

District Survey Report

Vadodara

As per Notification No. 141(E) dated 15th January
2016 of Ministry of Environment Forest and
Climate Change



Office of Geologist

Vadodara

Preamble

The Ministry of Environment, Forests & Climate Change (MoEFCC), Government of India, made Environmental Clearance (EC) for mining of minerals mandatory through its Notification of 27th January, 1994 under the provisions of Environment Protection Act, 1986.

Keeping in view the experience gained in environmental clearance process over a period of one decade, the MoEFCC came out with Environmental Impact Notification, SO 1533 (E), dated 14th September 2006. It has been made mandatory to obtain environmental clearance for different kinds of development projects as listed in Schedule-1 of the Notification.

Further, In pursuance to the order of Hon'ble Supreme Court dated the 27th February, 2012 in I.A. No.12- 13 of 2011 in Special Leave Petition (C) No.19628-19629 of 2009, in the matter of Deepak Kumar etc. Vs. State of Haryana and Others etc., prior environmental clearance has now become mandatory for mining of minor minerals irrespective of the area of mining lease; And also in view of the Hon'ble National Green Tribunal, order dated the 13th January, 2015 in the matter regarding sand mining has directed for making a policy on environmental clearance for mining leases in cluster for minor Minerals,

The Ministry of Environment, Forest and Climate Change in consultation with State governments has prepared Guidelines on Sustainable Sand Mining detailing the provisions on environmental clearance for cluster, creation of District Environment Impact Assessment Authority and proper monitoring of minor mineral mining using information technology and information technology enabled services to track the mined out material from source to destination.

The DEIAA and DEAC will scrutinize and recommend the prior environmental clearance of mining of minor minerals on the basis of District Survey Report. This 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 replenishment of minerals and is based on data of various departments, published reports, journals and websites. The District Survey Report will form the basis for application for environmental

clearance, preparation of reports and appraisal of projects. The Report will be updated once every five years.

The main objective of the preparation of District Survey Report (as per the Sustainable Sand Mining Guideline) is to ensure the following -

- (i) Identification of areas of aggradations or deposition where mining can be allowed; and
- (ii) 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 in that area.
- (iii) Identification of mineral wealth in the district.

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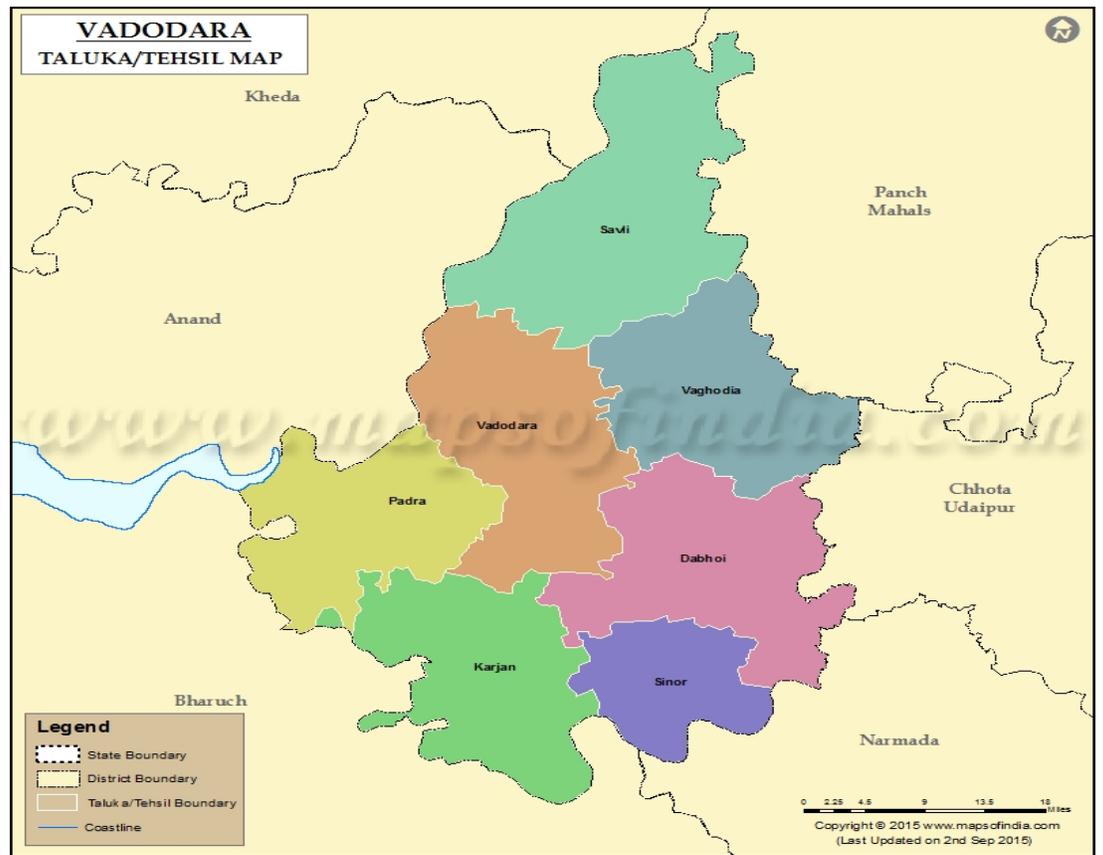
Introduction

Vadodara District is a district in the eastern part of the state of Gujarat in western India. The city of Vadodara (Baroda), in the western part of the district, is the administrative headquarters. Vadodara District covers an area of 7,794 km². It had a population of 3,641,802 of which 45.20% were urban as of 2001 census. As of 2011 it is the third most populous district of Gujarat , after Ahmadabad and Surat.

