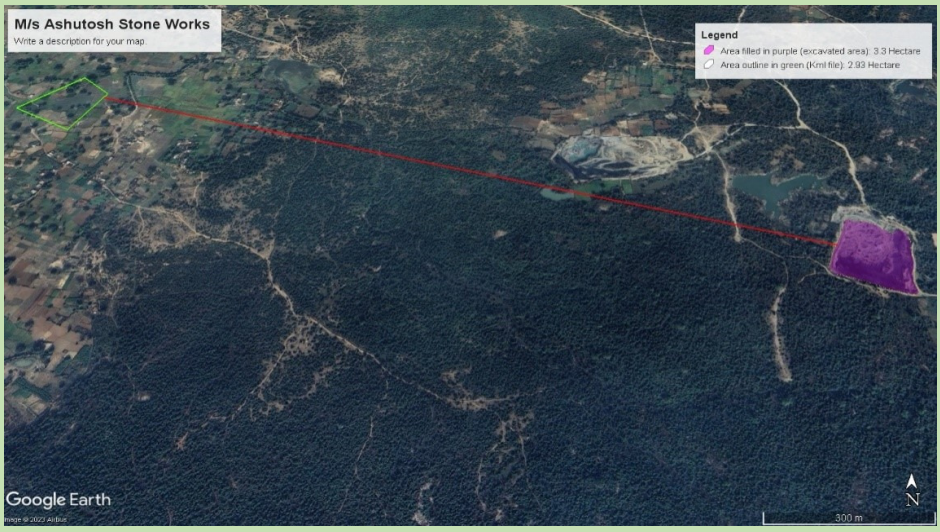
1. M/s Ashutosh Stone Works, Chatra

M/s Ashutosh Stone Works, Chatra was granted a 10 year lease (26 June 2014-25 June 2024) for 4.04 Ha. of land in Mauza Dalkoma, Hunterganj block of Chatra. Audit conducted JPV with DMO on 23 May 2023.

Audit findings:

- There was a mismatch between kml file size (2.93 Ha.) and khasra map (4.04 Ha.).
- Lease area was 1.95 km away from the kml file location.
- Excavated area: 3.3 Ha. (measured using Google Earth Pro).
- Excavated depth: 42 meters (exceeding the permissible 36 meters in approved mining plan).

Audit multiplied the depth with excavated area to calculate the volume of extraction after deducting volume trapped inside slope and haul road. The estimated extraction volume: (a) Total: 12.44 lakh m^3 (b) Reported: 3.06 lakh m^3 (c) Under reporting: 9.38 lakh m^3.



Picture- 4.25: Google Image (17 February 2022) showing incorrect lease area (kml area 2.93 Ha. instead of 4.04 Ha.) outlined in green, excavated area shaded in purple (3.3 Ha.)

2. M/s Ramashish Singh, Palamu

Picture- 4.26: Google Image (13 December 2022) showing incorrect lease area (kml area 5.83 Ha. instead of 4.85 Ha.) outlined in green, excavated area shaded in purple (6 Ha.), Depth measured in JPV (02 June 2023): Excavated depth (24.38 meter against permissible depth of 12 meter)

Thus, lessees had underreported stone excavation by 93.53 lakh m^3 (75.08 lakh m^3 as detailed in **Table-4.2** for nine cases where kml matched + 18.45 lakh m^3 as detailed in **Table-4.3** for four cases where kml did not match) in 13 leases compared to Audit's estimates based on JPV and available tools on Google Earth. This underreporting, combined with excavation beyond lease areas, poses environmental hazards and depletes mineral reserves rapidly, undermining scientific and sustainable mining objectives. Besides this, there is also significant revenue loss to the Government. Audit estimated the potential financial implication of such excess extraction of mineral extraction to be ₹ 292.75 crore {93.53 lakh m^3 (volume of excess extraction) x ₹ 313.00 per m^3 (price of mineral)} for 13 stone leases.

These observations are based on estimation to apprise the Department about the ground level situation. It calls for a further detailed investigation by the Department to work out the exact amount of underreporting of mineral extraction.

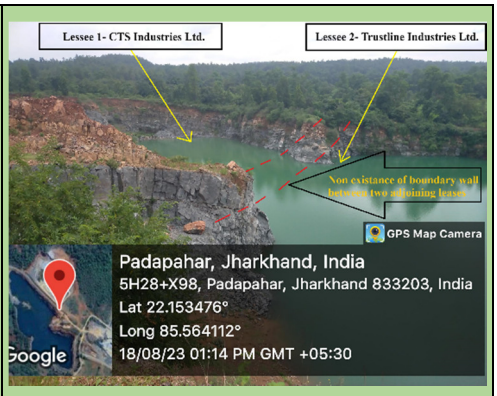
Apart from the above observations Audit noticed

(i) **Absence of required boundary pillars and safety barrier**: In 46 out of 63 cases either the boundary pillar was entirely absent (30) or was only partially found (16). Furthermore, in 62 out of 63 leases across sampled districts, the safety barrier was reduced, ranging from 0 to 7 meters, instead of the required 7.5 meters shown in **Picture-4.27**. This resulted in reducing the space for planation on safety barriers.

Picture-4.27: Showing no safety barrier and no plantation work

M/s Sanjay Kumar Singh & Ashish Kumar Singh, lessee code-0308337101, Chatra	M/s Arun Kumar Singh lessee code-0308081601, Chatra

In nine adjoining leases across three districts[77] there were no boundary walls between two leases, indicating extraction of non-mineral resources blocked in safety barriers, as shown in **Picture-4.28**.



Picture-4.28: Showing no boundary wall between adjoining leases.

M/s Trustline Dealers Pvt. Ltd., lessee code-0101335502, Chaibasa (Green polygon)	M/s CTS Industries Ltd., lessee code-0101334704, Chaibasa (Yellow polygon)

(ii) **Method adopted by lessees to conceal excess excavation:** Scrutiny of MP of three leases of three districts[78] revealed that after the end of lease period of current lessees, there were balance mineable stone reserves[79] of 6.55 lakh m^3. That means that the current lessee had extracted material of his share as mandated in MP/EC/CTO. The remaining balance after accounting the depletion of reserve (limited/fixed permissible extraction)

[77] Chaibasa, Chatra and Pakur.

[78] Pakur, Palamu and Sahibganj.

[79] M/s Lutful Haque, Pakur, lessee code- 623955701, lease period 15 September 2017 to 14 September 2027, Balance mineable reserve- 2,03,045.20 m^3, M/s Bagaiya Stone Mines, Palamu, lessee code-411353903, lease period 08 January 2012 to 07 January 2022, Balance mineable reserve- 60,235 m^3, M/s Krishna Sah, Sahibganj, lessee code-620779003, lease period 02 April 2015 to 01 April 2025, Balance mineable reserve-3,92,367.40 m^3.

would be reallotted to the next lessees. Audit noticed that in two leases of Pakur and Sahibganj, the lessees started filling/filled the pit using stone dust/earth brought from other places while in one lease of Palamu, lessee converted the mine into a water reservoir. Action of the lessees indicated that the lessees had extracted the material of more than permissible limits from these mines.

