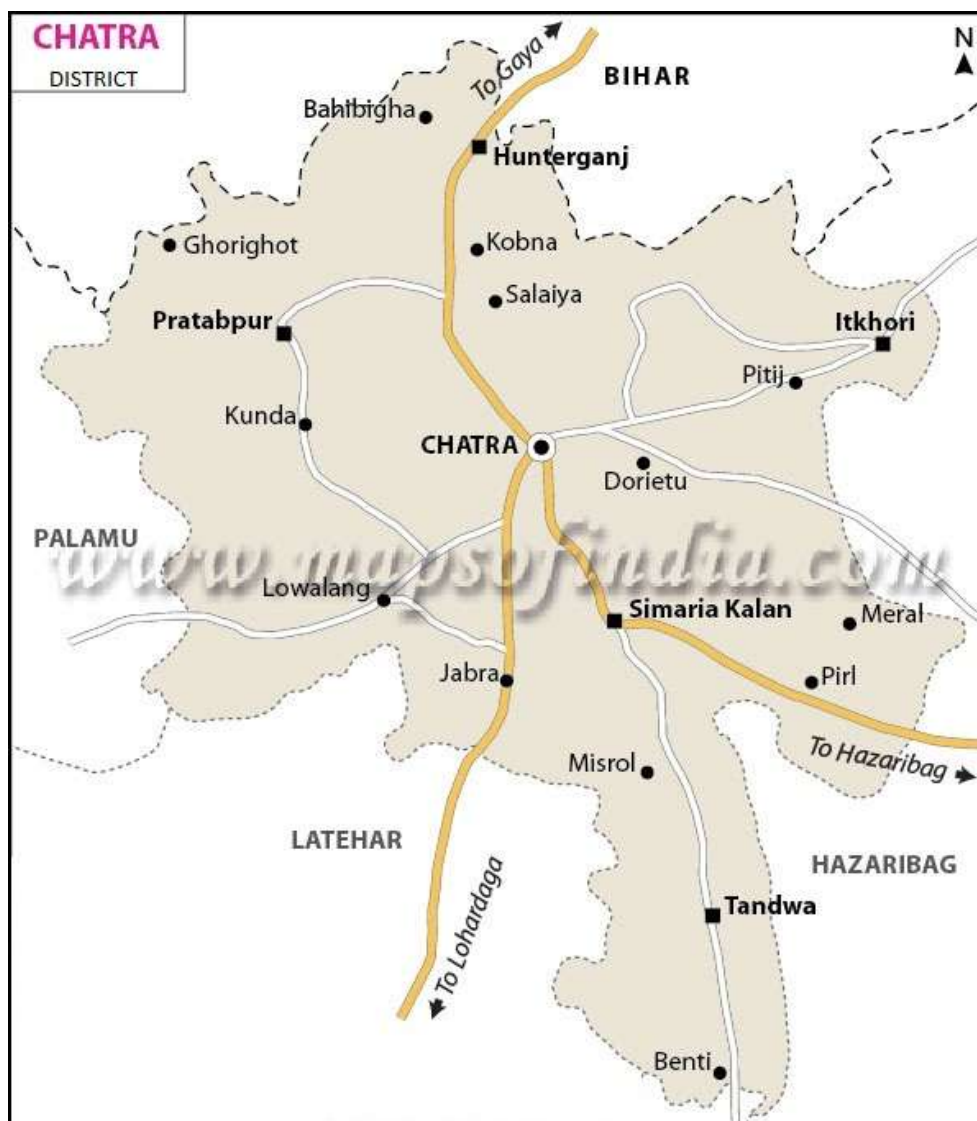


DISTRICT SURVEY REPORT FOR SAND IN CHATRA DISTRICT OF JHARKHAND

As per notification No. S.O. 141 (E) New Delhi,
the 15th January, 2016 of Ministry of Environment,
Forest and Climate Change, Govt. of India.



PREFACE

In compliance to the notification issued by the Ministry of Environment, Forest and Climate change dated 15.01.2016, the preparation of District Survey Report of River Bed Mining and other minor minerals is in accordance appendix 10 of the notification. It is also mentioned here that the procedure of preparation of District Survey Report is as per notification guidelines. Every effort has been made to cover sand mining locations, areas and overview of mining activity in the district with all its relevant features pertaining to geology and mineral wealth in replenish able and non replenish able areas of rivers, stream and other sand sources. This report will be a model and guiding document which is a compendium of available mineral resources, geographical set up, environmental and ecological set up of the district and is based on data of various departments, published reports, websites. The data may vary due to flood, heavy rains and other natural calamities. Therefore, it is recommended that Sub-divisional level committee may take into consideration all its relevant aspects / data while scrutinizing and recommending the application for EC to the concerned authority.

MEMBERS IN DISTRICT SURVEY
REPORT COMMITTEE



GEOLOGIST
PALAMAU CIRCLE



DISTRICT MINING OFFICER
CHATRA



EXECUTIVE ENGINEER
MINOR IRRIGATION
CHATRA



DFO
CHATRA, SOUTH
DIVISION



DFO
CHATRA, NORTH
DIVISION



DEPUTY COMMISSIONER
CHATRA

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CHAPTER-1

1.0 INTRODUCTION

1.1 ADMINISTRATIVE DETAILS

Chatra, as a district was created through bifurcation from Hazaribag district in 1991. It falls in the Western part of Northern Chotanagpur division of Jharkhand State. Spread over an area of 3718 sq. km, it is bounded between 23°38'34'' - 24°27'48'' North latitudes and 84°26'50'' - 85°23'41'' East longitudes. It is bordered by Gaya district of Bihar State in the North, Palamu district in the West, Hazaribag and Koderma in the East and Latehar in South West and Ranchi in the South.

Historically, Chatra had been administrative headquarters of Chotanagpur region for 53 years from 1780 till 1883. Raja Ram Mohan Roy, the great social reformer and herald of modern India had worked as a Deputy Registrar from the year 1805-06 A.D at Chatra. It became sub-division of Hazaribag district later in 1914 and formed as a separate district in 1991.

Currently, the district has two sub-divisions – Chatra and Simaria; and 12 blocks viz. Hunterganj, Pratappur, Kunda, Lawalong, Chatra, Kanhachatti, Itkhor, Mayurhand, Gidhour, Pathalgada, Simaria, Tandwa.

1.2 PHYSIOGRAPHY

Since the district consists of part of Upper Hazaribag plateau and Lower Hazaribag plateau and northern scarp, it presents diverse physiographic features. It has an elevation of about 450 m. Kalua hill and Lahabar hill forms the higher elevations of the district. Due to scarp landforms some waterfalls are observed in the district. The general slope of the district is from north to south.

1.3 GEOLOGY

Geologically, the area is comprised with Archean granites and gneisses. In southern part of the district, Gondwana rock formations occur in patches. Overall, the geological formations of Chatra can be have been grouped under three main categories:

1. The gneissic complex in the southern and the central part
2. The Rajmahal traps in the eastern and south-eastern part

3. Gondwanas overlain by thin mantle of alluvial cover in the northern and central part.

1.4 DEMOGRAPHICS

According to the 2011 census Chatra district has a population of 1,042,304 roughly equal to the nation Cyprus or the US state of Rhode Island. This gives it a ranking of 434rd in India (out of a total of 640). The district has a population density of 275 inhabitants per square kilometer (710 / sq mi). Its population growth rate over the decade 2001-2011 was 28.98 %. Chatra has sex ratio of 951 females for every 1000 males, and a literacy rate of 62.14 %.