Vadodara district lies between 72.51`to 74.17` Eastern Longitude and 20.49` to 22.49` Northern Latitude on the World Map. Geographical area of the district is 7,555.55 sq. km. It falls in the Survey of India, degree sheets numbered 46B, 46F, 46J & 46G. The district is bounded in north & northeast by Anand, Chotaudapur districts, in south east by Narmada district & in south & in west by Bharuch district. Vadodara city, the district headquarter is about 100 km south of Ahmedabad, is well connected to other parts of the State & Country by network of highways and railway network.

Vadodara one of the most cosmopolitan cities in India is located to the South East of Ahmedabad on VishwamitriRiver"s bank. The district is known as "SanskarNagri" (City of Culture) due to its rich cultural traditions. It is famous for its Palaces, Parks, Temples and Museums. It is also famous as a "Gateway to the Golden Corridor", as all the rail and road arteries that link Delhi, Mumbai and Ahmedabad thorough Vadodara including Delhi-Mumbai Industrial Corridor (DMIC). Focus industries are Chemicals & Petrochemicals, Pharmaceuticals and Bio-technology. The district has 12 tehsils, 15 towns and 1,548 villages, of which the major towns are Vadodara (District Headquarter), Savli, Waghodiya, Padra, Dabhoi, Karjan and Shinor.

The historical city of Baroda was the capital of Baroda Residency, and one of the princely states of India under Bombay Presidency.



2. Overview of Mining Activity in the District

Mineral reserves in the district include Ordinary sand, black trap, quartzite, gravel. There are reserves of 7,300 lac tones of Ordinary Sand and 480 lac tones of BlackTrap lies in the district. The district accounts for as much as 58% of the total production of Ordinary Sand and Blacktrap in Gujarat.

List of Mines in the District with their location and validity.

SR .	Lease Code	Name Of The Lease Holder	Village	Taluka	Survey No.	Area (In Hect.)	Grant Date	Executi. Date
1	2	3	4	5	6	7	8	9
Ordinary Sand								
1	QL150200541 4	Nagajibhai Devajibhai Vanzara	Sayar	Karjan	392,395 ni Opp.	3.00.00	02.03.16	Pending
2	QL150209111 4	Dhagalaji Nangaji Vanzara	Sayar	Karjan	New 424,Old 357	3.0000	22.02.16	Pending
3	QL150200691 4	Naginbhai Khusalbhai Ode	Sayar	Karjan	335 NI Opp.	1.0000		
4	QL150200571 4	Bhikhiben Jayantibhai Ode	Sayar	Karjan	390 Ni Opp.	1.0000		
5	QL150208731 4	Minaben Naranbhai Ode	Sayar	Karjan	Blo:-392 Ne Lagu	1.0000	24.3.08	22.07.08
6	QL150200751 4	Ashokbhai Khusalbhai Ode	Sayar	Karjan	424 Ni Opp.	1.0000	24.3.08	22.7.08
7	QL150200711 4	Jayantibhai Khusalbhai Ode	Sayar	Karjan	390,391 Ni Opp.	1.0000	16.6.08	30.12.08
8	QL150208081 4	Naranbhai Khusalbhai Ode	Sayar	Karjan	Block:-391 Ne Lagu	1.0000	23.5.08	12.09.08
9	QL150200391 4	Nayanaben Natubhai Ode	Sayar	Karjan	392 Ni Opp.	1.0000	23.5.08	30.12.08
10	QL150208851 4	Ashwinbhai jayantibhai Ode	Sayar	Karjan	426,460,443 Ne	2.0000	19.2.09	10.6.09
11	QL150200411 4	Dharmendrakumar N. Vanzara	Sayar	Karjan	357,335,392 ne	1.8230	26.11.08	06.02.09
12	QL150200471 4	Bhikhiben Jayantibhai Ode	Sayar	Karjan	535 & 466 Ne Lagu	2.0600	19.03.07	04.06.07
13	QL150200461 4	Ashokbhai Khusalbhai Ode	Sayar	Karjan	466 Ni Opp. Narmda	2.0600	26.03.07	04.06.07
14	QL150200481 4	Nareshbhai Natubhai Ode	Sayar	Karjan	466,535 Ni Opp.	4.9000	26.03.07	04.06.07
15	QL150200321 4	Nileshbhai J. Ode	Sayar	Karjan	460,461 Ne Lagu	6.7000	30.9.08	10.06.09
16	QL150200671 4	Natubhai Khusalbhai Ode	Sayar	Karjan	4,24,423	1.2200	20.2.09	11.06.09
17	QL150200491 4	Naranbhai Khusalbhai Ode	Sayar	Karjan	461,462,463,465,	4.0000	20.02.09	10.06.09
18	QL150208071 4	Pravinbhai Shivrambhai Patel	Sayar	Karjan	668,424 Ni Opp.	1.0000	29.8.09	