The filling up of excavated land was fraught with the risk of fraudulent intention to conceal excess excavation to avoid measurement of excavated area for fixation of demand by DMOs, shown in **Pictures-4.29** and **4.30**.

Kml file (outlined in Green) Krishna Sah, lessee code-0620779003, Sahibganj	
	
Picture-4.29: Area outlined in yellow excavated area (Google Image March 2020)	**Picture-4.30: Area outlined in yellow filled area (Google Image July 2022)**

(iii) **Non-conducting of required measurement:** Audit observed that during the period 2017-22, the official of the DMG did not conduct any periodic inspections as instructed by the Department. The DMG was supposed to conduct annual sectional measurement of at least 20 *per cent* of leases to verify the actual quantity excavated. The officials of the DMG conducted yearly sectional measurements of only 0.68 to 3.17 *per cent* of the existing minor mineral leases in six test checked districts. Thus, these measures were not adequate to determine excavation beyond lease area/excess excavation and impose penal provisions provided for in the Act/Rules. There is a need to include the use of modern technology (such as drone surveys) in the JMMC Rules, 2004, in line with Rule 34A of the Mineral Conservation and Development Rules (MCDR), 2017, for detecting instances of excess excavation by lessees and imposing penalties accordingly.

(iv) **Discrepancies in Rules to curb unauthorised/ illegal excavation:** In light of the ground situation, Audit further scrutinized, the collection report of royalty furnished by the Director, Mines to analyse the revenue collection from minor minerals consumable[80] in the State during the period

[80] As per Schedule of Rate published by Works Department, GoJ; Stone, Sand, *Morrum*, Brick earth and Ordinary earth are the minor minerals consumable in execution of construction/developmental works.

2017-22. It was observed that revenue of ₹ 1,554.81 crore was collected from lessees of four minor minerals (*i.e.*, stone, brick earth, sand and *morrum*) during 2017-22. During the same period, ₹ 1,550.34 crore was collected as royalty and penalty equal to royalty, from works contractors engaged by various Works Departments as depicted in **Table-4.4**.

Table-4.4: Showing comparison between contribution of royalty from mining leases and royalty and penalty equal to royalty from Works Department during 2017-22

Name of Minor mineral	Total collection in the State (₹ in lakh)					
	2017-18	2018-19	2019-20	2020-21	2021-22	Total
A.	B.	C.	D.	E.	F.	G.
Stone (Lease/permit)	22,781.66	26,127.46	26,983.26	36,021.61	38,179.96	1,50,093.95
Brick earth (Lease/permit)	452.50	530.78	631.84	781.50	830.62	3227.24
Sand (Lease/permit)	226.87	140.47	175.67	901.46	192.02	1636.49
Morrum	385.84	3.35	6.67	120.42	7.48	523.76
Ordinary earth	00.00	00.00	00.00	00.00	00.00	00.00
Total from Leases/Permits	**23,846.87**	**26,802.06**	**27,797.44**	**37,824.99**	**39,210.08**	**1,55,481.44**
Works Department (royalty and penalty equal to royalty received from works contractors)	31,559.90	34,214.73	31,282.85	33,422.74	24,553.68	**1,55,033.90**
Total collection from minor minerals consumable in construction works	**55,406.77**	**61,016.79**	**59,080.29**	**71,247.73**	**63,763.76**	**3,10,515.34**
Percentage of receipt from works contractors over total receipts from minor minerals consumable in works contract.	**56.96**	**56.07**	**52.95**	**46.91**	**38.51**	**49.93**

Source: Information received from Director, Mines.

From the above, it is evident that more than 95 *per cent* of minor minerals' revenue (Leases and Permits) was collected from stone, whereas the other minor minerals together contributed less than five *per cent*. Further, the Department had collected ₹ 1,550.34 crore from Works Departments during 2017-22, which was almost 50 *per cent* of total revenue collected from minor minerals. As such, collection of double the rate of royalty from works contractors for the minerals procured from undisclosed sources was almost equal to the revenue collection from disclosed sources of these minor minerals.

Audit noticed that there were discrepancies between Rules 54 and 55 of the JMMC Rules, 2004. Rule 54 provides that, if a person extracts/transports minor minerals without valid lease/permit he shall be considered as a party of illegal extraction. Further, the Rule prescribes legal actions or/and recovery of penalty at double the price of minerals so extracted/transported

illegally in addition to rent, royalty *etc*. However, Rule 55 of the Act *ibid* absolves contractors of the Works Departments from being a party to illegal/unauthorised extraction by enabling them to use minerals from undisclosed sources by payment of penalty equal to royalty only, which contradicts the essence of provision in Rule 54, *i.e.*, as a deterrent to illegal mining. Therefore, there is a need for the State Government to realign Rule 55 with Rule 54 of the JMMC Rules, 2004 to fulfill its objective.

4.1.4.2 Implementation of Environmental Management Plan

To mitigate the adverse impact of mining on the environment, plantations were to be placed on the safety barriers of mining leases. Accordingly, lessees were required to plant the recommended quantity of trees in grid pattern on safety barriers in the first year of the 1st Plan period and nurture them during the subsequent lease period.

Audit found that in 61 out of 63 test-checked leases across sampled districts, only 2,225 plants were planted against the proposed 74,676 plants, resulting in a shortage of tree plantation ranging from 20 to 100 *per cent* (illustrated in **Case Study-4.8)**.

At the time of renewal of the CTOs, JSPCB verifies the compliance of conditions like plantation of trees, maintenance of air quality standard *etc*. Audit enquired about copies of reports based on inspections conducted by the Regional Office, O/o JSPCB, Dhanbad, for renewal of CTO in case of 10 test checked stone leases in Dhanbad district. Test check of 10 Inspection Reports (of inspections conducted between 02 May 2020 and 03 September 2022) revealed that the renewal of CTOs was done on the basis of assurance provided by lessee for compliance with conditions of applicable Act/Rules for air, water and environment protection and condition of ECs. The inspecting team reported some plantation in all 10 cases which was not quantified in the report.

Noting the conditional renewal of CTO, Audit conducted JPV with the DMG officials. A case study on inspection conducted by Regional Officer, Hazaribagh in Hunterganj, Chatra is illustrated in **Case Study-4.8**.

Case Study-4.8

Regional Officer (O/o JSPCB, Regional Office, Hazaribagh) conducted (27 July 2022) physical verification of two leases[81] at Circle-Hunterganj, Chatra for compliance with CTO conditions. JSPCB had issued CTOs for these two leases based on the Inspection Reports in which the officer

[81] (i) M/s Ashutosh Stone Works (Lessee code- 0308013401), Chatra (lease period 26 June 2014 to 25 June 2024, Lease area- 4.04 Ha., Green belt- 1.05 Ha.), (ii) M/s Jaishankar Stone Industries (Lessee code- 0308027801), Chatra, Lease period (24 November 2015 to 23 November 2025, lease area 3.645 Ha., Green belt- 0.896 Ha.).

reported that these two leases were fenced by six feet high net and concrete pillars and plantation was done in the lease area.

Audit conducted JPV[82] of these leases with official of DMG and noticed that the lease area was not fenced by a net with the support of concrete pillars. Also, no air, water and noise monitoring stations were available in the lease area. The width of the green belt zone (for plantation) was 0.5-2 meter and 01-7.5 meter instead of 7.5 meter uniformly around the mining pit area. No plantation was available in the green zone.