1.5 DRAINAGE

The principal rivers of the district are Barki, Chako, Lilajan, Damodar and Garhi. The general slope of the district is North to South. The general trend of the drainage is from SE-NW. The structural features particularly the foliation and joints exert profound impact upon the drainage and control the drainage pattern of the district.

CHAPTER-2

2.0 HYDROMETEROLOGY

2.1 RAINFALL

The district falls in the rain shadow of the Santhal Pargana plateau. The average annual precipitation is 1250 mm and the average number of rainy days is 59. Even this meager precipitation is erratic which coupled with long interspell forces the district to suffer from drought.

Rainfall data (mm)

Months	2012	2013	2014	2015	2016	2017
Jan.	14.43	0.00	0.00	0.00	9.58	8.25
Feb.	5.46	0.00	31.25	0.00	0.00	0.00
Mar.	0.00	0.00	20.40	0.00	13.40	3.22
Apr.	8.05	1.65	0.00	6.55	0.00	0.00
May	0.00	23.65	86.48	0.06	32.82	18.07
June	65.71	69.83	103.42	132.00	57.80	41.41
July	271.03	144.75	223.70	367.00	263.80	407.70
Aug.	251.78	218.97	227.04	226.20	473.80	218.20
Sept.	93.25	80.80	141.40	64.60	274.20	-
Oct.	8.25	201.09	31.68	0.93	19.10	-
Nov.	42.51	0.00	0.00	0.00	0.00	-
Dec.	0.00	0.00	0.00	0.00	0.00	-
Total	760.47	740.74	865.37	797.34	1144.5	-

Source: - Agriculture Deptt. Chatra

2.2 CLIMATE

The district receives an annual rainfall of 1250 mm. and most of the rainfall occurs during the rainy season. During winter season the area receive 1to 2 mm rainfall. The mean annual temperature remains about 25°C but in

summer season it reaches upto 46°C and in winter season it comes down to 3 to 5°C.

CHAPTER-3

3.0 GEOMORPHOLOGY AND SOIL TYPES

3.1 GEOMORPHOLOGY

Chatra has a rolling topography marked by isolated hills and valleys. The general slope of the district is from North to South with an average elevation of 450 m. Since the district consists of part of Upper & Lower Hazaribag plateau and northern scarp, it presents diverse physiographic features.

The northern most part of the district bordering Bihar is a low-lying area and most suitable for agriculture. Just to the south of this plain region is Kalua and Lahabar hills that forms the higher elevations of the district. These hills fall in northern blocks namely Hunterganj, Pratappur, Kunda and Lawalong. They are covered by dense forests and are hot-bed for Left wing Extremist activities. The middle and southern regions of the district are a part of Chotanagpur plateau. These regions have an undulating terrain with a mix of up, medium and lowlands. The scarp landforms of the district gave rise to scenic waterfalls. Tamasin Waterfalls in Kanhachatti block is a famous tourist spot that has been formed due to scarp landform

3.2 SOIL

The soils occurring in different landforms have been characterised during soil resource mapping of the state on 1:250,000 scale (Haldar et al. 1996) and three soil orders namely Entisols, Inceptisols and Alfisols were observed in Chatra district. Alfisols were the dominant soils covering 52.2 % of TGA followed by Entisols (33.9 %) and Inceptisols (13.0 %).

3.3 LAND USE PATTERN

The major portion of the district is covered by forest (60.4 % of TGA) and has scattered settlement pattern. The forest is full of variety of medicinal plants, kendu leaves, bamboo, sal, teak and other timber species. The district has considerable flat land, which provide suitable site for agricultural use. The

DISTRICT SURVEY REPORT OF CHATRA DISTRICT, JHARKHAND STATE

hilly areas are mostly under forest with patches of cultivation on scarp areas. Major crops grown in the district are rice, wheat and pulses. Only 12.21% area of agricultural use are net irrigated and major source of irrigations are well and tubewells.

Land Use in Chatra District

Sl.No	Land Utilization	Area (ha)
1	Mining	17275 (approx)
2	Forest	221117.35
3	Fallow land	33800.00
4	Land not available for cultivation	25749.00
5	Cultivable Land	107568.00

CHAPTER-4

4.0 GROUND WATER SCENARIO

4.1 HYDROGEOLOGY

The southern part of the district is underlain by Granite-gneiss of Achaean age forming the basement. These occur as large batholiths and are intruded by basic rocks. In the central and northern part of the district the rocks of Barakar formation consisting of feldspathic sandstones, shales and coal seams overlying the metamorphic are exposed. In the western and northern part of the district alluvial cover of moderate thickness, caps the Archaean crystallines and the Gondwana sedimentaries.

The district is underlain by diverse geological formations with complex tectonic framework. The geological formations have been grouped under three main categories

- a) The gneissic complex in the southern and the central part
- b) The Rajmahal traps in the eastern and south-eastern part
- c) Gondwanas overlain by thin mantle of alluvial cover in the northern and central part.

Ground water occurs mostly under phreatic condition in all the lithological units within the shallow aquifers and locally under semiconfined and confined condition in deeper aquifers. Hydrogeological map is shown in Fig below.

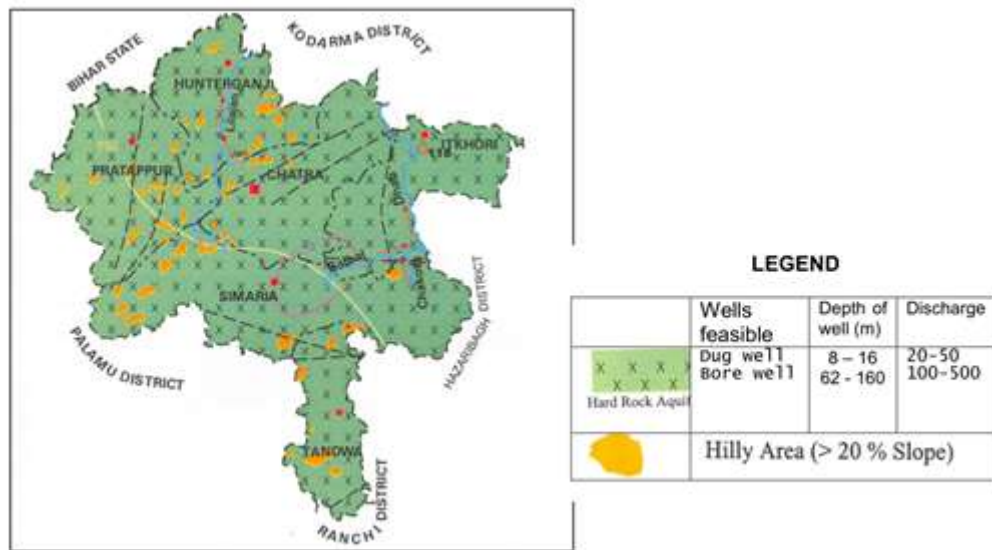
4.2 PROCESS OF DEPOSITION OF SAND/SEDIMENTS IN THE RIVERS OF THE DISTRICT

There are some important factors which are responsible for the process of sedimentation in a river basin. These are the stage of river development (the infant, youth, mature or old stage), lithology and structures of the upstream region or provenance from where sediments eroded/migrated/travelled, geomorphology and gradient of provenance, anthropogenic activities such as mining, industrialization and mega engineering projects such as Dam also affects the process of sedimentation and the thickness of the sequence is determined by the depth of the stream channel during flood stage and is related to the size of river itself. The deposition in a river bed is more pronounced during rainy season although the quantum of deposition varies from stream to stream depending upon numbers of factors such as catchment area, lithology of the area, discharge, river profile and geomorphology of the river course. The

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annual deposition of sediments is almost two meters. It is noticed that during rainy season whole of the pit so excavated is completely filled up by the sand.