19	QL150200441 4	Shailesh Balabhai Patel	Sayar	Karjan	424 Ni Opp.	1.0000	29.8.09	
20	QL150200601 4	Raghav Majoor Kamdar S.Mandli	Sayar	Karjan	463,466 Narmada river	10.0000	20.02.06	31.1.08
21	QL150200621 4	RaghaV Majoo kamdar S Mandli	Sayar	Karjan	538 Narmada river	3.0986	20.02.06	31.1.06
22	QL150200611 4	RaghaV Majoo kamdar S Mandli	Sayar	Karjan	537,538 Narmada river	8.3400	20.02.06	31.1.06
23	QL150200591 4	RaghaV Majoo kamdar S Mandli	Sayar	Karjan	538,539 Narmada river	8.9100	20.02.06	31.1.06
24	QL150200771 4	Bharatbhai Damjivhai Dudhagara	Pura	Karjan	582 to 593	0.6628	16.6.08	6.9.08
25	QL150200791 4	BhupendraSinh D.Chavda	Pura	Karjan	543 to 563 opp	3.8846	16.6.08	6.9.08
26	QL150208081 4	Naranbhai K Ode	Sayar	Karjan	538 lagu	3.1656	3.5.08	12.9.08
27	QL150200521 4	Vijaybhai Natubhai Ode	Sayar	Karjan	538,562 lagu Narmada	2.5103	12.5.08	12.9.08
28	QL150209151 4	Chotubhai Gokulbhai Salar	Delvada	Karjan	336 Lagu	1.1088	9.6.08	27.2.09
29	QP150200031 3	Sandipbhai Shankarbhai Patel	Oze	Karjan	Old 1428/ New 1617 paki	4.3352	21.7.08	19.5.09
30	QL150207241 4	Chandra Sarakshan Santha	Kothiya	Karjan	272 to 274 Narmada	10.0000	07.08.08	22.06.09
31	QL150207251 4	Thakorbhai Narsinhbhai Ode	Oze	Karjan	14,28,13,17 paiki	9.0000	23.5.08	24.6.09
32	QL150209161 4	Gulambhai Rasulbhai Malak	Somaj	Karjan	130	7.0119	21.7.08	24.6.09
33	QL150207271 4	Arvindbhai Narsinhbhai Ode	Oze	Karjan	new 1617 paiki	8.8267	26.5.08	24.6.09
34	QL150207281 4	Alpeshkumar Babubhai Panchal	Oze	Karjan	1428 paiki	9.0826	28.5.08	24.06.09
35	QL150207291 4	Sureshbhai Ravijbhai Ode	Sayar	Karjan	562 lagu	3.0000	24.02.16	Pending
36	QL150207541 4	Alpeshkumar Babubhai Panchal	Pura	Karjan	600 to 627 opp.	7.2728	9.6.08	8.9.09
37	QL150208861 4	Bhanubhai Jivrajbhai Sojitra	Pura	Karjan	584 to 600 opp	5.5296	9.6.08	17.9.09
38	QL150208091 4	Saied Ahmad Aaiyub Ansari	Somaj	Karjan	131 Paiki	4.9900	20.2.09	12.10.09
39	QL150207951 4	D.C.Shah & N.C.Shah	Sayar	Karjan	538 Paiki	0.7800	30.10.09	13.11.09
40	QL150209171 4	Sureshkumar Chotubhai Salar	Pura	Karjan	624 to 660 Opp.	7.2728	06.06.08	30.10.09
41	QL150209211 4	RAKESHBHAI GEMABHAI OD	FATEPUR	KARJAN	NARD RIVER OPP 267,268	9.9000	19.2.09	16.2.16
42	QL150209181 4	MADHUBEN GEMABHAI OD	FATEPUR	KARJAN	NARD RIVER OPP 290,6,7,8	9.9000	20.2.09	16.2.13
43	QL150209221 4	SHILPABEN KALPESHBHAI OD	KHONA	KARJAN	NARD RIVER OPP 391,394,408	9.9000	19.2.09	16.2.16
44	QL150209201 4	RONABEN RAKESHBHAI OD	FATEPUR	KARJAN	NARD RIVER OPP 269, 289	9.9000	20.2.09	16.2.16
45	QL150209251	Atulbhai P.Patel	Ranapur	Karjan	Opp.148 Gamtal	4.9000	7.12.09	7.5.10.

