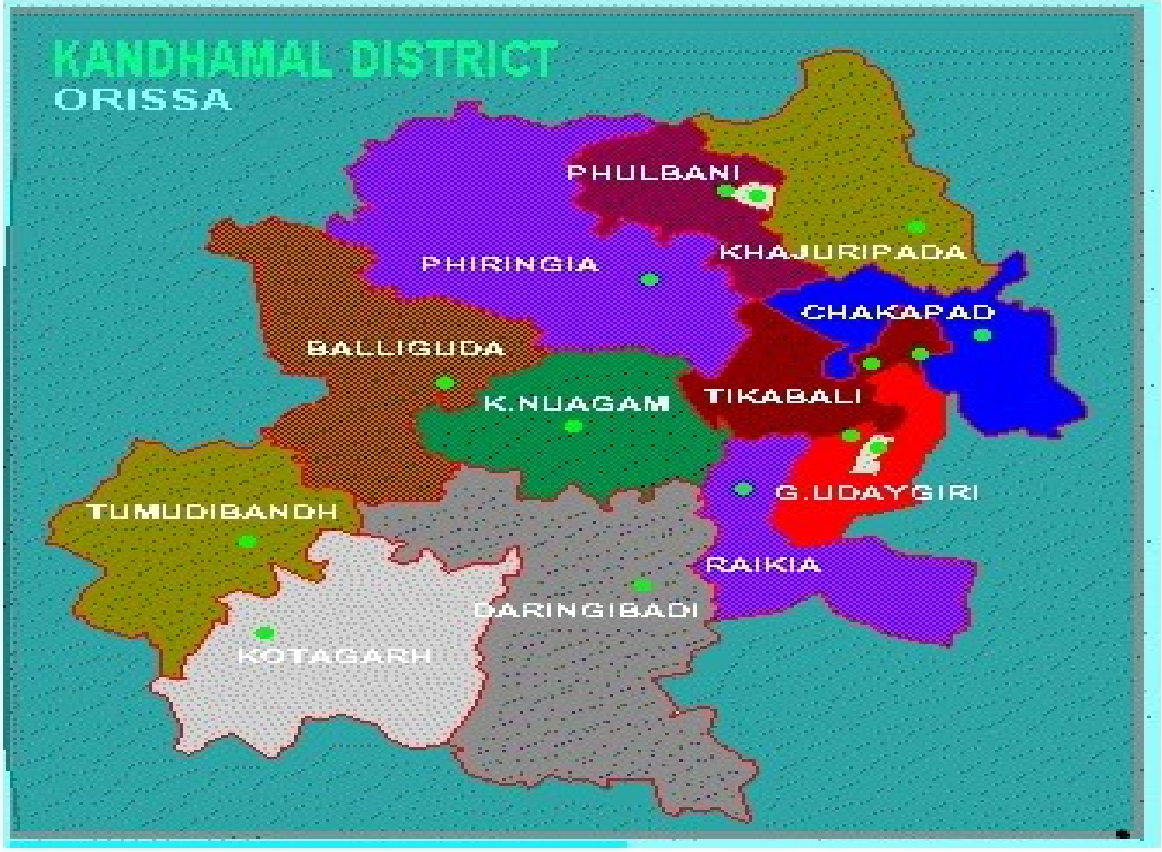
District Survey Reportof Kandhamal District
for
Minor Mineral Excavation (Sand)



Prepared by

District Level Environment Impact Assessment Authority (DEIAA),

Kandhamal, Phulbani

Govt. of Odisha

Preface

In compliance to the Notification issued by the Ministry of Environment, Forest, Climate change dated 15.01.16, the preparation of District Survey Report of sustainable sand mining is in accordance with appendix 10 of the notification. It is also mentioned here that the procedure of preparation of District Survey report is as per notification/ guidelines. District Survey report (DSR) will be prepared in every district for each minor mineral. The District Survey Report will guide systematic andscientific utilization of natural resources, so that present and future generation shall be benefitted at large.

The purpose of District Survey report (DSR) is to identify areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining activities in that area.

Every effort has been made to identify sand mining locations, areas and overview of mining activity in the district with all its relevant features pertaining to geology and mineral sources. This report will be a model and guiding document which is a compendium of available mineral resources, geographical, environmental and ecological set up of the district and is based on various departments, published reports and websites.