Audit had conducted JPV only 5-10 months after the physical inspection conducted by the Regional Officer, JSPCB and noticed these contradictory observations. Thus, Reports based on physical verification conducted by Regional Officer was unreliable & incorrect, as is evident from the photograph shown below:

Picture-4.31: Showing no fencing with support pillars and no plantation on green belt (image taken during JPV of M/s Ashutosh Stone Works)

As discussed in **Paragraph-4.1.3.7**, for assessing the impact on environment, the lessees were required to establish air, water and noise monitoring stations with facilities of recording of real time data.

Audit further noticed in 63 test checked leases (except one lease in Sahibganj) that air, water, and noise monitoring stations were not established within the lease area.

In the MPs related to 40 out of 51 test checked working leases, construction of garland drains (connected to settling tanks) around the pit was proposed to prevent rainwater runoff from entering the mining pit. However, in 38 out of 40 leases, these drains were not constructed as proposed in the concerned MPs.

Parapet walls around dump were to be constructed in 15 out of 51 test checked working leases to establish overburden in the demarcated area. However, Audit noticed that these were not constructed in 14 leases and

[82] M/s Ashutosh Stone Works (Date of JPV- 23 May 2023), M/s Jaishankar Stone Industries (Date of JPV- 08 December 2022).

dump was found lying at places other than the demarcated areas, as shown in **Picture-4.32**.

Picture-4.32: Dump lying outside lease area (other than demarcated place) in Palamu, Lessee code- 411596801 Date of JPV (2 June 2023)

Thus, mining in excess of permissible area and improper implementation of EMP was in contravention of the progressive mine closure plan, which detailed various proposals with the objective of protecting the environment. Non-implementation of these, defeated the objectives of protective, reclamation and rehabilitation measures in mines.

4.1.5 Implementation of final mine closure plan

As per Rule 17E(3) of MMCD Rules, 2010 (prepared by IBM for minor mineral), the lessee shall submit a financial assurance (FA) to the officer authorised by the State Government before executing the mining lease deeds. As per Rule 34G of JMMC Rules, 2004, if mining lease/permit holder fails to execute reclamation and restoration work, the cost of the same shall be recovered from the FA.

Audit noticed the following shortcomings in the implementation of the Final Mine Closure Plan:

- As per MMCD Rules, 2010, the rate of FA was ₹ 15,000 per Ha. of the mining lease area that had been put to use for mining and allied activities, subject to a minimum of ₹ 50,000 for Category B mines. Thereafter, this was not revised by the State Government whereas, in case of major minerals, rate of FA was revised twice by the Central Government during the period February 2017 to November 2021 and was increased from ₹ 15,000 (effective from April 2003) to ₹ 3.00 lakh per hectare (effective from November 2021) subject to minimum ₹ 5.00 lakh in case of Category B mines. Scrutiny of mining plans revealed that in 63 cases[83] of test checked districts, different rates (13 cases: ₹ 15,000, 40 cases: ₹ 25,000, two cases: ₹ 2.00 lakh, six cases: not calculated in MP, two cases: MP not produced)

[83] Chaibasa (seven working + three expired), Chatra (nine working + one expired), Dhanbad (nine working + one expired), Pakur (five working + three expired), Palamu (ten working + two expired), Sahibganj (11 working + two expired).

per hectare for calculation of FA was proposed by RQP and approved by the authority. The reason for variation was adoption of rates of major mineral MCD Rules, prescribed for Category A in 40 cases (₹ 25,000) and for B mines in two cases (two case: ₹ 2.00 lakh) by different RQPs in MPs. This resulted in variation in rates of FA at inter/intra district level within a particular time interval among different mining leases.

- In 49 out of 63 leases of test checked districts, FA of ₹ 49.29 lakh was submitted to DMO by the lessees in the form of National Saving Certificates (25 cases), Bank Guarantees (23 cases), LIC policies (one case). Out of three means of submission of FA, LIC policy was not an acceptable form as spouse of the lessee was a nominee in this policy. In 21 out of 23 working leases (till October 2023 i.e. date of audit), BG of ₹ 23.56 lakh had lapsed. In 14 cases of all six test checked districts[84], FA of ₹ 7.55 lakh was not available with DMOs.

- In 12 out of 63 stone leases where the lease period had expired during May 2019 to July 2023, DMOs permitted lessees to exit the lease area without submission of the final mine closure plan or confiscation of their FA portion[85] of ₹ 15.00 lakh. This oversight hindered the enforcement of reclamation and rehabilitation redeeming activities as illustrated in **Case Study 4.9**.

Case study 4.9

In case of M/s Mahadev Stone Product, lease over an area of 4.35 Ha. had expired on 18 September 2023, and the mining pit was required to be converted into a water reservoir as per the conceptual plan. Audit prepared kml file on Google Image and noticed that instead of 3.72 Ha., total lease area (4.35 Ha.) was excavated. Due to the non-availability of boundary wall with adjoining leases**, different leases were found merged with one another, creating a bigger excavated pit**.

During JPV (October 2023), the Audit Team noticed that there were no benches and plantations available. Also the required safety barrier was only 0.5 meter, on one side of the boundary wall. The overburden was found dumped inside the lease area and three out of four boundary walls were not found.

Audit further noticed that lessee failed to submit final mine closure plan and FA, though he was required to submit ₹ 2.00 lakh for the purpose.

Thus, the provisions of the progressive mine closure plan were not followed.

[84] Chaibasa (three expired), Chatra (one expired), Dhanbad (one working), Pakur (one working + two expired), Palamu (two working + one expired), Sahibganj (one working + two expired).

[85] In 10 cases FA was submitted and two cases MP was not produced.

Picture-4.33: Showing lease of Mahadev Stone Product (Date of JPV 07 October 2023)

Picture-4.34: Showing kml file (Google Image date 16 January 2022), 4.40 Ha., lease area surrounded by other expired leases

Audit observed that unscientific closure of mines made them unsafe (due to absence of boundary pillars, fencing, safety barrier and benches), environmentally unfriendly (due to absence of plantation) and overexploited (due to excavation of non-mineable resources).

4.1.6 Mining operation without Mining Plan

Rule 34 (A) (2) of JMMC Rules, 2004 states that mining activities shall be done as per the approved MP and the DC/competent authority shall suspend mining activity if the lessee does not perform mining activity according to approved MP.

In five out of 63 test checked mining leases of three districts, the lessee excavated and produced stone without an approved MP. The details are in **Table-4.5**.