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46	QL150209291 4	Hirenkumar K.Pathak	Sayar	Karjan	463	0.7886	24.2.11	11.5.11
47	QL150209311 4	Sureshbhai F.Vasava	Nani Koral	Karjan	213/1-A Block No.280	0.6500	2.9.11	2.11.11
48	QL150209321 4	Sureshbhai F.Vasava	Nani Koral	Karjan	213/2,Block No-278	0.6000	2.9.11	2.11.11
49	QL150209361 4	Rajendrasinh F.Solanki	sayar	karjan	461 to 463,466 lagu	1.55	16.01.14	
50	QL150209371 4	Narubhai S.machhi	sayar	karjan	456	2.4788	13/4/12	19/5/12
51	QL150209431 4	Kanchanbhai V.Machi	Sayar	Karjan	Opp.536,537 Narmada River Bed	3.58.30	27.5.2013	1.6.2013
52	QL150209441 4	Indradeep M.Girasiya	Sayar	Karjan	Opp.460,461,462 Narmad River Bed	3.34.11	27.5.2013	1.6.2013
53	QL150209451 4	Rjaubhai M.Girasiya	Sayar	Karjan	Opp.443 Narmada Rived	3.39.25	27.5.2013	1.6.2013
54	QL150209481 4	Desai Abdulla Yusuf	Sayar	Karjan	444 (Private)	00.40.00	28.12.201 5	12.1.2016
55	QL150209491 4	Desai Abdulla Yusuf	Sayar	Karjan	465 (Private)	00.40.00	28.12.201 5	12.1.2016
56	QL150209501 4	Desai Kaniyalal Gandalal	Sayar	Karjan	359 / 1 (Private)	01.36.58	28.12.201 5	25.4.2016
57	QL150609051 4	Jagdishkumar Bhagubhai Patel	Chanwada	Dabhoi	13,12,11,10 Ne Lagu	1.9500	7.2.09	22.6.09
58	QL150602951 4	Jashbhai Ravjibhai Kaskiwala	Ordi	Dabhoi	14 & 15 Niche	3.0000	26.11.06	24.02.07
59	QL150602991 4	Jagdishbhai Bhagubhai Patel	Sitpur	Dabhoi	46 Ni Opp.	3.0000	27.03.07	19.06.07
60	QL150602921 4	Jagdishbhai Bhagubhai Patel	Paragam	Dabhoi	37,45 Ne lagu	4.0000	29.4.08	30.6.08
61	QL150609101 4	Vasantbhai Hiralal Patel	Sitpur	Dabhoi	128 Ne Adine Avel	2.5000	02.09.08	07.11.08
62	QL150603071 4	Anilkumar Bhagubhai Patel	Akoti	Dabhoi	233,234,235 Ni Opp.	2.0000	27.03.07	19.06.07
63	QL150603061 4	Gordhanbhai Jashbhai kaskiwala	Sitpur	Dabhoi	Opp. Of Gam Tal	4.0000	26.11.06	14.02.07
64	QL150609061 4	Divyaben Vasantbhai Patel	Asodara	Dabhoi	3/1,294 Ni Opp.	3.6000	23.05.07	19.06.07
65	QL150603101 4	Kanubhai Becharbhai Kaskiwala	Akoti	Dabhoi	231,233 Orsang	1.0000	02.09.08	18.12.08
66	QL150603111 4	Ramesh Jashbhai Kaskiwala	Ordi	Dabhoi	29 to 33 Orsang	2.0000	02.09.08	18.12.08
67	QL150603081 4	Manjulaben Natvarbhai Bariya	Karnet	Dabhoi	548 Ne Lagu	2.8000	26.2.09	10.06.09
68	QL150603511 4	Rajubhai Jashbhai Thakor	Juni	Dabhoi	112,118 & 120 Ni Op.	4.0000	28.6.07	30.7.07
69	QL150603531 4	Jashbhai Ravjibhai Kaskiwala	Gumanpur a	Dabhoi	120,119 Ni Opp.	2.0000	07.03.07	24.05.07
70	QL150603541 4	Ramesh Jashbhai Kaskiwala	Gumanpur a	Dabhoi	97,102,103 Ni Opp.	4.0000	18.03.16	
71	QL150603451 4	Divyaben Vasantbhai Patel	Bhilodiya	Dabhoi	21,22 Ni Opp.	1.7500	30.04.16	