Table of contents

"APPENDIX-X"

[See paragraph 7(iii)(a)]

I. INFORMATION FOR PREPARATION OF DISTRICT SURVEY REPORT FOR SAND MINING OR RIVER BED MINING IN RESPECT OF KANDHAMAL DISTRICT

01. INTRODUCTION

The Government of India, Ministry of Environment, Forests and Climate Change (MoEF&CC) has made certain amendments vide Notification No. S.O.141(E) dated 15.01.2016 and Notification No. S.O.190(E) dated 20.01.2016 in Environmental Impact Assessment (EIA) Notification No. S.O.1533(E) Dated 14.09.2006 issued by the erstwhile Ministry of Environment and Forests (MoEF). These amendments led to the constitution of the district Level Environment Impact Assessment Authority (DEIAA) at District Level for grant of Environmental Clearances for category B2 projects (B2 category projects pertaining to mining of minor minerals of lease area less than or equal to 5Hc) for mining of minerals, for all the districts in the country. DEIAA in Kandhamal District comprises of following members:

Sl No	Designation	Designation in the Committee
01	District Magistrate-cum-Collector, Kandhamal	Chairperson
02	Divisional Forest Officer, Phulbani	Member
03	Executive Engineer,OLIC,Kandhamal	Expert Member
04	Sub-Collector, Phulbani	Member Secretary

Ordinary sand other than sand used for prescribed purposes and some other minerals have been specified as minor mineral in Sec 3 E of The Mines and Minerals (Development and Regulation) Act, 1957. The Central Government in addition to some other minor minerals has also declared the ordinary earth (used for filling or levelling purposes in construction of embankments, roads, railways and buildings) and brick earth as the minor minerals. The DEIAA shall base its decisions on the recommendations of District Level Expert Appraisal Committee (DEAC). It comprises of following members as per the guidelines of the MoEF&CC Gazette Notification Dated 20/01/2016:

Sl No	Designation	Designation in the Committee
01	Executive Engineer, Minor Irrigation, Phulbani	Chairperson
02	A.C.F., Phulbani	Member

03	Geologist, South Zone, Berhampur or his representative	Member
04	CDMO, Phulbani	Member
05	Executive Engineer, DRDA, Phulbani	Member
06	Regional Officer, Berhampur or his representative not below the Rank of Asst. Env. Engineer/ Asst. Env. Scientists of State	Member
07	ACF, Balliguda	Expert Member
08	Range Officer, Balliguda	Expert Member
09	Lecturer in Botany , Govt. Autonomous College, Phulbani	Expert Member
10	Senior most Assistant Executive Engineer, R&B, Phulbani	Member
11	Mining Officer, Phulbani	Member Secretary

In the light of above, The District Collector, Kandhamal in consultation with the Mining Officer, Kandhamal have constituted the DEAC which is in force till date.

District Survey report (DSR) is required to identify the areas of aggradations or depositions where mining can be allowed and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment after mining in that area. 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 replenishable and non-replenishable areas of rivers, stream and other sand sources.

2. Over view of Mining Activity in the District

Mainly two types of minor minerals constituents such as sand and stone are required for any type of construction apart from other material like cement and steel. In earlier times, the houses / buildings were constructed in form of small dwellings with walls made up of mud plaster, stone and interlocking provided with wooden frames and there were negligible commercial as well as developmental activities resulting in less demand of building material. However, with the passage of time, new vistas of developmental activities were started. The quantity of minor minerals consumption in a particular area is anindicator to assess the development of the area. Thus, with the pace of development activities, the consumption of minor minerals also increased. As such the demand for minor minerals in the district has witnessed an increasing trend. In order to meet the requirement of raw material for construction, the extraction of sand is being carried out exclusively from the river beds.

Mining activity in Kandhamal district consists of river bed sand mining, mining of boulder, stones, morrums and ordinary earth. The demand for sand (river borne collection) in Kandhamal district, is mainly met by the supply from Salunki river bed flowing in the district. All mining activities are made for local consumptions only and are non-organized in nature. Manual excavation of sand from river bed is being done from notified sairat sources.

As per OMMC Rules, 2016 Sairat sources can be leased out for minimum of 05 years and can be extended up to 10 years. In, Kandhamal district, out of 64 sairat sources, 14 sources have been leased out for 5 years from 2015-16 to 2020-21. Out of balance sources, 07 sources are below 5 hectares. As per Memo No. 41788/R&DM Dated 12.11.18 "DEIAA is the Competent authority for grant of E.C proposal of sand mining and other minor minerals mining on the basis of individual mining lease for Ha. 0.00 to Ha. 5.00 and also for sand mining and other minor minerals mining in cluster situation". on this basis, necessary steps are being taken to lease out these 07 numbers of sources. Further, one source is pending for agreement, one source is subjudice before the Hon'ble High Court, Odisha and three other sources are pending in SEIAA Bhubaneswar for Environmental Clearance.