Hydrogeological map ((Source- Central Ground Water Board)



CHAPTER-5

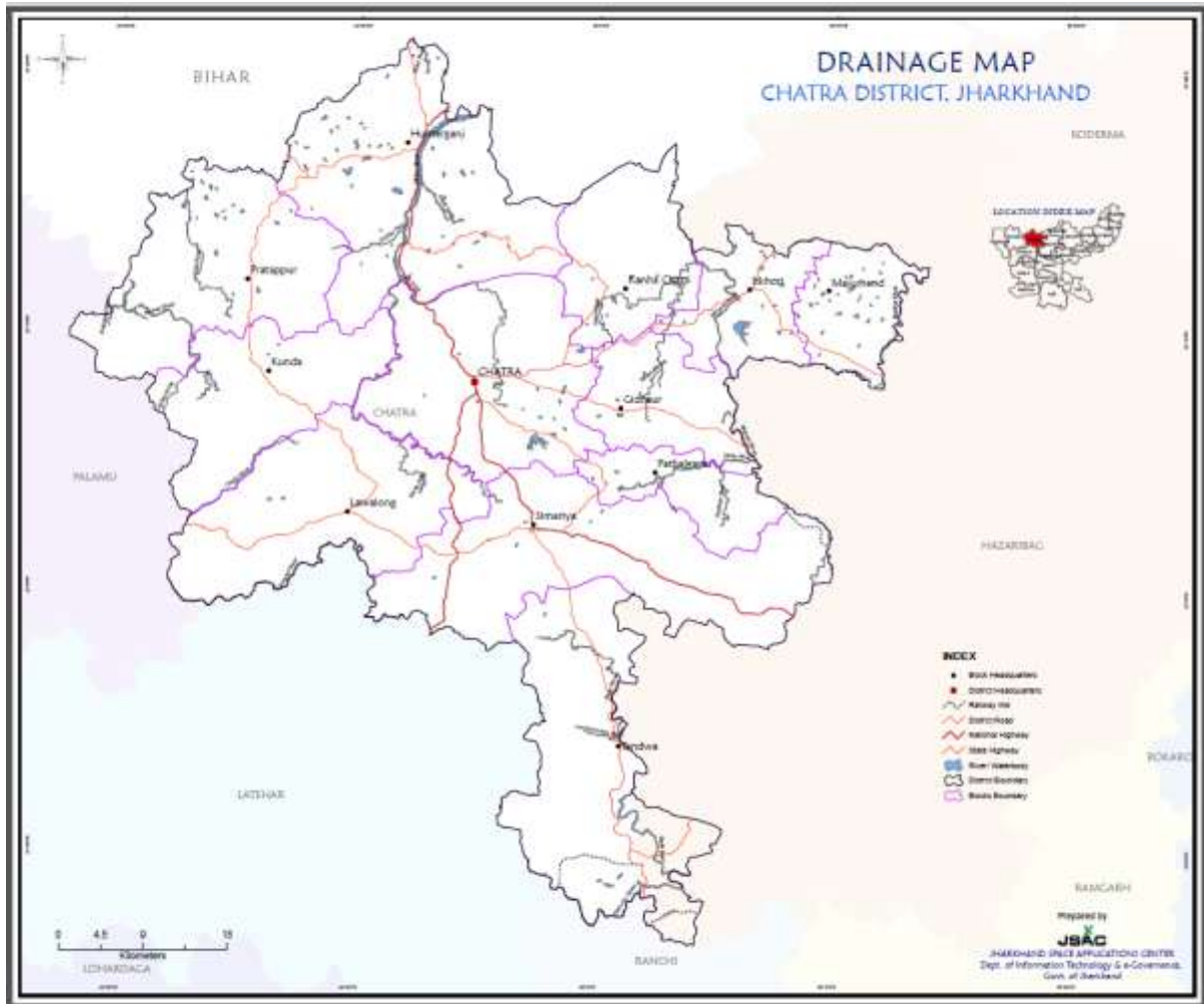
5.1 DRAINAGE SYSTEM WITH DESCRIPTION OF MAIN RIVERS

S. No.	Name of the River	Area drained (Sq. Km)	% Area drained in the District
1	AlhaNadi	0.52	0.014
2	Amanat River	4.71	0.127
3	AmjharNadi	9.40	0.253
4	AmjharwaNala	2.41	0.065
5	Barakar River	2.94	0.079
6	Barki River	2.47	0.066
7	Basane River	1.57	0.042
8	Chako River	2.13	0.057
9	ChakoraNadi	0.69	0.018
10	Damodor River	19.47	0.523
11	Dhab River	1.82	0.049
12	Dohi River	1.43	0.039
13	Domuhan River	0.51	0.014
14	DulkiNadi	2.41	0.065
15	Gahri River	1.48	0.040
16	GarhiNadi	3.65	0.098
17	Ghari River	0.36	0.010
18	GolaiNadi	9.40	0.253
19	Hatbar River	0.35	0.010
20	Jam River	1.67	0.045
21	Kadra River	0.68	0.018
22	Lilajan River	9.40	0.253
23	MajhesawadahNala	0.15	0.004
24	Mohana River	4.32	0.116
25	Mohani River	1.38	0.037
26	Morhar River	2.41	0.065

5.2 SALIENT FEATURES OF IMPORTANT RIVERS AND STREAMS.

S.No.	Name of the River or Stream	Total Length in the District (in km)	Place of Origin	Altitude at Origin (In metre)
1	AlhaNadi	7.86	--	--
2	Amanat River	49.29	Murbe	560
3	AmjharNadi	9.42	Tikadhar	380
4	AmjharwaNala	3.91	--	--
5	Barakar River	19.21	Manjhladih	600
6	Barki River	23.23	Marangi	562
7	Basane River	26.31	Kendua	472
8	Chako River	21.39	--	--
9	ChakoraNadi	9.14	--	--
10	Damodor River	14.96	--	--
11	Dhab River	24.30	Simriya	560
12	Dohi River	21.06	Dari	400
13	Domuhan River	7.87	Dalkoma	260
14	DulkiNadi	0.75	Chakla	220
15	Gahri River	24.01	--	--
16	GarhiNadi	24.77	Tilra	629
17	Ghari River	3.68	Pipra	324
18	GolaiNadi	8.48	Kurkheta	434
19	Hatbar River	7.32	Sildag	400
20	Jam River	32.85	GhagraTandtola	460
21	Kadra River	10.99	TarhiMahaua	
22	Lilajan River	75.18	Simarya	
23	MajhesawadahNala	2.79	--	--
24	Mohana River	26.05	Piri	640
25	Mohani River	23.53	--	--
26	Morhar River	19.30	--	--

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CHAPTER-6

6.0 OVERVIEW OF MINING ACTIVITIES

Sand is the basic raw material for its utilization in any development activity throughout the world. Sand is primarily produced from mining operations on the surface of the earth, near the river beds and the sand quarrying below the surface of earth. In the earlier time the mud houses/buildings were constructed with the use of mud. However, with the passage of time, new technique of development activities was started. As such the demand of Minor Mineral started on an increasing trend. In order to meet the requirement of raw material for construction, the extraction of sand carried out manually/semi-mechanized process from the river beds. The production of aggregate area is a function of the availability of natural resources, the size of population, the economy of the area and various developmental and infrastructural works being undertaken in the area like road construction, hydroelectric projects etc. Further, being a low- value, high-volume mineral commodity, the prices are dramatically affected by transportation distances. If the distance increases, the transportation cost may increase much more than the cost of the aggregates.