Table-4.5: Showing lease period, expiry date of 1st five year plan and status of 2nd five year plan

Name of lessee	Lessee code	Lease period	Expiry date of 1st MP	Date of submission of 2nd MP and present status (July 2023)	Production (m^3) during the period (no approved MP)
M/s Rana Uday Pratap Singh, Dhanbad	0204300705	30.04.2016 to 29.04.2026	29.04.2021	Not submitted	68,118 (May 2021 to January 2023)
M/s Umesh Kumar and Suresh Mahto, Dhanbad	0204596101	11.04.2016 to 10.04.2026	10.04.2021	Not submitted	22,653 (May 2021 to February 2023)
M/s Azhar Islam, Pakur	0623230302	25.02.2016 to 24.02.2026	24.02.2021	Submitted and approved on 27.09.2022	1,48,839 (March 2021 to August 2022)
M/s Mahadev Stone Product, Pakur	0623325710	19.09.2013 to 18.09.2023	28.11.2019	Submitted on 12.09.2022 and approved on 14.09.2022	1,88,334 (December 2019 to August 2022)
M/s Mumtaj Ahmad Khan, Palamu	0411140101	14.11.2017 to 13.11.2027	13.11.2022	16.12.2022 but not approved	Excavation noticed during JPV (no production reported)

Source: 1st Mining Plan, application fee deposited through JIMMS for 2nd Mining Plan and lease deed.

It is evident from **Table-4.5** that, in five leases, the 2nd five-year plan[86] was either not submitted or submitted after the expiry of one to 33 months of the 1st five-year plan but was not approved.

Even after the expiry of the 1st five-year plan and non-submission or approval of the 2nd five-year plan, lessees were engaged in unauthorized excavation and stone production of 4.28 lakh m^3. This was confirmed during JPV, where ongoing mining operations were observed, as shown in **Picture-4.35**.

Picture-4.35: Showing excavation in lease area on the date of physical verification (26 November 2022) by Lessees Code: 0411140101 (Name of Lessees- M/s Mumtaj Ahmad Khan) despite lapse of 1st five-year plan on 13/11/2022 and non-submission 2nd five-year plan.

Excavation without approved MP was unauthorized, lacked scientific oversight, and was non-compliant with environmental norms. Audit observed that DC/competent authority did not suspend the mining activities in these cases.

4.2 Environmental Clearance

The MoEFCC oversees India's environmental and forestry policies. The Environment Impact Assessment notification, 2006 issued by MoEFCC, mandates Central Government to issue Environmental Clearance (EC) for projects of Category 'A' (area ≥ 50 Ha.) and SEIAA[87] to approve projects of Category 'B' (area < 50 Ha.). The established procedures (effective from 14 August 2018) for grant of EC for sand and other minor minerals including cluster situation[88] for mines were as explained in **Table-4.6**.

[86] In case of M/s Mahadev Stone Product, Pakur period of 1st MP was 29.11.2014 to 28.11.2019. 2nd MP was approved on 14.09.2022. So excavation during 29.11.2019 to 13.09.2022 was without approved MP.

[87] A three membered committee (Chairman, Expert member and Member Secretary), duly constituted by the Central Government under Sub-section 3 of Section 3 of the Environment (Protection) Act, 1986, in accordance with the procedures specified in this notification.

[88] A cluster shall be formed when distance between the peripheries of one lease is less than 500 meters from the periphery of other lease in homogeneous mineral area.

Table-4.6: Showing category of mines, area and condition of approval of EC

Area of Lease (hectare)	Category of Project	Requirements	Requirement of Public hearing	Authority to Grant EC
0 to 5 Ha. individual mine lease	B2	Form 1M, DSR, Prefeasibility Report (PFR) and approved mine plan	No	DEIAA[89]
Clustered area of mine leases up to 5 Ha.				
> 5 Ha. and < 25 Ha. (Individual mine lease)	B2	Form 1, DSR, PFR and approved mine plan	No	SEIAA[90]
Clustered area of mine leases > 5 Ha. and < 25 Ha. with no individual lease > 5 Ha.		Form 1, DSR, PFR and approved mine plan and one EMP for all lease in the cluster		DEIAA
≥ 25 Ha. and < 100 Ha.	B1	Form 1, DSR, PFR and approved mine plan, EIA/EMP	Yes	SEIAA
Cluster of mine leases of area ≥ 25 Ha. with individual lease size < 100 Ha.		Form 1, DSR, PFR and approved mine plan and one EMP for all lease in the cluster		
≥ 50 Ha.	A	Form 1, DSR, PFR and approved mine plan, EIA/EMP	Yes	MoEFCC
Cluster of any size with any individual lease ≥ 50 Ha.				

The Project Proponent[91] (PP) would need to apply for EC in prescribed form through Parivesh Portal[92], along with requisite documents as specified in **Table-4.6**. After grant of EC, the PP shall submit six monthly reports on compliance with the stipulated EC conditions including results of monitoring data to the SEIAA/JSPCB and to its Regional Offices.

Audit noticed irregularities in granting of ECs which are elaborated in following paragraphs.

4.2.1 Issuance of EC based on fake contiguous certificate

In compliance with the judgment (dated 13 September 2018) of the National Green Tribunal (NGT), the MoEFCC issued an order (12 December 2018)

[89] For minor minerals of Category B2, District Environment Impact Assessment Authority (DEIAA) was established on 15 January 2016. The affairs of the DEIAA was assigned to SEIAA by the MoEFCC on 12 December 2018 (as per direction of NGT dated 13 September 2018).

[90] State Environment Impact Assessment Authority (SEIAA) was established by MoEFCC under EIA Notification 2006 to act as the regulatory authority for EC at the State level.

[91] "Project Proponent" means an individual or public or private entity that has ultimate control over the affairs of the project. An application seeking prior EC in all cases shall be made by the project proponent.

[92] MoEFCC, GoI launched (August 2018) Parivesh Portal, a single window portal for the EC.

that mine lease areas between five and 25 Ha. (including cluster situation) falling under Category B2 were to be treated at par with Category B1 by SEIAA. Thus, from 12 December 2018, submission of EIA, EMP by the PP and thereafter Public Consultation by the competent authority became compulsory conditions for prior issuance of EC for mine leases between five and 25 Ha.

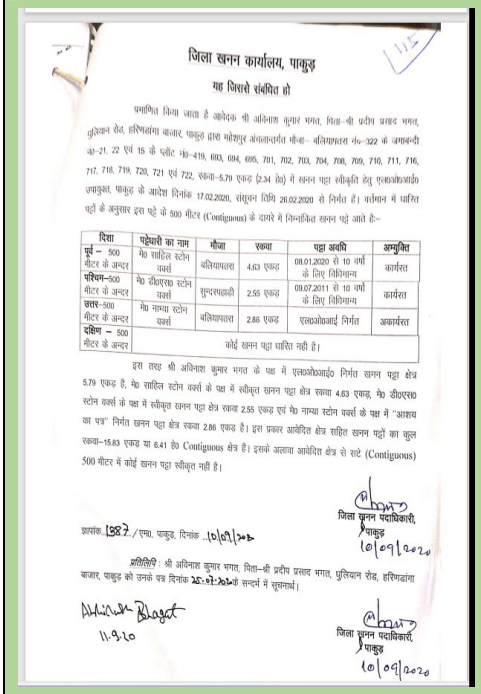
Contiguous certificates for cluster situations were issued to the applicants by the DMO. Such certificates provide information about the total area of the stone mine leases within 500 meters of the applied lease. The applicants had to attach these certificates with applications (Form 1) to get prior ECs from SEIAA. The applications along with cluster certificates were available in 'Parivesh Portal'.