Total No. of sairat sources	Total no. of sources bidder finalized	Pending with RQP	Pending with SEIAA	Pending with Tahasildar	Settled	For Re-Adv	Receive extinction proposal	No. of sources below 5 Hc.	Pending with High Court
Sand 31	14	03	03	02	06	07	02	07	01
Stone 33	09	01	00	00	08	08	16	00	00
Total 64	23	04	03	02	14	15	18	07	01

03. The list of mining lease (sand sources) in the district with location, area and present status

Name of Tahasil	Name of the Sand Sairat Sources	Land Schedule				Present status
		Village	Khata No	Plot No	Area (in Hc.)	
Balliguda	Katarisahi sand source	Balliguda	771	1720,1800 1807,3499	7.972	Pending for EC
	Ganjupadi sand source	Ganjupadi	45	135,207	5.380	Pending for EC

	Sindrigaon sand source	Sindrigaon	207	1326	8.320	Pending for EC
	Biraguda sand source	Biragida	47	349,432	5.283	Bidder not finalised
	Khairabadi sand source	Khairabadi	27	20	6,800	Bidder not finalised
	Khamankhole sand source	Khamankhole	81	31	6.624	Bidder not finalised
Chakapad	Badruguda & Nediguda sand source	Badruguda & Nediguda	69 61	332,335, 363/406	5.650	Operationalfrom 2016-17
	Purunagada sand source	Purunagada	144	1,21,26, 145	5.715	Bidder not finalised
Tikabali	Chhatijhar sand source	Chhatijhar	175	4,12,231, 250	6.260	Operationalfrom 2016-17
	Malbhuin sand source	Malbhuin	116	74,9	5.040	Operationalfrom 2016-17
	Jignagam sand source	Jignagam	187	314	5.680	Pending for agreement
	Padhanpada sand source	Padhanpada	264	984	5.000	In lease process
	Guitana/ Nagrigudari sand source	Guitana, Nagrigudari, kainjhar	29,55, 55,290	420,348, 1817/1955	5.156	In lease process
Phulbani	Bigapadar sand source	Bigapadar	99	585,586	6.436	Operationalfrom 2016-17
	Tudipaju Sand source	Tudipaju	89	01	7.500	Operation from2016-17
	Saini padar sand source	Sainipadar	76	1	5.200	Operational from 2016-17
	Baisingh sand source	Baising ,Guludi	25,10	78,300,1	5.396	In lease process
	Sartaguda Sand source	Sartaguda	121	690,693	5.438	Pending for EC
	Kumudiguda Sand Source	Kumudiguda	123	1414	2.700	Pending in High Court
K.Nuagam	Kudutuli sand Source	Kudutuli	253	848,843	5.000	Bidder not finalised

	Bagada Sand Source	Bagada	28	156,158, 159	5.000	Bidder not finalised

04.Details of Royalty or Revenue received in last three years from sand sources

Name of Tahasils	Name of the sand sairat sources	Collection of royalty/ revenue made in last 3 years (in Rs.)		
		2016-17	2017-18	2018-19
Tikabali	Chhatijhar sand source	1,11,720.00	1,24,440.00	1,28,400.00
	Malbhuin sand source	45,645.00	53,200.00	0.00
	Jiginagam sand quarry	0.00	1,83,750.00	18,3750.00
Phulbani	Bigapadar sand source	0.00	61,316.00	64,270.00
	Tudipaju Sand source	0.00	66,232.00	6,66,232.00
	Saini padar sand source	0.00	42,852.00	42,852.00
Balliguda	Katarisahi sand source	1,01,300.00	70,000.00	37,800.00
	Ganjupadi sand source	1,92,500.00	0.00	0.00
	Sindrigaon sand source	17,500.00	0.00	0.00
	Biraguda sand source	0.00	0.00	37,800.00
Chakapad	Badruguda & Nediguda sand source	50418.00	0.00	0.00

05. Details of Production of sand in last three years

Name of Tahasils	Name of the sand sairat sources	Production of sand in last 3 years (in Cubic Meter)		
		2016-17	2017-18	2018-19
Tikabali	Chhatijhar sand source	2660.00	3111.00	3210.00
	Malbhuin sand source	1499.00	1520.00	1493.00
	Jiginagam sand quarry	Nil	5250.00	5250.00
Phulbani	Bigapadar sand source	Nil	840.00	900.00
	Tudipaju Sand source	Nil	780.00	780.00
	Saini padar sand source	Nil	600.00	600.00

Balliguda	Katarisahi sand source	2894.00	2000.00	900.00
	Ganjupadi sand source	5500.00	Nil	Nil
	Sindrigaon sand source	500.00	Nil	Nil
	Biraguda sand source	Nil	Nil	900.00
Chakapad	Badruguda & Nediguda sand source	1200.00	1300.00	1400.00

06. Process of deposition of sediments in the river of the district

Sedimentation in the geological science is a process of deposition of a solid material from a State of suspension or solution in a fluid (usually air or water). Broadly defined it also includes deposits from glacial ice and those materials collected under the impetus of gravity along, as in talus deposits or accumulation of rock debris at the base of cliffs. The term is commonly used as a synonym for sedimentary petrology and sedimentology.