6.1 PRODUCTION & ROYALTY

Details of Production of sand in last three years

Year	Sand Production (in MT)
2015-16	0.00
2016-17	698646.00 approx
2017-18	351174.00 approx
Total	1049820.00

Details of Royalty in last three years

Year	Royalty (Sand) (in Rs.)
2015-16	42697316.00
2016-17	9318660.00
2017-18	492600.00
Total	52508576.00

6.2 LIST OF CIRCLE WISE SETTLED SAND GHAT IN CHATRA DISTRICT

Circle - Hunterganj

Sl No.	River Name	Name of Panchyat	Name of Lessee	Mouja	Khata No.	Plot No.	Area	Period
1	2	3	4	5	6	7	8	9
01	Lilajan	Gosaidih	Sri Shakti Singh	Pindrakala Nagar Pinari Suggi	17 35 31 74	437 to 439 251(p) 302(p) 566	7.00 10.00 5.00 6.00	04.03.16 to 03.03.19
02	Lilajan	Khutikewal- Khurd	Puja Enterprises	Dumrikhurd Khutikewal- khurd	119 59	268,269 285	23.25 10.25	28.01.16 To 27.01.19
03	Lilajan	Dumrikala	Munnasingh	Dumrikala	94	656	21.00	04.03.16 to 03.03.19
04	Lilajan	Kedali	Munnasingh	Garhkedali	25	01	07.00	04.03.16 to 03.03.19
05	Lilajan	Kataiya	Sahay Construction	Boda Ghanghari	85 99	389(p) 01/616	6.00 12.00	04.03.16 to 03.03.19

Circle - Tandwa

Sl No.	River Name	Name of Panchyat	Name of Lessee	Mouja	Khata No.	Plot No.	Area	Period
1	2	3	4	5	6	7	8	9
01	Gerua	Gadilong	Premchand Singh	Gadilong	161	1120	15.20	04.03.16 to 03.03.19
02	Garhi	Bahera	Sahay Construction	Suraiya (Chourra)	16	01(p)	12.25	29.02.16 to 28.02.19
03	Ursu	Kasiyadh	SurajUraw	Kamudangkala	116	586	6.30	04.03.16 to 03.03.19

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Circle – Itkhori

Sl No.	River Name	Name of Panchyat	Name of Lessee	Mouja	Khata No.	Plot No.	Area	Period
1	2	3	4	5	6	7	8	9
01	Mohane	Dhuna	Ranjeet Singh	Katua	26	168	14.06	04.03.16 to 03.03.19
02	Mohane	Tonatand	Ranjeet Singh	Nagwa Hathiya	07 45	539 01	5.75 27.00	04.03.16 to 03.03.19
03	Mohane	Itkhori	Rajeet Singh	MohaneBalu ghat	162 --	560 (p) 560(p)	13.88 <u>20.00</u> 33.88	---

6.3 LIST OF CIRCLE WISE UNSETTLED SAND GHAT IN CHATRA DISTRICT

Circle - Simriya

Sl No.	River Name	Name of Panchyat	Name of Sandghat	Mouja	Khata No.	Plot No.	Area
1	2	3	4	5	6	7	8
01	Amanat Nadi	Jabra	Hukarkhap	Hunkarkhap	--	--	

Note:- No deposit of sand in Hukarkhapbalughat at Jabra panchayat.

Circle - Tandwa

Sl No.	River Name	Name of Panchyat	Name of Sandghat	Mouja	Khata No.	Plot No.	Area
1	2	3	4	5	6	7	8
01	Utradhi	Kalyanpur	Laranga	Laranga	--	--	1.88

Note – Requisite fee for EC has not been Not submitted by Auction holder Sri Syamsundersingh. Hence, EC is Pending With DEIAA, Chatra

6.4 LIST OF CIRCLE WISE CANCELLED SAND GHAT IN CHATRA DISTRICT

Circle - Hunterganj

Sl No.	River Name	Name of Panchyat	Name of Sandghat	Mouja	Khata No.	Plot No.	Area
1	2	3	4	5	6	7	8
01	Lilajan	Jori	Jorikalan	Jorikalan	267	1168 , 1173	36.00
02	Kandar	Jori	Vansingh	Vansingh	267	1174	8.80
03	Lilajan	Salaiya	Jorikhurd	Jorikhurd	68	01	18.00
04	Zamnadi	Salaiya	Bhuiyadih	Bhuiyadih	02	12 , 28	20.40

Circle - Tandwa

Sl No.	River Name	Name of Panchyat	Name of Sandghat	Mouja	Khata No.	Plot No.	Area
1	2	3	4	5	6	7	8
01	Barki	Tandwa	Tandwa	Tandwa	222	1983	6.00
02	Damodar	Kichato	Piparwar	Piparwar	39	534, 632, 649, 663(p)	5.00
03	Khadiya	Kabra	Sisai	Sisai	115	1050	3.50
04	GarhiNadi	Raham	Laranga	Laranga	-	118 (p)	2.00

Circle – Itkhori

Sl No.	River Name	Name of Panchyat	Name of Sandghat	Mouja	Khata No.	Plot No.	Area
1	2	3	4	5	6	7	8
01	Basane	Itkhori	Gulli	Gulli	155	2376	03.76

Note :- The Bidder Mr. Sitaram Saw has filled revision application in the court of Hon'ble Mines Commissioner, Ranchi against cancellation of sand ghat.

2. As per Survey, Above sand ghat is within 500m from bridge.

Circle – KanhaChatti

Sl No.	River Name	Name of Panchyat	Name of Sandghat	Mouja	Khata No.	Plot No.	Area
1	2	3	4	5	6	7	8
01	Tatra	Charu	Tatra	Tatra	--	--	10.00

Note :- No deposit of sand in Tatrabalughat at charu panchayat.

CHAPTER-7

7.0 EXPLORATION OF POTENTIAL SAND DEPOSITS

Survey of India Topo sheets are used as base map to know the extent of river course, the district survey report assignments are taken in rainy season, so the approachable and accessible areas have been physically visited. Google Earth software has helped a lot in this survey. In order to calculate the mineral deposits in the stream beds, the mineral constituents have been categorized as clay, silt, sand and boulder. However during present calculation, the waste material i.e silt in different streams has also been included in the total production. The mineral reserves have been calculated only upto 1.5 to 2.5 meter according to River potentiality and mineable depth as per the guidelines of MoEF, although there are some portions in the river beds such as channel bars, point bars and central islands where the annual deposition is raising the level of river bed thus causing shifting of the rivers towards banks resulting in to cutting of banks and at such locations, removal of this material up to the bed level is essential to control the river flow in its central part to check the bank cutting.

7.1 UNSETTLED SAND GHATS OF THE DISTRICT

The sandghats which are neither settled nor sand has been excavated or mined earlier. The possible Un-Settled sandghats of the district has been identified with the help of available data in District Mining office, Circle office, the toposheets, google Earth Software and local People.

Several areas in the district have been searched along the main river/ nalasto identify, demarcate and estimate the potential Sand reserves. Although this District Project Survey project has been taken up in rainy season, due efforts has been taken to collect the faithful data related to the sandghats. Due to inaccessibility and non-approachability the length, width and depth of the sand deposit has been assumed to be so at the site itself.