72	QL150604031 4	Vasantkumar Hiralal Patel	Sitpur	Dabhoi	128(142 to 134)ni Opp	4.5000	31.03.07	19.06.07
74	QL150603591 4	Rameshbhai Chhitabhai Thakor	Juni	Dabhoi	129 Ni Opp.	2.0000	29.8.09	12.11.09
75	QL150602971 4	Rameshbhai Manilal Thakor	Sitpur	Dabhoi	27,28 Ne Lagu	3.0000	29.8.09	30.10.09
76	QL150603201 4	Rajnitkant Manibhai Patel	Bhimpura	Dabhoi	244 Ne Lagu	3.6500	31.01.07	24.05.07
77	QL150603191 4	Divyaben Vasantbhai Patel	Sitpur	Dabhoi	128 Ne Lagu	1.5000	15.02.07	17.05.07
78	QL150603901 4	Nirmalsinh Ranmalsinh Chawda	Bhilodia	Dabhoi	31,22 Ni Opp	1.9100	25.7.07	7.11.07
79	QL150603661 4	Simaben Laxmanbhai Vankar	Sitpur	Dabhoi	119,123 Ni Opp.	3.0000	31.05.06	01.09.06
80	QL150603701 4	Anilkumar Bhagubhai Patel	Chanwada	Dabhoi	10 to 14 Ni Opp.	0.8000	15.6.09	27.8.09
81	QL150603391 4	Ganshyam Vithhalbhai Vankar	Sitpur	Dabhoi	123,124,125 Ne Lagu	2.2500	31.05.06	01.09.06
82	QL150603711 4	ikbalkha Nivajkha Kureshi	Chanwada	Dabhoi	8 Ni Opp. Orsang	1.4700	29.02.16	
83	QL150603601 4	Bharatbhai Jivrajbhai Patel	Bhimpura	Dabhoi	344,344/2 Orsang	2.3592	17.9.09	
84	QL150603651 4	Laxmiben Jashbhai Kaskiwala	Paragam	Dabhoi	17,51,74,17,31,72,17 1	5.9000	25.05.06	13.08.06
85	QL150603771 4	Krushu Vasantbhai Patel	Sitpur	Dabhoi	128 Paiki	2.0000	27.2.09	17.6.09
86	QL150603361 4	Ansuyaben Jyotendrabhai Bhatiya	Karnet	Dabhoi	547 Ne Lagu	4.2681	10.05.07	13.07.07
87	QL150603791 4	Tarunbhai Manubhai Patel	Bhimpura	Dabhoi	9,10 B Ne Lagu	2.6300	06.07.07	20.07.07
88	QL150603781 4	Jyotendrabhai Nathalal Bhatiya	Karnet	Dabhoi	Block No.12 Ne Lagu	2.5141	06.07.07	30.07.07
89	QL150603741 4	Iqbalbakha Nivajkha Kureshi	Asodara	Dabhoi	22,22/1 orsang nadi	0.6292	19.02.16	
91	QL150608101 4	Goradhanbhai jasabhai kaskivala	Rajupura	Dabhoi	15	2.0000	18.03.16	
92	QL150609021 4	Alpaben anilbhai patel	Paragam	dabhoi	45,46	1.8908	02.03.16	
93	QL150609031 4	Ranjanben Jagdishbhai Patel	paragam	dabhoi	21,22,35,36 opp orasang	7.3175	18.03.16	
94	QL150603271 4	Iqbalbakha Nivajkha Kureshi	Sitpur	dabhoi	115,118 Ne Lagu	1.8284	*17.07.13 *	25.11.13
95	QL150609081 4	Nazimkha Nivajkhan Kureshi	Chanvada	dabhoi	291,297, Ne Lagu	3.8600	*17.07.13 *	25.11.13
96	QL150603611 4	Kiritkumar Ambalal Patel	Bhimpura	dabhoi	344 / 2 Ne Lagu	4.6000	*17.07.13 *	25.11.13
97		Kirankumar Kantilal Patel	Sitpur	dabhoi	128 Ne Lagu	4.9000	18.01.16	
98	QL150401421 4	Ranjitji Rupaji	Poicha	Savli	1008,1012.,1013	1.0000	20.2.08	29.4.08

		Vanzara						
99	QL1504014514	Bhalabhai Makansinh Parmar	Chhaliyer	Savli	752 ne Lagu	1.0000	29.8.09	21.12.09
100	QL1504020414	Natubhai Somabhai Chauhan	Ganeshpura	Savli	47,48,49 Opp.	1.0000	16.2.08	13.5.08
101	QL1504020814	Natubhai Somabhai Chauhan	Poicha	Savli	767,785,786,947,	3.0000	27.2.09	22.5.09
102	QL1504021114	Khodsinh Mohansinh Parmar	Poicha	Savli	7,50,75,17,54,755	3.0000	27.2.09	22.5.09
103	QL1504021314	Juvansinh Jitsinh Waghela	Poicha	Savli	956,957,967 Ne	2.0000	27.2.09	22.5.09
104	QL1501096214	Punjiben Gordhanbhai Gohil	Fajalpur	Vadodara	524 & 431 Ni Near	2.0000	25.1.08	29.4.08
105	QL1501095514	Vajesinh Raisinh Gohil	Fajalpur	Vadodara	576 Ne Lagu Mahi	1.0000	29.8.09	30.10.09
106	QL1501078114	Laxmanbhai Galabhai Gohil	Kotna	Vadodara	105/1,104/1,99 Opp.	0.8767	28.05..15	Pending
107	QL1501095814	Arjunbhai Gababhai Gohil	Kotna	Vadodara	190,12/1,190/11/1	0.5890	17.9.09	5.1.10
108	QL1501095814	Ranchodbhai Gababhai Gohil	Kotna	Vadodara	117/3/1 Ne Lagu	0.5300	17.9.09	5.1.10
109	QL1501002914	Natvarsinh Dalpatbhai Gohil	Kotna	Vadodara	190/9,190/12 opp	1.4376	25.7.07	7.11.07
110	QL1501082614	Kantibhai Desai bhai Gohil	Fazalpur	Vadodara	Opp. 549, 560	1.0000	16.4.08	3.5.08
111	QL1501095614	Vajesingh Raysingbhai Gohil	Fazalpur	Vadodara	548,549 lagu	1.0000	28.5.08	1.8.08
112	QL1501096514	manoj chatur khambhati	por	Vadodara	183 KHANGI	0.7284	16/9/10	2.2.11
Black Trap								
1	QL1504009615	Babar bhai R. Patel	Varsada	Savli	195 Ne Lagu Mahi Ri.	10.0000	26.11.06	28.05.07
2	QL1504013715	Jivanlal J. Patel	Varsada	Savli	22,64,61,26,22,63,264	7.0000	30.11.06	14.2.07
3	QL1504011315	Dharma Quarry Works	Varsada	Savli	Mahi River Pat	10.0000	22.03.03	30.06.03
4	QL1504010415	Gurukrupa Quarry Works	Jambugoral	Savli	Mahi River Pat	2.0000	20.01.07	
5	QL1504013915	Gurukrupa Quarry Works	Jambugoral	Savli	Mahi River Pat	1.0000	20.01.07	23.04.07
6	QL1504013815	Gurukrupa Quarry Works	Jambugoral	Savli	Mahi River Pat	3.0000	20.01.07	23.04.07
7	QL1504011115	Rajanikant Bhikhabhai Desai	Jambugoral	Savli	Mahi River Pat	3.0000	26.12.01	06.09.03
8	QL1504011415	Shantibhai Bhikhabhai Desai	Jambugoral	Savli	Mahi River Pat	3.0000	29.11.03	21.07.06
9	QL1504091015	Giriraj Mines	Udhalpur	Savli	61/2	4.8755	30.06.06	27.09.06
10	QL1504016415	Bhagirath Quarry Works Transferred form purna stone	Udhalpur	Savli	25/2.	3.3772		29.05.06
11	QL1504094015	Gurukrupa Quarry Works	Jambugoral	Savli	Mahi River Pat Paiki	(1.0.00)2.61	18.10.05	21.07.06
12	QL1504011915	Dharma Quarry	Varsada	Savli	234	1.7098	15.02.07	24.05.07