Sedimentation is generally considered by geologists in terms of the textures, structures, and fossil contents of the deposits lay down in different geographic and geomorphic environments.

River sediment is transported depending on the strength of the flow that carries it and its own size, volume and density and shape. Stronger flow will increase the lift and drag on the particle, causing it to rise while larger or dense particles will be more likely to fall through the flow.

River and stream carry sediment in their flows. This sediment can be in a variety of locations within the flow, depending on the balance between the upwards velocity on the particles (drag and lift forces) and the settling velocity of the particle.

If the upward velocity is approximately equal to the settling velocity, sediment will be transported downstream entirely as suspended load. If the upward velocity is much less than the settling velocity, but still high enough for the sediment to move, it will move along the bed as bed load by rolling, sliding and satiating (jumping up into the flow, being transported a short distance then settling again). If the upward velocity is higher than the settling velocity, the sediment will be transported high in the flow as wash load.

Rivers are the most powerful agents of sedimentary process which includes Erosion, Transportation and deposition of the eroded materials. Generally, the eroded materials comprise of rocks, organic matters etc. The processes of sedimentation in the district are being done by the fluvial action of the river like Salunki, Khadaga. The sedimentation Process is seen to be highest in the rainy season between mid-June to Mid –September.

07. General Profile of the District

Kandhamal District is one among 30 Districts of Odisha State. The administrative headquarters of Kandhamal District is Phulbani. It is Located 198 Km East towards State capital Bhubaneswar. The geographical area of the district is 8021 sq. kms. Area-wise the district rank is 6th among all the districts of Orissa.

Kandhamal literally "the land of Kondhs" is a district with a substantial tribal population. It was formed by bifurcating the former Boudh-Phulbani or Kandhamal District on 1st January, 1994. The agro-climatic condition of the district is otherwise very rich in organic contents.

Ever Since Boudh-Phulbani district was created in 1948 by merging feudatory state of Boudh with Phulbani sub-division with its Headquarters at Phulbani, the movement to separate Phulbani from Boudh began in early 1980's when two Tribal outfits named “Kui Samaj” and “Pahadi Sangram Manch” fight for the separation. When the movement became vociferous, the state Government had to concede the demand of the people ultimately and Kandhamal came into existence.

7.1. Location & Topography:

The district is situated within the longitudes 83^0 30’ and 84^0 35’ East and latitudes 19^0 34’ to 20^0 34’ North. The district is located in central Odisha and bound by Boudh district in North, Rayagada in South, Ganjam and Nayagarh districts in East and Kalahandi district in West. Phulbani and Baliguda are two sub-divisions of the district.

Phulbani sub-division forms a broken plateau about 518 meters above sea level. Continuous mountains surround this sub-division from all sides. On the north-east and west, these ranges rise abruptly from the plains of Boudh district, while on the south, they merge with the outlines of the Eastern Ghats of Baliguda sub-division. The high plateau lying within these ranges is broken up by numerous smaller ranges which form an endless series of valleys varying in size. Thick forests cover much of these tracts and villages lie in scattered clearings along hill sides. The whole of this sub-division is a network of hills and forests interspersed with small hamlets of the Kandhas. This hilly tract is intersected in all directions by streams and rivers, which run dry after the cessation of rains. Baliguda sub-division is on the plateau and lies at heights varying from 300 meter to 1100 meter above mean sea level. The eastern side of the sub-division consists of wide well cultivated valleys. The hills of this sub-division are a part of the Eastern Ghats.The uplands and slopes leading from the foot of the hills are utilized for growing dry crops periodically depending on the rain. The area of cultivated land is small.

7.2. Administrative set up:

The district has two subdivisions- Balliguda and Phulbani. To provide efficient administration, effective implementation and monitoring of development scheme the district is administratively divided into 12 tahsils & 12 Blocks namely Balliguda, Chakapada, Daringbadi, G.Udayagiri, K.Nuagaon, Kandhamal, Kotagarh, Khajuripada, Raikia, Phiringia, Tikabali, Tumudibandh.