7.2 METHOD FOR CALCULATION OF RESERVES

For the calculation of total reserves of sand available in the river bed, length, average width and depth of the river bed for which the exploitation is to be carried out /allowed under rule / prevailing instructions of the Govt. was taken into consideration. The volume thus obtained is multiplied with the bulk density which has been assumed as 2. The reserves up to particular datum line i.e 1.5 to 2.5 meter below the surface have been calculated.

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Total reserves of minor minerals (M.T.) = Length x Width x Height i.e Volume x Density.

For the annual replenishment of minor mineral reserves, the average annual mean depth up to which the replenishment of minor mineral takes place annually, has been taken into consideration which depends upon the annual rainfall factor and geology of the catchment area.

Thus, the approximate area for potential Sand deposit would be 882.89Acres under higher stream order(II Category sand ghat as per Jharkhand Sand Mining Policy,2017),may be recommended for Jharkhand State Mineral Development Corporation (JSMDC) which will produce a total sand Production of about 11,92993MT or 5964963M³ every year.

7.3LIST OF UN-SETTLED SAND GHAT IN THE DISTRICT

Circle - Tandwa

Sl No.	Panchayat Name	Name of Sand Ghat (Mouja)	River	Area (Acre)	Length of Deposit (m)	Width of deposit (m)	Depth of deposit (m)	Sp. of Sand	Reserve (MT.)	Reserve (M3)	Order of River	Distance from State Boundary	Distance from Forest Boundary	Remarks
01	Tandwa	Tandwa	Barki	12.00	700	60	2	2	0.168	84000	6th	Above 10 km	In this Mouja, there is no forest land	
02	Gadilong	Gadilong	PanghatwaNadi	4.50	180	40	2	2	0.0288	14400	5th	Above 10 km	In this Mouja, there is no forest land	
03	Raham	Laranga	Barki Nadi	2.20 <u>5.30</u> 7.50	200 255	40 70	2 2	2 2	0.032 0.0714	16000 35700	6th	Above 10 km	60 m	
04	Kichto	Kichto	Gahari	1.50	150	30	2	2	0.018	9000	6th	Above 10 km	490 m	
05	Mishrol	Binglat	BinglatNadi (Barki Nadi)	1.00	75	50	2	2	0.015	7500	5th	Above 10 km	110 m	
06	Mishrol	Khadaiya	Khadaiya (Barki Nadi)	2.00	200	40	2	2	0.032	16000	5th	Above 10 km	In this Mouja, there is no forest land	
07	Kalyanpur	Utradhi	BarkiNadi	4.00	250	50	2	2	0.05	25000	6th	Above 10 km	300 m	
08	Kabra	Sisai	Sisai (Barki Nadi)	1.00	75	50	2	2	0.015	7500	5th	Above 10 km	90 m	
09	Kalyanpur	Dundua	RoriNadi (Gahri Nadi)	2.00	200	25	2	2	0.02	10000	5th	Above 10 km	10 m	
10	Kalyanpur	Dundua	RoriNadi (Gahri Nadi)	2.90	200	45	2	2	0.036	18000	5th	Above 10 km	400 m	

DISTRICT SURVEY REPORT OF CHATRA DISTRICT, JHARKHAND STATE

Circle - Hunterganj

Sl No.	Panchayat Name	Name of Sand Ghat (Mouja)	River	Area (Acre)	Length of Deposit (m)	Width of deposit (m)	Depth of deposit (m)	Sp. of Sand	Reserve (MT)	Reserve (M3)	Order of River	Distance from State Boundary	Distance from Forest Boundary
01	Uraili	Uraili	LilajanNadi	32.50	575	180	2.5	2	0.5175	258750	7th	Within 10Km	1200 m
	Uraili	Larsar	LilajanNadi	28.10	500	140	2.5	2	0.35	175000	7th	Within 10Km	265 m
	Uraili	Pati	LilajanNadi	30.60	450	175	2.5	2	0.39375	196875	7th	Within 10Km	375 m
02	Tarwagaddha	Sokha	LilajanNadi	15.60	300	100	2.5	2	0.15	75000	7th	Above 10Km	350 m
	Tarwagaddha	Sahi	LilajanNadi	25.10	800	85	2.5	2	0.34	170000	7th	Above 10Km	350 m
	Tarwagaddha	Tetariya	LilajanNadi	25.55	950	85	2.5	2	0.40375	201875	7th	Above 10Km	300 m
3	Kedalikala	Garhkedali	LilajanNadi	10.50	250	140	2.5	2	0.175	87500	7th	Above 10Km	400 m
4	Uraili	Dewariya (Dumriya)	LilajanNadi	22.65	500	150	2.5	2	0.375	187500	7th	Within 10Km	400 m
5	Kobna	Kobna& Dumrikala	LilajanNadi	33.45 22.50	600 300	150 225	2.5 2.5	2 2	0.45 0.33	225000 168750	7th	Above 10Km	400 m 560 m
6	Khutikewal kedalikalan	Godovar & Kedalikala	LilajanNadi	59.55	650	325	2.5	2	1.05625	528125	7th	Above 10Km	340 m
7	Tarwagada	Murar	Golai Nadi	18.00	950	70	2.5	2	0.3325	166250	5th	Above 10Km	260 m
8	Painikalan	Lohsighna	LilajanNadi	32.55	900	100	2.5	2	0.45	225000	7th	Above 10Km	260 m
9	Karailibar	Kurid	LilajanNadi	7.30	450	45	2.5	2	0.10125	50625	7th	Above 10Km	264 m
10	Dumarikalan	Dewariya	LilajanNadi	27.00	800	110	2.5	2	0.44	220000	7th	Above 10Km	295 m
11	Karma	Nijra	LilajanNadi	17.84	1100	60	2.5	2	0.33	165000	7th	Above 10Km	0.00
12	Dumrikalan	Bela	LilajanNadi	15.00	400	130	2.5	2	0.26	130000	7th	Above 10Km	290 m
13	Painikalan	Lohsighna Khurd	LilajanNadi	10.22	400	75	2.5	2	0.15	75000	7th	Above 10Km	350 m
14	Kataiya	Kataiya	LilajanNadi	27.40	1150	75	2.5	2	0.43125	215625	7th	Above 10Km	262 m
15	Kataiya	Ghangari	LilajanNadi	21.43	450	150	2.5	2	0.3375	168750	7th	Above 10Km	0.00
16	Kedlikalan	Bihari	LilajanNadi	10.85	250	150	2.5	2	0.1875	93750	7th	Above 10Km	420 m
17	Karailibar	Kewla	LilajanNadi	7.90	340	60	2.5	2	0.102	51000	7th	Above 10Km	165 m

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18	Karma	Banki	LilajanNadi	9.25	200	150	2.5	2	0.15	75000	7th	Above 10Km	390 m
19	Karailibar	Kursel	LilajanNadi	21.76	750	80	2.5	2	0.3	150000	7th	Above 10Km	074
20	Kobna	Kobni	LilajanNadi	13.00	300	100	2.5	2	0.15	75000	7th	Above 10Km	400 m