		Works						
13	QL150409491 5	Ravjibhai Laxmidas Patel	Kanoda	Savli	403,404 Ne lagu	1.0000	20.5.09	12.8.09
14	QL150401271 5	Shiv Shakti Quarry Works	Jambugoral	Savli	218/56 Paiki	1.0000	31.05.03	11.08.03
15	QL150401281 5	Anand Quarry Works	Udhalpur	Savli	52 K Paiki	2.7308	31.08.03	22.12.03
16	QL150401261 5	Jagat Minerals Pvt Ltd.	Udhalpur	Savli	59/1(138,1,2)	2.0000	09.11.01	19.01.02
17	QL150409381 5	Mukeshkumar Jivanlal patel	varasda	Savli	148/1 Paiki	1.0000	15.07.02	30.09.02
18	QL150407771 5	Arvindbhai Bhulabhai Patel Tran.To dharm quarry	Varsada	Savli	256,257 Ni Ajubaju	1.0000	31.01.04	24.08.06
19	QL150410001 5	Panchratn Mines	Udhalpur	Savli	71/1	1.0000	29.11.03	25.10.04
20	QL150409431 5	Gutambhai Ranchodbhai Patel,transfer to mukesh quarr	Jambugoral	Savli	148/9 Opp. Mahi River	1.0000	30.06.04	14.07.05
21	QL150409441 5	Nayanaben Ramkantbhai Patel transfer to mukesh quarry	Jambugoral	Savli	148 Ni Opp. Mahi	1.0000	30.06.04	14.07.05
22	QL150402091 5	Jagat Mineral Pvt. Ltd	Udalpur	Savli	59, 59/1	6.8600		17.06.06
23	QL150407731 5	Bhavnath Mental Quarry	Vejpur	Savli	384 Paiki	2.0000	29.2.08	19.3.08
24	QL150402241 5	Yogikrupa Quarry Works	Varsada	Savli	340 Paiki	0.3642	22.5.08	24.12.08
25	QL150402251 5	Parshuram Quarry Works	Jambugoral	Savli	222/2 Paiki	1.0000	18.3.08	28.4.08
26	QL150409511 5	Balubhai Hathibhai Rathod	Jambugoral	Savli	218/98/1	1.4164	16.9.08	27.2.09
27	QL150402281 5	B.R.Patel Quarry Works	Varsada	Savli	2,58,26,02,61,262	7.8218	26.6.08	2.9.08
28	QL150402291 5	Yogikrupa Quarry Works	Varsada	Savli	24,82,67,26,82,69,270	9.2782	30.6.08	2.9.08
29	QL150402191 5	M/s. Star Minerals	Tulsigam	Savli	127/1 Paiki	2.8659	23.5.08	6.9.08
30	QL150409521 5	Chandreshkumar Harshadray Shah	Gulabpura	Savli	141 Same, Karad River	2.0000	27.3.08	
31	QL150402351 5	Shiv Shakti Quarry Works	Jambu-	Savli	218/56	2.2900	06.09.99	26.06.00
32	QL150402381 5	Bhimsinh Meramanbhai Pithiya	Varsada	Savli	339 Paiki	0.2497	10.08.00	23.10.00
33	QL150402371 5	Devanandbhai Parbatbhai Pithiya	Vejpur	Savli	384 Pakiki	1.8432	10.8.00	23.10.00
34	QL150409371 5	M/s. Yogikrupa Quarry Works	Varsada	Savli	No Number Kotar Paiki	0.2764	04.09.00	24.11.00
35	QL150402451 5	Malavdipsinh Chandrasinh Raulaji	Udalpura	Savli	39/1/1 Paiki	1.5000	17.10.00	15.12.00
36	QL150402361 5	M/s. Kalyan Metal Quarry	Jambugoral	Savli	218,218/1,218/19	2.5000	26.04.00	06.06.01
37	QL150409411 5	Gautamkumar Ranchodbhai Patel,transfer to mukesh quarr	Jambugoral	Savli	148/1 Paiki	3.0000	20.07.01	28.08.01
38	QL150402521 5	M/s. Shreyas Quarry works	Vejpur	Savli	382 Paiki	0.6000	17.10.01	24.01.02
39	QL150409501	Yadunandan Stone	Ajabpura	Savli	357/1 & 2 Karad River	1.9400	19.12.02	07.04.03