There are one municipality, two Notified Area Council, 171 Gram Panchayats and 2,506 villages with 2415 inhabited and 91 uninhabited villages. Baliguda, G. Udayagiri and Phulbani are three assembly constituencies.

Administrative Unit	**Numbers**
Subdivisions	2
Tahasil	12
Block	12
Municipality	1
NAC	2
Police Stations	18
Gram Panchayats	171
Total no. of Villages	2506
Inhabited Villages	2415
Uninhabited Villages	91
Assembly Constituencies	3

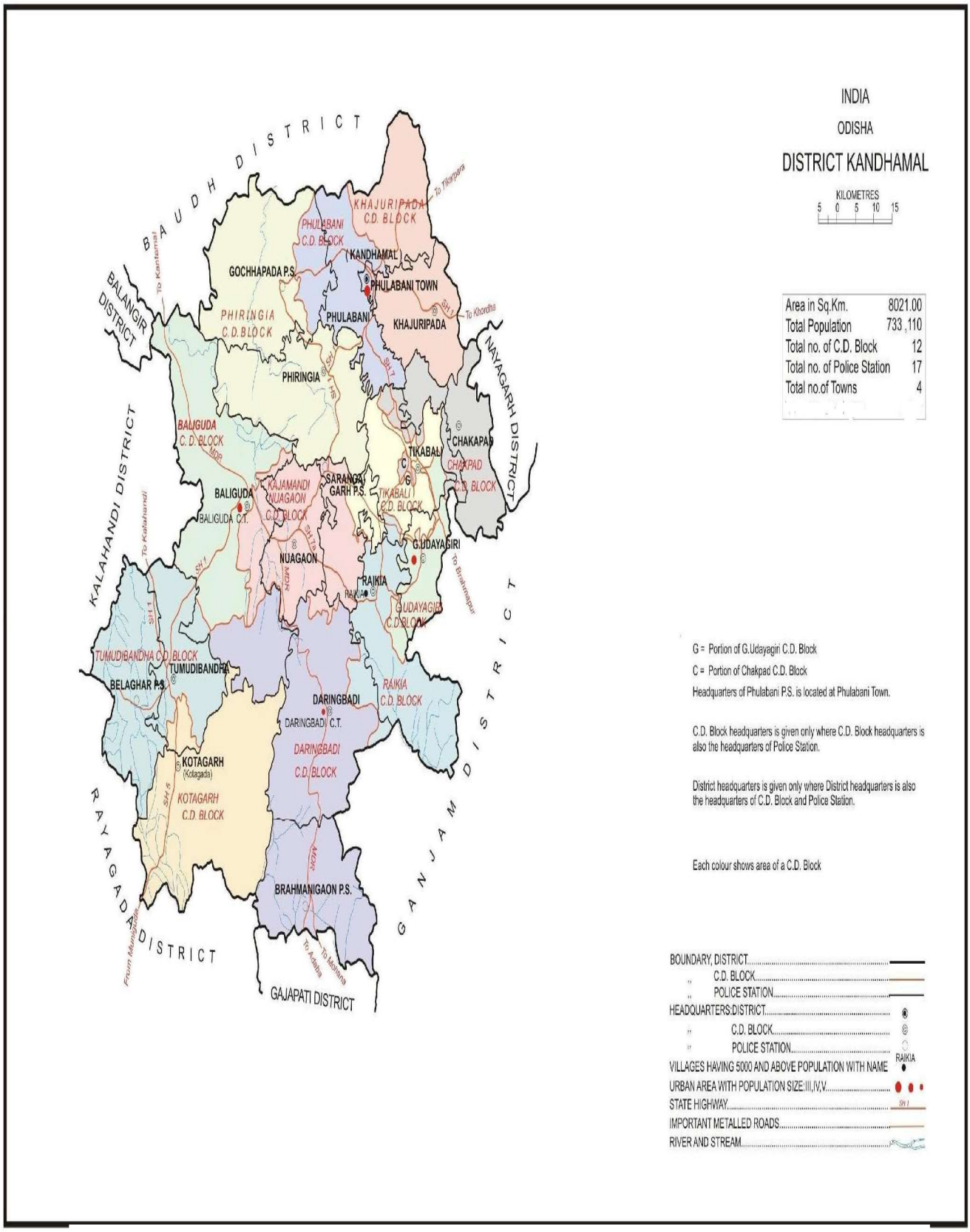


Fig 1. Administrative set up map of Kandhamal District

08. Land Utilization Pattern in the District

The district is spread over a geographical area of 8021Sq.kms which is 7.14% of the total geographical area of the state. About 5709 Sq. kms area is under forest which is about 71% of the total geographical area of the district.