Circle - Giddaur

Sl No.	Panchayat Name	Name of Sand Ghat (Mouja)	River	Area (Acre)	Length of Deposit (m)	Width of deposit (m)	Depth of deposit (m)	Sp. of Sand	Reserve (MT.)	Reserve (M3)	Order of River	Distance from State Boundary	Distance from Forest Boundary
01		Sinduari Khurd	Basane Nadi	3.50	350	30	2	2	0.042	21000	5th	Above 10 km	0.00
02		Amin	Sugwa Nadi (Gahri River)	4.00	525	20	2	2	0.042	21000	5th	Above 10 km	0.00
03		Duari	Balbal Nadi (Dhab River)	5.00	170	120	2.5	2	0.102	51000	5th	Above 10 km	0.00
04		Duari	Balbal Nadi (Dhab River)	3.30 <u>1.20</u> 4.50	275 125	45 25	2 2	2 2	0.0495 0.0125	24750 6250	5th	Above 10 km	0.00
05		Sinduari Kala	Hadhadwa Nadi (Basane River)	1.70	225	30	2	2	0.027	13500	5th	Above 10 km	0.00
06		Sinduari Kala	Hadhadwa Nadi (Basane River)	2.00	225	30	2	2	0.027	13500	5th	Above 10 km	0.00
07		Peksa	Siwani Nadi	1.50	200	15	2	2	0.012	6000	2nd	Above 10 km	50m
08		Manjhgawan	Basane Nadi	8.00	660	30	2	2	0.0792	39600	5th	Above 10 km	375m
09		Manjhgawan	Basane Nadi	8.00	600	30	2	2	0.072	36000	5th	Above 10 km	0.00
10		Manjhgawan	Basane Nadi	6.00	550	20	2	2	0.044	22000	5th	Above 10 km	130m
11		Manjhgawan	Basane Nadi	7.50	600	35	2	2	0.084	42000	5th	Above 10 km	0.00

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Circle – Pathar Gadda

Sl No.	Panchayat Name	Name of Sand Ghat (Mouja)	River	Area (Acre)	Length of Deposit (m)	Width of deposit (m)	Depth of deposit (m)	Sp. of Sand	Reserve (MT.)	Reserve (M3)	Order of River	Distance from State Boundary	Distance from Forest Boundary
01		Balehar	Dhab River	2.00	170	30	2	2	0.0204	10200	5th	Above 10 km	145m
02		Balehar	Dhab River	6.00	350	45	2	2	0.063	31500	5th	Above 10 km	0.00
03		Tetria	Dhab River	5.00	260	60	2	2	0.0624	31200	5th	Above 10 km	150 m
04		Barwadih	Dhab River	5.00	550	30	2	2	0.066	33000	5th	Above 10 km	0.00
05		Nongaon	Dhab River	6.75	200	130	2	2	0.104	52000	5th	Above 10 km	155 m
06		Singhani	Dhab River	5.00	270	60	2	2	0.0648	32400	4th	Above 10 km	220 m

Circle – Pratappur

Sl No.	Panchayat Name	Name of Sand Ghat (Mouja)	River	Area (Acre)	Length of Deposit (m)	Width of deposit (m)	Depth of deposit (m)	Sp. of Sand	Reserve (MT.)	Reserve (M3)	Order of River	Distance from State Boundary	Distance from Forest Boundary
01	Humazang	Navratanpur	Dhoi Nadi	4.00	270	45	2	2	0.0486	24300	4th	Within 10Km	0.00
02	Humazang	Navratanpur	Dhoi Nadi	4.00	350	30	2	2	0.042	21000	4th	Within 10Km	480 m
03	GhoriGhat	GhoriGhat	Morhar Nadi	8.00	300	90	2.5	2	0.135	67500	7th	Within 10Km	1380 m
04	Bharahi	Rabda	Morhar Nadi	8.90	380	75	2.5	2	0.1425	71250	7th	Within 10Km	180 m
05	Aghara	Kaura	Morhar Nadi	5.80	200	75	2.5	2	0.075	37500	7th	Within 10Km	200 m
06	Dumarwar	Raharia	Morhar Nadi	4.95	300	45	2.5	2	0.0675	33750	7th	Within 10Km	60 m

Circle – Mayurhand

Sl No.	Panchayat Name	Name of Sand Ghat (Mouja)	River	Area (Acre)	Length of Deposit (m)	Width of deposit (m)	Depth of deposit (m)	Sp. of Sand	Reserve (MT.)	Reserve (M3)	Order of River	Distance from State Boundary	Distance from Forest Boundary
01	Soki	Soki	Barakar	10.22	850	40	2	2	0.136	68000	6th	Above 10 km	0.00
02	Petadiri	Dhampur	Leriya	5.85	800	18	1.5	2	0.0432	21600	4th	Above 10 km	0.00

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03	Petadiri	Dhampur	Leriya	3.70	350	25	1.5	2	0.02625	13125	4th	Above 10 km	0.00
04	Petadiri	Petadiri	Barakar	4.28	300	40	2	2	0.048	24000	6th	Above 10 km	0.00
05	Fulang	Mahuai	Barakar	5.50	500	40	2	2	0.08	40000	6th	Above 10 km	0.00

Circle – Kanhachatti

Sl No.	Panchayat Name	Name of Sand Ghat (Mouja)	River	Area (Acre)	Length of Deposit (m)	Width of deposit (m)	Depth of deposit (m)	Sp. of Sand	Reserve (MT.)	Reserve (M3)	Order of River	Distance from State Boundary	Distance from Forest Boundary
01	Tulbul	Banda	Gahrai Nadi	12.87	650	60	1.5	2	0.117	58500	5th	Above 10 km	0.00
02	Jamribakapura	Jamribakapura	Gahrai Nadi	8.05	900	20	1.5	2	0.054	27000	5th	Above 10 km	0.00
03	Jamribakapura	Jamribakapura	Gahrai Nadi	5.50	650	25	1.5	2	0.04875	24375	5th	Above 10 km	0.00
04	Madgara	Madgara	Gahrai Nadi	5.90	700	15	1.5	2	0.0315	15750	5th	Above 10 km	0.00
05	Madgara	Madgara	Gahrai Nadi	1.55	75	35	1.5	2	0.007875	3937.5	5th	Above 10 km	0.00
06	Madgara	Madgara	Vanghatia (Basane) Nadi	11.45 3.45	1000 200	30 40	1.5 1.5	2 2	0.09 0.024	45000 12000	5th	Above 10 km	0.00
07	Madgara	Bindhani	Bashati (Basane Nadi)	17.50	900	40	1.5	2	0.108	54000	5th	Above 10 km	0.00
08	Bakchuma	Borekhap	Gahrai Nadi	1.85	400	10	1.5	2	0.012	6000	5th	Above 10 km	180 m
09	Madgara	Harhadh	Basane Nadi	25.90	850	90	1.5	2	0.2295	114750	5th	Above 10 km	0.00

Circle – Itkhori

Sl No.	Panchayat Name	Name of Sand Ghat (Mouja)	River	Area (Acre)	Length of Deposit (m)	Width of deposit (m)	Depth of deposit (m)	Sp. of Sand	Reserve (MT.)	Reserve (M3)	Order of River	Distance from State Boundary	Distance from Forest Boundary
01	Dhuna	Katua	Mahane (Mohana) Nadi	6.94	600	35	2	2	0.084	42000	6th	Above 10 km	0.00
02	Tonatand	Nagvan	Mahane (Mohana) Nadi	22.05	875	65	2	2	0.2275	113750	6th	Above 10 km	0.00
03	Itkhori	Itkhori	Mahane (Mohana) Nadi	4.70	375	40	2	2	0.06	30000	6th	Above 10 km	0.00
04	Pitiz	Gulli	Basane Nadi	12.50	1200	30	1.5	2	0.108	54000	5th	Above 10 km	0.00