	5	Crusher Company						
40	QL150401581 5	Panchratna Mines	Udalpur	Savli	71/1 Paiki	2.0000	28.10.02	19.05.03
41	QL150409381 5	MukeshKumar Jivanlal Patel, transfer to mukesh quarr	Varsada	Savli	265/4 Paiki	1.8818	19.05.03	04.09.03
42	QL150400921 5	Sadbhav Quarry Works	Tulsigam	Savli	161 Paiki	4.0000	29.4.08	5.7.08
43	QL150401731 5	Super Quarry Works	Tulsigam	Savli	128 Paiki	2.1015	10.11.04	17.06.06
44	QL150401741 5	Giriraj Quarry Works	Udalpura	Savli	58/1	2.8064	25.05.06	17.06.06
45		Yogeshkumar Sureshbhai Patel	Prathampur a	Savli	200 to 206 karad river	1.0000	29.10.05	27.06.06
46	QL150401881 5	Bharatkumar Gangdasbhai Patel	Amrapura	Savli	333,343,626 River	1.3300	19.07.06	21.07.06
47	QL150401751 5	Parshuram Quarry Works	Jambugoral	Savli	222/2	1.0000	12.06.06	13.08.06
48	QL150401891 5	New Giriraj Quarry Works	Tulsigam	Savli	5 Paiki	1.0000	19.06.06	19.06.06
49	QL150409481 5	Ramakant Jivanlal Patel transfer to mukesh quarry	Jambugoral	Savli	148/7,147/8	2.0000	31.12.05	22.09.06
50	QL150402721 5	Dadabhai Kanjibhai Charan	Ganeshpura	Savli	52 Paiki	0.8100	28.02.05	26.10.05
51	QL150401631 5	Devanand Parbatbhai Pithiya	Vejpura	Savli	382/1,383,385 Paiki	3.0000	03.11.04	15.11.06
52	QL150401661 5	Manki Stone	Udhalpur	Savli	68/1.	0.4158	28.09.06	16.12.06
54	QL150401671 5	Bhagirath Quarry Works	Udhalpur	Savli	25/1 Paiki	0.8008	28.12.06	19.01.07
55	QL150401821 5	B.D.Patel Quarry Works	Udhalpur	Savli	67/B,67/1B,67/2B	3.0192	26.12.06	19.01.07
56	QL150401911 5	Parsotambhai Virajibhai Patel	Lachhanpur a	Savli	181/1,181/2	1.7842	19.12.06	02.05.07
57	QL150402231 5	Rudra Construction	Jambugoral	Savli	351/1/1	1.0000	15.02.07	23.04.07
58	QL150402441 5	Harunbhai Gulammahmad Mansuri	Jambugoral	Savli	117A Ni Opp. Mahi river	0.8800	28.12.06	10.05.07
59	QL150401651 5	Bharat Quarry Works	Varsada	Savli	134	1.0000	20.12.06	03.05.07
60	QL150402541 5	Sainath Quarry Works	Itvad	Savli	325 Ni Opp. Mahi river	1.0000	24.05.07	14.06.07
61	QL150409531 5	Simandhar Quarry Works	Kalupura	Savli	25 Opp Mahi river	4.0000	23.05.07	21.7.07
62	QL150409541 5	Simandhar Quarry Works	Amrapura	Savli	417 to 419 opp	7.0000	23.5.07	21.7.07
63	QL150402271 5	Jay Jalaram Quarry Works	Tulsigam	Savli	140 A Paiki	0.5000	28.6.07	13.9.07
64	QL150402261 5	Dipakkumar N Hemrajani	Udalpur	Savli	60	0.5013	28.6.07	13.9.07
65	QL150402471 5	New Giriraj Quarry	Udalpur	Savli	69A Paiki	1.0000	7.3.08	19.3.08
66	QL150402401 5	Rudra Construction	Jambugoral	Savli	351/1,2 lagu	5.0000	6.5.08	23.6.08
67	QL150402431 5	Pramukh M Quarry	Jambugoral	Savli	117, 117 A, Mahi river	1.0000	29.4.08	30.6.08
69	QL150402441 5	Harun Nasid G Mansuri	Jambugoral	Savli	405,406,407/1 same	4.3411	16.4.08	18.7.08
70	QL150402391 5	Subhashbhai Jesingbhai Patel c/o bharat quarry	Varsada	Savli	134	2.6552	31.5.08	31.7.08
71	QL150401531	Hasmukhlal	Vejpur	Savli	382 Paiki 2	1.0000	21.7.08	19.9.08