The land in the district is highly uneven and undulating comprising hill slopes, plateaus, valleys and plains with varying slopes. The agriculture land in the district has been classified in to 3 broad categories depending on the gradients of the land i.e. 1) High, 2) Medium 3) Low. The total cultivated land of the district is 1,27,790 hectaresout of which 96298 hectares (75%) is high land, 20624 hectare (16%) Medium land and 10868 hectares (09%) low land. About 32223 hectares i.e. 25.22% of cultivated land is irrigated and rest 74.78% land is under rainfed condition which is exposed to vagaries of monsoon.

Land utilization pattern in Kandhamal District (Area in Ha.):

Geographical Area	Forest area	Cultivable waste land	Land put to Non-Agril. Use	Permanent Pasture s	Land under miscellaneous tree crops and grooves	Other fallow	Current fallow	Net Area sown	Gross cropped area	Cropping Intensity (%)
802100	570983	14245	9103	10079	33775	6182	950	126855	185170	146

As most of the area comes under forests, the people of the district basically depend upon the forest products. Most of the farmers are economically backward with higher percentage of SC & ST families. Majority of the farmers are small and marginal landless labours and depend on the forest and other minor forest products for their livelihoods. Some important crop grown in district are paddy, Maize, Turmeric, Ginger, Mustard and vegetable. As per agricultural census 2010-11 the no. of operational holdings of the district is 91512 with 92801 Ha. operational area. The average size of land holding for all social groups is 1.01 Ha.

Out of 8,02,100 hectares of geographical area of the district, 71% of land is under forest cover. Land under non-agricultural use constitutes 1.77%. Cultivable waste land, permanent pasture and land under miscellaneous tree crops and grooves constituting 7.24%, where the land comes under current fallows during 2012-13 & 2013-14 was 0.35%, which has decreased to 0.11% of the total land during 2014-15.Likewise, the net sown area during the year 2012-13 and 2013-14 was 15.57%, which has increased to 15.81% of total land during the year 2014-15.