➢ Test check of records of DMO Pakur revealed that in eight cases, DMO issued contiguous certificates (between August 2020 and August 2021) in which areas of mine leases within cluster ranged between 5.00 and 7.06 Ha. However, Audit noted that in the Parivesh Portal, the applicants had submitted manipulated certificates of the same number wherein the areas were reduced *i.e.*, between 2.73 and 4.94 Ha. for qualifying them under B2 Category, as detailed in **Table-4.7**.

Table-4.7: Showing contiguous certificate issued by DMO and manipulated by the applicants

Sl. No.	Name of Applicant	Number of mine lease and area of Cluster (including applied lease) (Area in hectare)				EC number and date (under B2 Category)
		Original (by DMO)		Fake (by Applicant)		
1	Shri Avinash Kumar Bhagat	4	6.41	4	4.65	2322/2021/33 (14.07.2021)
2	M/s CB Stone Works	2	5.27	1	2.73	2446/2021/188 (30.10.2021)
3	Md. Najimuddin	3	5.54	3	4.32	2407/2021/149 (23.09.2021)
4	M/s Four Star Stone Works	2	5.00	2	4.67	2414/2021/136 (23.09.2021)
5	M/s Manoj Stone Works	2	5.36	2	4.94	2323/2021/45 (13.07.2021)
6	M/s Rajiv Ranjan Pandey	3	6.75	2	4.02	2447/2021/187 (30.10.2021)
7	M/s Shriguru Stone Works	4	7.06	2	3.29	2452/2021/197 (30.10.2021)
8	M/s Jishan Stone Works	3	5.40	2	2.75	2433/2021/132 (23.09.2021)

Picture-4.36: Showing original and fake contiguous certificate issued to Shri Avinash Kumar Bhagat



जिला खनन कार्यालय, पाकुड़

यह जिससे संबंधित हो

प्रमाणित किया जाता है आवेदक श्री अविनाश कुमार भगत, पिता–श्री प्रदीप प्रसाद भगत, पुलिसियान रोड, हरिणडांगा बाजार, पाकुड़ द्वारा मौजापुर अंचलान्तर्गत मौजा– बरियापहरा मं०–322 के जमाबन्दी मं०–21, 22 एवं 15 के प्लॉट मं०–419, 693, 694, 695, 701, 702, 703, 704, 708, 709, 710, 711, 716, 717, 718, 719, 720, 721 एवं 722, रकबा–5.79 एकड़ (2.34 हे०) में खनन पट्टा स्वीकृति हेतु एलo ओo आई० उपायुक्त, पाकुड़ के आदेश दिनांक 17.02.2020, संस्वीकृत तिथि 26.02.2020 से निर्गत है। वर्तमान में धारित पट्टों के अनुसार इस पट्टे के 500 मीटर (Contiguous) के दायरे में निम्नांकित खनन पट्टे आते है:–

दिशा	पट्टेधारी का नाम	मौजा	रकबा	पट्टा अवधि	अभ्युक्ति
पूर्व – 500 मीटर के अन्दर	मे० साहिल स्टोन वर्क्स	बरियापहरा	4.63 एकड़	08.01.2020 से 10 वर्ष के लिए विधिमान्य	कार्यरत
पश्चिम–500 मीटर के अन्दर	मे० डीoएसo स्टोन वर्क्स	सुन्दरपहाड़ी	2.55 एकड़	09.07.2011 से 10 वर्ष के लिए विधिमान्य	कार्यरत
उत्तर–500 मीटर के अन्दर	मे० नान्या स्टोन वर्क्स	बरियापहरा	2.86 एकड़	एलoओoआई० निर्गत	अकार्यरत
दक्षिण – 500 मीटर के अन्दर	कोई खनन पट्टा धारित नही है।				

इस तरह श्री अविनाश कुमार भगत के पक्ष में एलoओoआई० निर्गत खनन पट्टा क्षेत्र 5.79 एकड़ है, मे० साहिल स्टोन वर्क्स के पक्ष में स्वीकृत खनन पट्टा क्षेत्र रकबा 4.63 एकड़, मे० डीoएसo स्टोन वर्क्स के पक्ष में स्वीकृत खनन पट्टा क्षेत्र रकबा 2.55 एकड़ एवं मे० नान्या स्टोन वर्क्स के पक्ष में "आशय का पत्र" निर्गत खनन पट्टा क्षेत्र रकबा 2.86 एकड़ है। इस प्रकार आवेदित क्षेत्र सहित खनन पट्टों का कुल रकबा–15.83 एकड़ या 6.41 हे० Contiguous क्षेत्र है। इसके अलावा आवेदित क्षेत्र से सटे (Contiguous) 500 मीटर में कोई खनन पट्टा स्वीकृत नहीं है।

जिला खनन पदाधिकारी, पाकुड़

ज्ञापांक 1387 /एम०, पाकुड़, दिनांक 10/09/2020

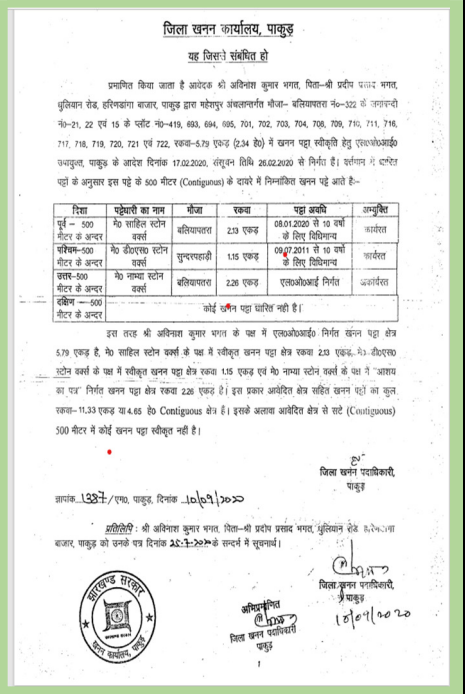
प्रतिलिपि: श्री अविनाश कुमार भगत, पिता–श्री प्रदीप प्रसाद भगत, पुलिसियान रोड, हरिणडांगा बाजार, पाकुड़ को उनके पत्र दिनांक 25.07.2020 के सन्दर्भ में सूचनार्थ।

Avinash Bhagat 11.9.20

जिला खनन पदाधिकारी, पाकुड़ 10/09/2020

Original Certificate of area 6.41 Ha.

Source: lease file maintained by DMO, Pakur.