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Restricted Area 500 metre both side of bridge

Sl No.	Circle	Name of Sand ghat	Thana no.	River	Reason for Restriction	Remarks
1	2	3	4	5	6	7
01	Tandwa	Gadilong	59	Panghatwa River	Bridge on Simriya-Tandwa Road at gadilong (side)	No mining
02	Tandwa	Tandwa	58	Badki nadi	-do-	
03	Tandwa	Piparwar / Kichto		Damodar	Both side Bridge on Damoder River at piparwar Plot no 534 etc	
04	Tandwa	Sisai	42	Sisai Nadi	Restricted Area 500 metre both side of bridge at Sisai	
05	Gidhor	Duari	71	Balbal nadi	Restricted Area 500 metre both side of bridge at Duari villege	
06	Gidhor	Amin	15	Sugwa nadi	Restricted Area 500 metre both side of bridge at Amin villege	
07	Gidhor	Peksa	17	Siwana nadi	Restricted Area 500 metre both side of bridge at Peksa villege	
08	Kanhachatti	Harhad	45	Pitiz nadi	Restricted Area 500 metre both side of bridge at Harhad-Gulli villege	
09	Kanhachatti	Banda	28	Basane	Restricted Area 500 metre both side of bridge at Banda villege	
10	Hanterganj	Ghanghari	142	Lilazan	Bridge on chatra-Dobhi Road at ghanghari villege (both side)	
11	Itkhori	Guli	10	Basane	Restricted Area 500 metre both side of bridge at guli villege	

7.4 TOTAL POTENTIAL SAND DEPOSITS OF THE DISTRICT

Sl. No.	Name of the River	Portion of the River on stream Recommended for Mineral	Length of Area recommended for Mineral Concession (in Km)	Average width of Area, recommended in Mineral Concession (in Meters)	Recommended for Mineral concession (In Sq. Metre) (Total length x Avg. width)	Mineable Mineral Potential (In Metric Tonne) (60% of total Mineral Potential)	According to Drainage map of JSAC, Jharkhand Order of River
1	AlhaNadi	---	---	---	----	---	---
2	Amanat River	---	---	---	----	---	---
3	AmjharNadi	---	---	---	----	---	---
4	AmjharwaNala	---	---	---	----	---	---
5	Barakar River	Downstream	1.650	40	66000	158400	6th
6	Barki River	Downstream	1.755	51.42	90242.1	216581.04	6th
7	Basane River	Downstream	7.360	36.25	266800	480240	5th
8	Chako River	---	---	---	----	---	---
9	ChakoraNadi	---	---	---	----	---	---
10	Damodor River	---	---	---	----	---	---
11	Dhab River	Downstream	2.370	60.55	143503.5	344408.4	4th
12	Dohi River	Downstream	0.620	37.50	23250	55800	4th
13	Domuhan River	Downstream	0.180	40	7200	17280	5th
14	DulkiNadi	---	---	---	----	---	---
15	Gahri River	Downstream	4.450	28.5	126825	228285	5th
16	GarhiNadi	---	---	---	----	---	---
17	Ghari River	---	---	---	----	---	---
18	GolaiNadi	Downstream	0.950	70	66500	199500	5th
19	Hatbar River	---	---	---	----	---	---
20	Jam River	---	---	---	----	---	---

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21	Kadra River	---	---	---	----	---	---
22	Lilajan River	Downstream	13.365	120.42	1609413.3	4828239.9	7th
23	Majhesawadah Nala	---	---	---	----	---	---
24	Mohana River	Downstream	2.700	46.25	124875	299700	6th
25	Mohani River	---	---	---	----	---	---
26	Morhar River	Downstream	1.180	71.25	84075	252225	7th

7.5 ANNUAL DEPOSITION OF SAND /SEDIMENTS IN CATCHMENT AREA IN CHATRA DISTRICT

There a large number of rivers and streams in the district, but in most of them the supply of water diminishes rapidly or fails entirely soon after the end of the rains. The landscape being undulating and abnormally sloping, the nallas, rivulets and rivers rising from the hillocks and hills send out torrential currents during the rains which generally run to waste cutting deep ravines and gorges in the basin tracts. The carrying capacity of the river decreases as a result of which all the load carrying by the river is deposited.

This stream has developed a high flood plain near the confluence of rivers as during flood season the velocity of this stream is checked by the water of rivers and most of sand sediments load is deposited near the confluence point.

The annual replenishment in the river depends upon the amount of precipitation, velocity of the river, catchment area and etc. Annual replenishment is depend upon the period of rainy season and rainfall and surface run-off at different places of the flow of River. To calculate the replenishment data in rainy season is very difficult. Hence, it is suggested that before considering the report for environment clearance Joint inspection Team report must be collected as per the guidelines.

7.6 ECONOMIC IMPACT OF MINING

The mining will generate direct and indirect employment during mining operations and most of the unskilled labour will be used for mining purposes and they will be paid more than minimum wages prescribed by State Govt. In

general, there will be no adverse effect on human health as no blasting or handling of toxic material is involved. All the safety measures will be strictly followed to prevent occupational risk during excavation, loading and transportation. This will be a good source of revenue generation for the government as after getting the Environment Clearance; the minor concessioner will have to pay the Royalty Price, which will enhance the revenue of the State Government.

GENERAL RECOMMENDATIONS/CONCLUSIONS:

During the preparation of the present report prominent rivers/ streams has been studied in detail, as the rest of the streams/rivers either have very insignificant annual replenishment/approachability problem or are very narrow at most of the places and as such are not fit for grant of mineral concession for mineral based industries, however it is also important to mention here that because of the regular demand of sand, stone and bajri for the developmental activities in the respective areas, such streams are prone to illegal mining, It is suggested that the auctions of quarries be done regularly to meet out the local demand subject to the approval from the joint Inspection Committee as per guidelines .These mineral concessions shall also reduce demand load and will be helpful to minimize illegal extraction of minerals, failure of which may result in illegal mining at odd hours and shall be haphazard and more detrimental to the local ecology. Irrespective of it following geo-scientific considerations are also suggested to be taken into account during the river bed mining in a particular area:

1. Abandoned stream channels or terrace and inactive floodplains may be preferred rather than active channels and their deltas and floodplains.
2. Stream should not be diverted to form inactive channel.
3. Mining below subterranean water level should be avoided as a safeguard against environmental contamination and over exploitation of resources.
4. Large rivers and streams whose periodic sediment replenishment capacities are larger, may be preferred than smaller rivers.
5. Segments of braided river system should be used preferably falling within the lateral migration area of the river regime that enhances the feasibility of sediment replenishment.
6. Mining at the concave side of the river channel should be avoided to prevent bank erosion. Similarly meandering segment of a river should be selected for mining in such a way as to avoid natural eroding banks and to promote mining on naturally building (aggrading) meander components.
7. Continued riverbed material mining in a given segment of the river will induce seasonal scouring and intensify the erosion activity within the channel. This will have an adverse effect not only within the mining area but also both in upstream and downstream of the river course. Hazardous

effects of such scouring and enhanced erosion due to riverbed mining should be evaluated periodically and avoided for sustainable mining activities.

8. Mining area should be demarcated on the ground with Pucca pillars so as to avoid illegal unscientific mining.
9. It is recommended that Sub Divisional Level Committee may take into consideration all its relevant aspects / data while scrutinizing and recommending the application for EC to the concerned Authority.