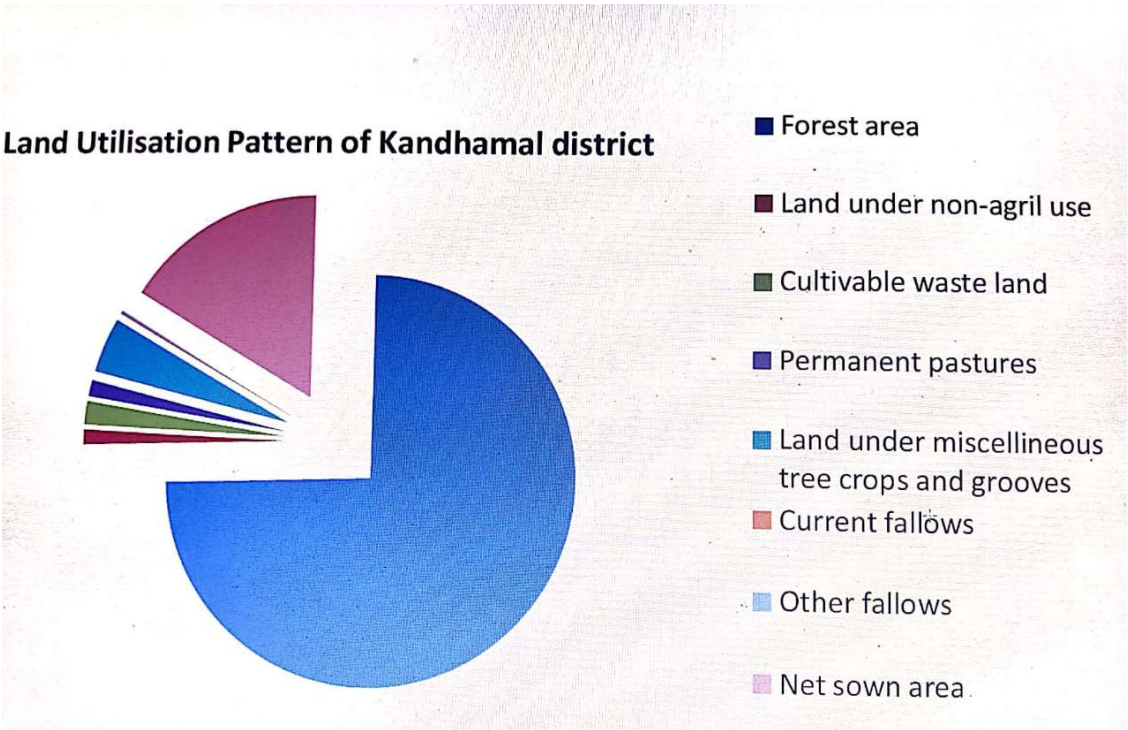


Fig 2. Land utilization pattern of Kandhamal District

09. Physiography of the District

Geomorphologically the district comprises four units viz i) ridges and hills with or without valleys ii) ridges and hills with intervening broad undulating plains, iii) plantation surfaces like Pedi-plains and peni-plains and iv) deeply weathered plains or duricrusts. The first unit is structurally controlled and exposed through 90% of the area whereas rest three has minimal control of structure and found as small patches. The highest elevation of 1290m is observed on west of Daringbadi. The denudational hills present in the area are also called residual hills. Plantation surface consisting of pediplains and peniplains occupies the major portion of the district. Top of the hills are covered with laterites. Bagh river, Raul nadi, salunki river and kharag river with its numerous tributaries control the drainage.

10. Rainfall

The climate of this district is sub-tropical characterised by hot and dry summer, sub-humid, medium to high rainfall, prolonged cold and dry winter. The geographical situation of the district is characterized by undulated topography with hilly terrain where the rain water is carried through hill streams and nallahs. The average annual rainfall of Kandhamal district is 1428.15 mm. The peak period of rainy season is from 15th June to September.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
2016	30.87	14.75	30.78	2.55	42.97	204.37	238.17	273.88	267.34	118.9	1.81	0	1226.39
2017	0.00	0.00	30.27	0.60	62.66	238.82	211.64	242.04	216.44	195.39	33.76	0.00	1231.62
2018	0	0	0.13	92.56	75.33	146.24	461.87	385.98	309.47	293.33	0	61.54	1826.45
Avg.	10.29	4.92	20.39	30.90	60.32	196.48	303.89	300.63	264.42	202.54	11.86	20.51	1428.15

11. Geology and Mineral wealth

Geologically the area forms part of the Eastern Ghats Super Group and is divided into khondalite group, Charnockite group and migmatite group. The alluvium is of Pleistocene to recent age. Khondalite group of rocks are of metasedimentary origin and represented by quartz-garnet-silimanite schist and gneisses without graphite, sillimanite quartzite and quartz-silimanite sericite schist occurring as enclaves within granite. Occurrences of basic charnockite are very restricted as bands or lensoid patches within the granites. Intermediate or acid charnockite are common being distributed throughout the hilly area. Migmatite group comprising augen gnesis, garnetiferous leucogranites are the most abundant rock types of the area. This constitutes high hill ranges at several places towards north and south and smooth rolling topography in the plains. Rocks of lower Gondwana group especially the Talchir formation is exposed in the northern part of the area. The contact between Talchir and older rocks is faulted at places. Pockets of laterites commonly found in khondalite bearing ridges mainly over the hill tops. The laterite exposed in the area is of Cainozoic age. The river beds of the area are covered by recent alluvium.

The general strike of the foliation is WNW-ESE to ENE-WSW through NE-SW and NS. The amount of dip ranges between 50^0 to sub-vertical. There is one major shear zone near Ranipathar area. Mylonite and silicification occur along this zone at several places. Both vertical as well as inclined joint planes are observed. Numbers of fault planes occur in the area with varieties of strike direction. A number of lineaments are deciphered in this area from LANDSAT imageries. Two major sets of these lineaments are deciphered running along NW-SE to NNW-SSE and NS directions.

A number of mineral occurrences are noticed in the area. Bauxite deposits have been located in the plateau of khondalite hills. Rucy, mica-bearing pegmatite vein is located East of Mundagaon. Several occurrences of dimension stones are found at the southern bank of kalipana river. Graphite occur in the garnet-quartz-silimanite schist of khondalite suite in the form of bands, enechelon veins and lenses or disseminated forms. They are usually disposed conformably along the foliation planes of the host rocks. A number of graphite deposits have

been found in the western part of the area at NW of Tumudibandha. Only occurrence of bed ocher, found in the district is situated south of Ghumusar Udayagiri.

(a) District wise details of river or stream and other sand source

The district headquarter Phulbani is surrounded by the River Salunki full of natural beauty and green hills which caters to a wide variety of flora and fauna.