जिला खनन कार्यालय, पाकुड़

यह जिससे संबंधित हो

प्रमाणित किया जाता है आवेदक श्री अविनाश कुमार भगत, पिता–श्री प्रदीप प्रसाद भगत, पुलिसियान रोड, हरिणडांगा बाजार, पाकुड़ द्वारा मौजापुर अंचलान्तर्गत मौजा– बरियापहरा मं०–322 के जमाबन्दी मं०–21, 22 एवं 15 के प्लॉट मं०–419, 693, 694, 695, 701, 702, 703, 704, 708, 709, 710, 711, 716, 717, 718, 719, 720, 721 एवं 722, रकबा–5.79 एकड़ (2.34 हे०) में खनन पट्टा स्वीकृति हेतु एलoओoआई० उपायुक्त, पाकुड़ के आदेश दिनांक 17.02.2020, संस्वीकृत तिथि 26.02.2020 से निर्गत है। वर्तमान में धारित पट्टों के अनुसार इस पट्टे के 500 मीटर (Contiguous) के दायरे में निम्नांकित खनन पट्टे आते है:–

दिशा	पट्टेधारी का नाम	मौजा	रकबा	पट्टा अवधि	अभ्युक्ति
पूर्व – 500 मीटर के अन्दर	मे० साहिल स्टोन वर्क्स	बरियापहरा	2.13 एकड़	08.01.2020 से 10 वर्ष के लिए विधिमान्य	कार्यरत
पश्चिम–500 मीटर के अन्दर	मे० डीoएसo स्टोन वर्क्स	सुन्दरपहाड़ी	1.15 एकड़	09.07.2011 से 10 वर्ष के लिए विधिमान्य	कार्यरत
उत्तर–500 मीटर के अन्दर	मे० नान्या स्टोन वर्क्स	बरियापहरा	2.26 एकड़	एलoओoआई० निर्गत	अकार्यरत
दक्षिण – 500 मीटर के अन्दर	कोई खनन पट्टा धारित नही है।				

इस तरह श्री अविनाश कुमार भगत के पक्ष में एलoओoआई० निर्गत खनन पट्टा क्षेत्र 5.79 एकड़ है, मे० साहिल स्टोन वर्क्स के पक्ष में स्वीकृत खनन पट्टा क्षेत्र रकबा 2.13 एकड़, मे० डीoएसo स्टोन वर्क्स के पक्ष में स्वीकृत खनन पट्टा क्षेत्र रकबा 1.15 एकड़ एवं मे० नान्या स्टोन वर्क्स के पक्ष में "आशय का पत्र" निर्गत खनन पट्टा क्षेत्र रकबा 2.26 एकड़ है। इस प्रकार आवेदित क्षेत्र सहित खनन पट्टों का कुल रकबा–11.33 एकड़ या 4.65 हे० Contiguous क्षेत्र है। इसके अलावा आवेदित क्षेत्र से सटे (Contiguous) 500 मीटर में कोई खनन पट्टा स्वीकृत नहीं है।

जिला खनन पदाधिकारी, पाकुड़

ज्ञापांक 1387 /एम०, पाकुड़, दिनांक 10/09/2020

प्रतिलिपि: श्री अविनाश कुमार भगत, पिता–श्री प्रदीप प्रसाद भगत, पुलिसियान रोड, हरिणडांगा बाजार, पाकुड़ को उनके पत्र दिनांक 25.07.2020 के सन्दर्भ में सूचनार्थ।

सत्यमेव जयते

अभिप्रमाणित

जिला खनन पदाधिकारी, पाकुड़

जिला खनन पदाधिकारी, पाकुड़ 10/09/2020

Fake Certificate of area 4.65 Ha.

Source: Parivesh Portal.

Based on such fake certificates, SEIAA issued prior ECs to eight applicants under B2 category (0 to 5 Ha.) (as detailed in **Table-4.7**) and DMO, Pakur granted the mining lease. After obtaining leases on these fake certificates, lessees had excavated 6.35 lakh m^3 of stone (as of March 2024) valuing ₹ 19.88 crore (6.35 lakh m^3 x ₹ 313 per/m^3) unauthorisedly between 2022-23 and 2023-24.

Audit observed that the Department has not developed any system to cross-verify the documents submitted by the applicant on Parivesh Portal which resulted in issuance of EC by SEIAA on the basis of manipulated documents. The Department may consider filing FIRs against erring applicants for detailed investigation of the matter and put in place a system of cross verification between the DMO and SEIAA.

➢ DMO Sahibganj, issued a Contiguous Certificate to M/s Pahariya Stone Works[93] on 23 November 2017 for issuance of EC by SEIAA under B2 Category (0 to 5 Ha.). The contiguous certificate stated that area of applied lease was 2.22 Ha. and there was a mining lease (1.11 Ha.) of M/s Parwati Stone Works within a periphery of 500 m. Based on this certificate, SEIAA issued EC to applicant on 4 November 2019 under B2 Category (0 to 5 Ha). Audit scrutiny of contiguous certificate and working leases in Sahibganj revealed that in addition to M/s Parwati Stone Works another

[93] Plot no. 83,175,193 and 194.

mine lease of M/s S.S. Black Stone[94] of 3.64 Ha. had been working within the periphery of 500 meters since 30 March 2016. These two leases (Applied lease: M/s Pahariya Stone Work and working lease: M/s S.S. Black Stone) were situated on a common plot (plot number 194) and were adjacent to each other. Thus, area of cluster in contiguous certificate should have been 6.97 Ha. instead of 3.33 (1.11+ 2.22) Ha. and SEIAA should have issued EC under B2 (5 to 25 Ha.) instead of B2 (0 to 5 Ha.) category. Audit observed that contiguous certificates were issued without proper verification of working leases within the periphery of 500 meters resulting in issuance of inaccurate certificates.

4.2.2 Mining vehicles damaging approach road

To avoid any adverse impact of mining operations on village and habitations surrounding the leases, MoEFCC directed (October 2014) that no road movement shall be allowed on existing village road network without appropriately increasing the carrying capacity of such roads by the Project Proponents. The EIA conditions require conduct of transportation study as per Indian Road Congress (IRC) Guidelines for assessing the impact (like projected increase in truck traffic, capability of road network in handling incremental load) of mining projects on local transport infrastructure.

During JPV with Engineers of Rural Works Divisions, Audit noticed that approach roads to the mines were originally village roads, constructed under the Pradhan Mantri Gram Sadak Yojana (PMGSY) or other schemes. As per IRC, the PMGSY roads were designed considering a low volume of traffic, hence, commercial vehicles (mining vehicles) with laden weights of up to 40 tonnes were not fit for these roads.

During JPV of village roads in four blocks[95] (where mines and crushers were concentrated) of Chatra and Palamu districts, 12 PMGSY roads which were constructed during December 2017 to July 2022 with an expenditure of ₹ 39.74 crore[96] were found completely/partly damaged after one to five years from date of construction due to operation of heavy mining vehicles. During JPVs in other four test checked districts[97] also, Audit noticed damaged approach roads in the periphery of five to 10 km of mines and crushers.

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94 Lessee code- 0620549801, Khata no. 3, Plot no. 79(P), Khata no. 18, Plot no. 194(P), Khata no. 11, Plot no. 198(P), Mauza- Belbhadri, Circle- Mandro, lease period 30.03.2016 to 29.03.2026.

95 Tandwa and Hunterganj blocks of Chatra (six PMGSY roads of ₹ 9.64 crore, Satbarwa and Chattarpur blocks of Palamu (six PMGSY roads of ₹ 30.10 crore).