ANNEXURE-I

Annexure-I

Government of Jharkhand.
Department of Industries, Mines and Geology

Notification

No. Kha. Ni. (Vividh)-67/2017

1905 /Dated:- 16-08-17

In exercise of the powers conferred by section 15 of the Mines and Minerals (Regulation and Development) Act, 1957 (67 of 1957), the Governor of Jharkhand exercises power to notify following policy:-

JHARKHAND STATE SAND MINING POLICY - 2017

Sand is a very important minor mineral. It is closely connected with the basic need of the common people and plays a vital role in the infrastructural development of the State.

Under Jharkhand Minor Mineral Concession Rule, 2017 sand is placed in schedule-II and is regulated and governed by Rule 12. In compliance of the Supreme Court ruling of Deepak Kumar v/s State of Haryana etc. (Special Lease Petition (C) No. 19629 of 2009 and Interlocutory Application No. 12-13 of 2011), and subsequent MoEF&CC Guidelines, the State has made certain amendments in the year 2014 and later in February 2017. However it was felt that there is a need for an environmentally sustainable and social centric comprehensive sand mining policy which will fulfil the developmental needs of the State as well as regular and adequate supply of sand at a reasonable price for the common people of the State.

Therefore, with a view to achieve these objectives, after detailed, careful examination, consultations and consideration of various aspects, the Government has introduced a comprehensive **Jharkhand State Sand Mining Policy 2017**, which will broadly and effectively guide sand mining in the State in an environmentally sustainable and socially responsible manner.

The salient features of Jharkhand State Sand Mining Policy 2017 are as follows:-

1. Preparation of District Survey Report:-

- a. A District Survey Report for each district shall be prepared by the committee headed by Deputy Commissioner-cum-Chairman DEIAA, as envisaged in Para 7 (iii) of Part -II - Section -3-Sub Section (ii) of Extraordinary Gazette of MoEF&CC, Government of India, New Delhi dated 15.01.2016.



- b. The State shall issue necessary guidelines or directives as and when required for an effective preparation of District Survey Report.

2. Categorization of Streams/Rivers:

- a. Identification of the sand available in different order of streams such as 1st, 2nd, 3rd, 4th, 5th order or more, shall be carried out by the District Survey Committee based on its size and capacity.
- b. Based on District Survey Report the Survey Committee shall categorize the sand in 1st order and 2nd order stream/river as Category-1 and 3rd order and above as Category-2.
- c. However, based on recommendation of District Survey Committee and depending upon local conditions/requirements, the State may review and change the positioning of a particular order of stream/river into a particular category of Category-1 or Category-2.

3. Management of Sand Deposits of Category-1 Streams/Rivers:

- a. The sand deposits of Category-1 stream/rivers will be kept fully free from domain of grant of mining lease.
- b. The sand from this category can be used only for non-commercial purposes such as domestic purpose, Community purposes, Government Sponsored Schemes etc. or as defined in Appendix – IX of Part-II-Section-3-Sub Section-(ii) of Extraordinary Gazette of MoEF&CC, Government of India New Delhi dated 15.01.2016.
- c. Gram Panchayat/Local Self Government shall be responsible for supervision of sand collection from such area.
- d. There shall be no transfer or subletting of the sand deposits from these Streams/Rivers.
- e. The sand from these Streams/Rivers shall be free from any taxes, royalty or levy.
- f. For the purpose of maintenance of the approach road, management, supervision etc. a nominal *Maintenance Charge* shall be levied by Gram Panchayat/Local Self Government per unit volume of sand lifted/collected/dispatched, as per the rate decided by Department of Industries, Mines and Geology, Government of Jharkhand.
- g. It shall be responsibility of Gram Panchayat/Local Self Government to ensure that sand from these deposits is not used for any commercial purposes and to regulate the same, a receipt-cum-dispatch challan will be issued by the Gram Panchayat/Local Self Government in the format as prescribed by the State.
- h. The maintenance charge so collected shall be deposited in the account of Gram Panchayat/Local Self Government.



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- i. The book keeping of this account shall be maintained by Gram Panchayat/Local Self Government according to prevailing rules and guidelines of the Gram Panchayat/Local Self Government.
- j. Under no circumstances the sand shall be allowed to be stored from these Streams/Rivers.
- k. As mentioned in para 7-(i)-(B) of Part-II-Section-3-Sub Section-(ii) of Extraordinary Gazette of MoEF&CC, Government of India, New Delhi dated 15.01.2016 such usage of sand shall be exempted from environmental clearance.
- l. This shall be the responsibility of the Gram Panchayat/Local Self-Government to restrict sand mining in prohibited areas as directed by the Department.
- m. Under no circumstances mechanized lifting of sand shall be allowed from these category of streams/rivers.
- n. The Deputy Commissioner shall put in place proper administrative/enforcement mechanism to ensure no commercial/illegal extraction of sand from these orders of streams/rivers.

4. Management of Sand Deposits of Category-2 Streams/Rivers:-

- a. The Sand deposits of Category-2 shall be managed by State Government through Jharkhand State Mineral Development Corporation Limited (JSMDC).
- b. All the sand deposits in Category-2 shall be allocated to JSMDC for a minimum period of 5 years or more as decided by the Government.
- c. Sand shall be sold by the JSMDC on commercial basis.
- d. The sale price of sand shall be decided by JSMDC in consultation with the Government.
- e. JSMDC shall obtain all clearances such as Environmental Clearance, Mining Plan or any other statutory requirements for sand mining, storage and sale.
- f. JSMDC shall ensure compliance of all applicable rules, regulations, guidelines, directives of honourable courts etc.
- g. JSMDC shall ensure that no Sand mining is carried out in any such zone or depth as prohibited under MoEF&CC Guidelines.
- h. JSMDC shall adopt scientific and sustainable mining practices and shall ensure a transparent, fair and effective delivery system.
- i. JSMDC shall adopt appropriate technology such as RFID/GPS tracking of vehicles, CCTV surveillance, central monitoring, cashless online sale etc. to prevent illegal mining and transportation of sand.



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- j. For the management of sand ghats JSMDc would get 15% of the Sale proceeds as agency commission charge. JSMDc after deducting all the expenditure made for operation and management of Sand ghats along with the additional 15% of commission charge will pay back the rest amount collected out of sand sale to the Government exchequer.

The Government may review the Sand Mining Policy in future as and en required and issue Guidelines or Amendments accordingly.

By order of Governor of Jharkhand

(Sunil Kumar Barnwal)
Secretary of Government

Memo:

1905 /M., Ranchi, Dated: 16-08-17
Copy to: Superintendent, Government press, Ranchi for information. It is requested to published in next publication of State Gazette and forward 100 copies of the same to the department.

Secretary of Government

Memo:

1905 /M., Ranchi, Dated: 16-08-17
Copy to: All head of the department/All divisional Commissioner/All Deputy Commissioners/ Director, Mines/ Director, Geology/All Additional Director, Mines/Geology/All Deputy Director, Mines/All Deputy Secretary/All Under Secretary, Mines Directorate/All District/Assistant Mining Officer/All Assistant Director, Geology for information and necessary action.

Secretary of Government

Memo:

1905 /M., Ranchi, Dated: 16-08-17
Copy to: Secretary-cum-Legal Advisor, Law Department, Jharkhand/ Additional Chief Secretary, Finance Department, Jharkhand/ Principal Secretary, Cabinet Secretariat and Coordination Department, Jharkhand/Secretary, Department of Registration, Jharkhand, Ranchi/ PPS to Secretary, Industries, Mines and Geology Department for information and necessary action.

Secretary of Government