Drainage system with description of main rivers

Sl No.	**Name of the River**	**Area drained (Sq. Km)**	**% Area drained in the District**
1	Salki	1581	78%
2	Khadaga	2020	93%
3	Pilasalki	87.36	100%
4	Kalava	95.85	100%

Salient Features of Important Rivers & Streams

Sl No	**Name of the River or Stream**	**Total Length in the District(in Km)**	**Place of origin**	**Altitude at Origin**
1	Salki	85	Bakamaha of G.Udayagiri Block	652 m
2	Khadaga	142	Gumamaha of Raikia Block	702 m
3	Pilasalki	37	Sanabeda of Chakapada Block	863 m
4	Kalava	15	Linepada of Chakapada Block	530 m

Name of the Tahasil	**Portion of the River or Stream Recommended for Mineral concession**	**Length of area recommended for mineral concession (in Kilometer)**	**Average width of area recommended for mineral concession (in meters)**	**Area recommended for mineral concession (in square meter)**	**Mineable mineral potential (in metric tone) (60% of total mineral potential**
Balliguda	Khadaga River near Katarisahiu	0.322	0.125	718693.086	2340

	Khadaga River near Ganjupadi	1.107	0,101	54480.201	1950
	Khadaga River near Sindrigaon	0.8	0.127	84251`.909	1170
	Biraguda Stream	1.267	0.056	53497,937	390
	Khadaga River near Khairabadi	0.885	0.121	68859.733	390
	Khadaga River near Khamankhole	0.704	0.125	67077.481	390
Chakapad	River Badruguda/ Nediguda	2.0	5	250	2328.96
Tikabali	Salki river Chhatijhar	1.47	10	6338	15876
	Salki river Malbhuin	0.943	10	51035	7469
	Salki river Jignagam	0.81	10	5751	15750
	Salki river Padhanpada	0.87	10	8860	10500
	Salki River Guitana/ Nagrigudari	0.82	10	3341	10500
Phulbani	Badasalunki,Bigapadar	1.24	42	62000	6181
	Badasalunki, Tudipaju	1.77	36	54000	7669
	Badasalunki,Sainipadar	1.75	42	52000	5786
	Pilasalunki,Kendupadar	1.02	22	35000	
	Pilasalunki, Sartaguda	0.84	18	2000	6362
	Badasalunki, Kumuriguda	1.52	36	27000	
K.Nuagam	Khadaga River	0.62	82	25864	3050
	Kadipenu River	0.76	68	29784	3110

(b)District wise availability of sand

Mineral Potential

Name of the Tahasil	Name of the Sand Sairat Sources	Total reserved Sand (MT)	Total Mineable Mineral Potential (MT) as per Mining Plan
Balliguda	Katarisahi	39,574	22,894
	Ganjupadi	34,970	23,504
	Sindrigam	64,896	14,864
	Biraguda	650	650
	Khairabadi	650	650
	Khamankhol	650	650
Chakapad	Badruguda/Nediguda	9,399	9,399
	Purunagada	EC not approved by SEIAA	EC not approved by SEIAA
Tikabali	Chhatijhar	38,206.07	38,206.07
	Malbhuin	17,974.37	17,974.37
	Jignagam	37,902.85	37,902.85
	Padhanpada	Mining plan not approved	Mining plan not approved
	Guitana, Nagrigudari, kainjhar	Mining plan not approved	Mining plan not approved
Phulbani	Bigapadar	10,302.75	10,071.39
	Tudipaju	12,782.64	10,073.8
	Sainipadar	9,644.82	8,994.12
	Baising ,Gulidi	Mining plan not approved	Mining plan not approved
	Sartaguda	10,604	8,194
	Kumudiguda	Mining plan not approved	Mining plan not approved
N.Nuagam	Kudutuli	14,892	14,892
	Bagada	12,932	12,932

Annual Deposition

Name of the Tahasil	Name of the Sand Sairat Sources	Annual Deposition (in MT)
Balliguda	Katarisahi	5,332
	Ganjupadi	3,307
	Sindrigaon	2,009
	Biraguda	1,000
	Khairabadi	1,000
	Khamankhol	1,000
Chakapad	Badruguda/Nediguda	3,500
	Purunagada	EC not approved by SEIAA
Tikabali	Chhatijhar	3,400
	Malbhuin	3,800
	Jignagam	12,700
	Padhanpada	1,000
	Guitana, Nagrigudari, kainjhar	1,000
Phulbani	Bigapadar	2,200
	Tudipaju	2,892
	Sainipadar	2,170
	Baising ,Gulidi	1,000
	Sartaguda	2,410
	Kumudiguda	1,000
K.Nuagam	Kudutuli	1,400
	Bagada	1,000

Collector & District Magistrate,

Kandhamal-cum-chairperson, DEIAA

Mining Leases Marked on the map of the District.