96 As per the records of Rural Works Department.

97 Chaibasa, Dhanbad, Pakur and Sahibganj.

Picture-4.37: Showing completely damaged PMGSY road in mining area (due to plying of heavy mining vehicles) in Chatra and Palamu districts

(Link road to NH 75 to Sehra), Length-2.9 km, Satbarwa Palamu (JPV date 19 May 2023)

(Link road from Tulsipur to Bishunpur connecting NH 99) Length-6.10 km, Hunterganj, Chatra (JPV date 17 June 2023

4.2.3 Beneficiaries response on impact of mining activities

During the beneficiary survey conducted between November 2022 and October 2023, Audit enquired about the impact of mining activities, and responses obtained from beneficiaries (597) are summarized as under;

- Eighteen *per cent* (106) stated that mining activities were being performed within a distance ranging from 100 to 200 meter from their community/private assets (like school, temple, houses *etc*.).
- Thirty-three *per cent* (194) stated that their community assets (like road, ponds, playground *etc*.) were damaged due to mining activities and complained that no project had been taken up for reconstruction of destroyed assets.
- While 29 *per cent* (171) stated that mining activities provided them employment, 68 *per cent* (407) complained that quality of life had deteriorated due to damage to environment, destruction of agricultural field, lowering of water table, damaged roads and the absence of any restoration works.

4.3 Transportation of minerals

As per Rule 5 (ii) of Jharkhand (Prevention of Illegal Mining, Transportation and Storage) Rules, 2017 (notified on 27 January 2018), dealers/ lessee (as deemed dealer[98]) were required to register their mineral carrying vehicles (MCV) in JIMMS portal with their RFID/GPS or any other vehicle tracking details within 60 days of getting dealer registration.

[98] If a person is holding a valid mining lease granted under the Mineral Concession Rules, 1960, 2016 or JMMC Rules, 2004 & amended from time to time framed under the MMDR Act shall be exempted to register as a dealer for the same lease and minerals. However, he will be treated as deemed dealer for the purpose of these rules.

Further, as per the Rules, the transportation of mineral/ore was to be done in the following manner.

Rule 9(i and ii) and 10(ii)(a)- Lessee/Dealer shall apply for transit permit for transportation of mineral/ore from a particular stack to various consignees in Form C/C1 through JIMMS along with payment of royalty in advance.

Rule 9(iii) and 10(ii)(b)- DMO shall approve/reject Transit Permit (C2) to Lessee/Dealer duly generated through JIMMS after getting verification of stack/grade of mineral applied for within 15 days from the receipt of the application.

Rule 10(v)(a)-Transport of mineral/ore was to normally pass through check gate/weighbridge to verify the quantity moved. Wherever there was no facility of weighment, verification was to be done through volumetric measurement.

After approval of transit permit (a unique number) in (C2) for a particular stack, the Lessee/Dealer was to fill requisite information to generate Transport challan in Form D (a unique number) through JIMMS for transportation of minerals/ore (number of challans against a transit permit depends upon the total quantity approved in transit permit for a particular stack to be dispatched).

Carrier is required to comply with the information with regard to the locaction and time limits specified in the transport challan.

Source: Rules 9 and 10 of Jharkhand (Prevention of Illegal Mining, Transportation and Storage) Rules, 2017.

4.3.1 Non-provision of RFIDs/GPS in MCVs

As per the vehicle status report in DMG website, 72,449 vehicles were registered as of 28 March 2023, but none of these vehicles was equipped with RFID/GPS or any other vehicle tracking system even after lapse of five years.

During test-check, Audit observed cases where MCVs registered with DMGs were not equipped with RFID/GPS or any other vehicle tracking system, transporting challans were not captured in JIMMS, multiple challans were generated with unrealistic details *etc*. These cases which indicate absence of a robust system for transportation of minerals, have been discussed in the succeeding paragraphs.

4.3.1.1 Unregulated transportation of minerals

Rule 10(v)(a) of Jharkhand Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2017 provides that all transport of Minerals/ores will normally pass through check-gate/weighbridge of the Department and /or approved by the Department. The quantity moved will be verified through designated check gate/weighbridge.

- Audit conducted JPV of premises of 29 dealers[99] along with DMG officials in all six test checked districts. It was noted that in 20 out of 29 dealer premises,[100] weighbridges were installed however, only seven dealers provided the weighbridge report[101] for the period August 2022 to July 2023. In the absence of these Reports, Audit could not compare transporting challans with the weighbridge reports in the remaining 13 cases to ascertain illegal transportation of minerals.

- Audit compared information available in weighbridge reports (like vehicle number, date of weighment, weighment of mineral) with date wise challans available in JIMMS for respective vehicles in case of seven dealers of two districts (Palamu and Sahibganj). Comparison of these two information is detailed in **Table-4.8**.

Table-4.8: Comparison between weighment of vehicle as per weighbridge reports and transporting challans available at JIMMS

Weighbridge report v/s JIMMS Challans	Type of vehicles	Total number of vehicles	Total number of trips	Total weight of mineral transported (in MT)
Vehicle number matched with JIMMS (transporting challans available) (1)	Truck, Hyva, Dumper	280	720	18,318.85
Vehicle number not matched with JIMMS (transporting challans not available) (2)		234	1,614	22,442.04
Vehicle number not mentioned in weighbridge reports (transporting challans not available) (3)	Tractor	N/A	2,615	11,524.42
Total (2+3)			**4,229**	**33,966.46**
Grand Total (1+2+3)		**514**	**4,949**	**52,285.31**

Source: Data of seven dealers of two districts (Palamu: period August 2022 and December 2022 and Sahibganj: July 2023).

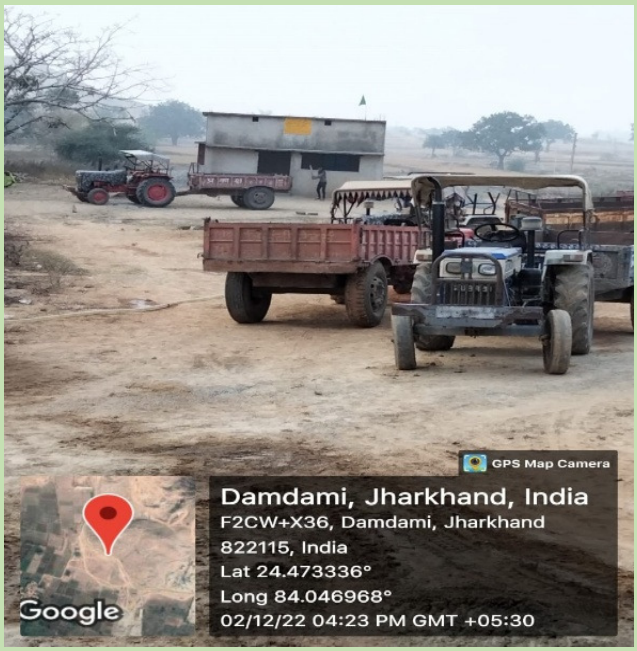
[99] According to the Jharkhand Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2017, a dealer is defined as any person engaged in purchasing, storing, selling, transporting or processing minerals for commercial gain within the State.

[100] District (Dealer/weighbridge installed) Chaibasa: 4/2, Chatra: 5/1, Dhanbad: 5/5, Palamu: 8/6, Pakur: 2/1 and Sahibganj: 5/5.

[101] Report containing the weighment results of vehicles, carrying minerals for a specified period.

The above table indicates that out of a total of 4,949 trips made by vehicles carrying 52,285.31 MT of stone-chips/boulders, only 720 trips (14.55 *per cent*) with a load of 18,318.85 MT (35 *per cent*) had corresponding transporting challans issued through JIMMS for 280 registered vehicles.

Audit scrutiny revealed that for 4,229 trips out of 4,949 trips where JIMMS challans were unavailable, the vehicles carried 33,966.46 MT of stone chips/boulders/dust out of which 11,524.42 MT was transported on other vehicles, for which registration number was not mentioned in weighbridge reports (like tractors as shown in **Picture-4.38**), indicating utilisation of unauthorised vehicles in transportation of minerals.



Picture-4.38: Tractor with no registration number parked outside Lessee/Dealer (lessee code- 0411722401) at Damdami, Palamu

Transportation of minerals without valid challans and use of unregistered vehicles for transporting minerals occurred because all trips made by vehicles were not weighed at the weighbridge and not recorded in JIMMS. Consequently, this raised the risk that dealers were unlawfully dispatching stone chips and stone dust without proper challans, and evading payment of royalty on these minerals.

➢ During JPV with DMG officials, the team observed 28 trucks loaded with stone within the lease/dealership areas across four districts. Audit verified the transporting challan records for these vehicles on JIMMS and noticed that challans for 17 out of 28 vehicles (61 *per cent*) were not available in JIMMS. The unauthorised movement of minerals by vehicles without valid challans indicated illegal transportation and highlighted loss of revenue to the government exchequer.

Picture-4.39: Loaded trucks (with boulder) inside lease area without challans

Loaded truck (JH09S3915) within lease area of M/s Shree Guru Stone Works, Sahibganj

Loaded truck (JH03T1494) within lease area of MCC Mahadeo Construction Pvt. Ltd, Palamu

➢ Transportation challans generated through JIMMS contain important information like address of seller and purchaser of minerals, type and quantity of mineral transported, place of delivery, vehicle number and its route, distance of delivery, period of validity of challans *etc*. However, there was no system in JIMMS to ascertain the completion of delivery of minerals at designated place within the validity period of the challans.

An examination of randomly selected 102 transportation challans available on JIMMS, issued between September 2021 and March 2023, involving four test-checked districts[102], revealed that:

- In case of 28 vehicles, 35 initial challans were followed by 50 additional challans that were issued before the expiry of the previous challans. These subsequent challans were issued with a time gap ranging from 11 minutes 34 seconds for making delivery at a distance of 20 km to 1 hour 41 minutes 41 seconds for distances of 250 kms for the same vehicles which appears unrealistic.
- In five cases, it was observed that these vehicles were in operation on two or three different routes on the same date, with time differences ranging from 19 minutes 27 seconds to 2 hours 6 minutes 50 seconds. Despite the distances between the places of dispatch for the first and succeeding routes ranging between 105 km to 299 km, these vehicles were recorded as being in operation.

In both cases, there were chances of misutilisation of challans. These irregularities indicate that JIMMS lacked the necessary security measures to generate valid challans. Moreover, inadequate monitoring mechanism to distinguish vehicular movements with or without valid challans rendered the transportation system through challans generated from JIMMS ineffective.

[102] Chatra, Dhanbad, Pakur and Palamu.

Audit observed that merely registering vehicles with DMG and issuing transporting challans through JIMMS were insufficient to detect illegal transportation. A more robust system integrating vehicle tracking system, check gates equipped with CCTV cameras, installation of weighbridges (with CCTV cameras) within lease/dealer areas, and generation of real-time challans through JIMMS during weighment was required.

4.3.1.2 Illegal transportation of minerals

Audit noticed instances of (i) misutilization of transporting challans for transportation of stone extracted illegally from an area other than the area under lease, and (ii) transportation of closing stock of stone lying at quarry site of the expired leases, without transit permit/ challan. Such transportation attracted penal action like recovery of value at double the price of minerals, under Rule 54(6) of JMMC Rules, 2004.

- As per JIMMS data, a lessee in Dhanbad, obtained transporting challans for dispatch of 1,98,950 cft. of stone boulder during 2016-18 and after that continuously maintained a closing balance of 1,63,625 cft. without any further production/dispatch of stone. Audit conducted JPV (June 2023) and noticed that land was unbroken and no mining activities had ever been carried out over the leased area. Thus, the lessee mis-utilised transporting challans for transportation of 1,98,950 cft. (5,633 m^3) of stone boulder illegally extracted from somewhere else. Thus, lessee was liable to pay penalty amounting to ₹ 35.26 lakh[103] for illegal transportation of 5,633 m^3 of stone boulder under the provisions of Rule 54 of JMMC Rules, 2004.

- Further, in Pakur district two leases had expired on 31 December 2019 and 31 March 2020 having closing balance of stock of 32,57,500 cft. (one case: stone metal: 11,46,580 cft. and stone boulder: 13,76,770 cft. and another case: stone boulder: 7,34,150 cft.). The possession of leasehold had not been taken over by the DMO in the first case while in the second case, it was surrendered by the lessee to DMO. Audit observed (during JPV conducted on 13 October 2023) that only 2,11,890 cft., of stone metal and 2,00,000 cft. of stone boulder were lying within the lease area in the first case, whereas, in the second case, no stone metal/boulder (during JPV conducted on 07 October 2023) was lying at the quarry site. As the lessee in the first case, illegally transported 21,11,460 cft/ 59,789 m^3 (9,34,690 cft. of stone metal and 11,76,770 cft. of stone boulder) from leasehold area, he was liable to pay penalty of ₹ 3.74 crore under the provisions of Rule 54 of Rules *ibid* but the same was not imposed by the DMO. Besides, DMO also could not prevent removal of 7,34,150 cft. or 20,789 m^3 of stone boulder worth of ₹ 65.07 lakh from the surrendered quarry site in the second case.

[103] At the rate of ₹ 626 per m^3.

4.4 Recommendations

The Government may:

- ***formulate a manual for appraisal of Mining Plans on minor minerals in line with the Indian Bureau of Mines (IBM) Manual on appraisal of Mining Plan (2014), to establish a standardized procedure for processing, examination and scrutiny of Mining Plans;***
- ***ensure submission of kml files of lease area created through Differential Global Positioning System (DGPS) survey alogwith the Mining Plans, ensure submission of these files to SEIAA, update repository of kml files thereon for monitoring through satellite imagery and enforce the progressive mine closure plan as proposed in the MPs. Also ensure that a final mine closure plan is submitted by lessees, and approved by the District Mining Officers (DMOs) for its implementation;***
- ***conduct detailed investigation to work out the exact volume of under-reported minerals extracted and make provisions in JMMC Rules, 2004 in line with Rule 34A of Mineral Conservation and Development Rules (MCDR), 2017 for carrying out drone survey of minor mineral leases throughout the State for checking instance of excess excavation by lessees and imposing penalties accordingly;***
- ***establish inter-departmental coordination among DMG, Ministry of Environment, Forest and Climate Change, State Environment Impact Assessment Authority, Central Ground Water Board and Jharkhand State Pollution Control Board for compliance of conditions of MPs and ECs;***
- ***implement system for periodic survey for identification and reconstruction/restoration of damaged assets due to mining activities;***
- ***implement a comprehensive system by integrating all aspects of transportation of minerals (weighing, tracking, monitoring etc.) to effectively monitor and plug illegal transportation of minerals; and***
- ***ensure installation of weighbridges in dealer/lease areas with facilities for authentically fetching weighment data for transporting challans on a real-time basis.***