	5	Mohanlal Shah						
72	QL150409341 5	Anand Quarry Works	Udalpur	Savli	52 K Paki	0.5264		25.11.08
73	QL150409471 5	Vijaykumar Jivanlal Thakkar	Jambugoral	Savli	Opp. 118/1	4.9900	2.9.08	19.1.09
74	QL150401561 5	Vijaykumar Jivanlal Thakkar	Jambugoral	Savli	Opp. 377 to 379	10.0000	2.9.08	24.1.09
75	QL150401941 5	Vijaykumar Jivanlal Thakkar	Jambugoral	Savli	Opp.377 To 374	10.0000	2.9.08	24.1.09
76	QL150402711 5	Jay Sainath Quarry Works	Intwad	Savli	Opp. 325	3.6291	14.10.08	27.2.09
77	QL150409471 5	vijaybhai jivanbhai thakkar	jambu goral	Savli	118/12 lagu mahi	3	29/12/08	12.8.09
78	QL150409831 5	Pravinbhai Parabatbhai patel	Himatpura	Savli	41,42,lagu mahi	4	6.10.09	8.11.09
79	QL150409351 5	Shivam ston crusher	jambu goral	savli	218/78-b paiki	0.8487	30.10.09	1.12.09
80	QL150409361 5	Bhagirath quarry worcks pvt.ltd.	udalpur	savli	63/3	1.7279	30.10.09	1.12.09
81	QL150409851 5	Giriraj Quarry worck	udhalpur	SAVLI	58	3	1.12.09	27.1.10
82	QL150409841 5	National Stone Mines	Tulsigam	savli	162 Pikki (Private)	4.0468	15.4.10	3.5.10
83	QL150409861 5	Pramukh Metal Quarry	Jambugoral	savli	218/20 Pikki	2	9.6.10	29.6.10
84	QL150409881 5	Jay Khodiyar Stone Quarry	Jambugoral	savli	218/61	2.36	8.9.10	30.11.10
85	QL150409891 5	Shailesh V.Patel	Jambugoral	savli	218/47	1	27.9.10	8.12.10
86	QL150409901 5	Dadabhai Knajibhai Charan	Prathampur a	Savli	235-B	1	15.9.10	2.2.11
87	QL150409911 5	Anand Construction	Kanoda	Savli	393	3	15.9.10	21.2.11
88	QL150409921 5	Sadbhav Quarry	Tulsigam	Savli	164	5	16.9.10	21.2.11
89	QL150410011 5	Nareshbhai J.Patel	Tulsigam	Savli	5 Pikki 3	2	24.2.11	15.4.11
90	QL150409971 5	Sadbhav Quarry Works	Tulsigam	Savli	163/2,163/3	2.961	22.2.11	21.11.11
91	QL150409951 5	New Giriraj Quarry Works	Tulsigam	Savli	5 Paiki	2.13.65	15.2.11	29.8.11
92	QL150409941 5	Panchratna Mines	Tulsigam	Savli	174 Paiki 2	3.00.00	10.3.11	29.8.11
93	QL150409961 5	M/s,Dharti Metals	Udalpur	Savli	63/3 (Private Land)	0.80.00	16.9.10	23.9.11
94	QL150409981 5	Somnath Quarry Works	Jambugoral	Savli	218/47-a	1.50.00	6.1.12	20.1.12
95	QL150409991 5	Vinodbhai L.Pithiya	Jambugoral	Savli	238/1	0.79.93	21.1.12	8.2.12
96	QL150410001 5	Panchratna Mines	Udalpur	Savli	71/1-p	1	17/3/12	14/5/12
97	QL150410021 5	Shreyash Quarry Works	vejalpur	Savli	382 Paiki	0.40.00	03.04.2013	31.05.2013
98	QL150410031 5	Prabhu Ispat Pvt.Ltd.	Udalpur	Savli	70/1/1,76/1/1	6.58.62	28.01.14	09.09.2015
99	QL150410041 5	Raj Quarry	Udalpur	Savli	154/1	1.00.00	18.12.2016	16.01.2016
100	QL150401131 5	Dharma Quarry Works	Varasda	Savli	232 River	2.1651	28.05.15	24.08.81

Hard morrum

1	QL150502831 6	Amaranath Quarry Works	Chandpura	Waghodiya	41	3	29.9.08	27.2.09
2	QL150509891 6	Divyant T.Patel	vasvel	Waghodiya	183-p	3.1237	04/06/2011	04/09/2012

3	QL150509871 6	Divyant T.Patel	Chandpura	Waghodiy a	41	6.3	04/06/2011	04/09/2012
4	QL150509881 6	Divyant T.Patel	Chandpura	Waghodiy a	41 p	5.4571	04/06/2011	04/09/2012

Quartzite

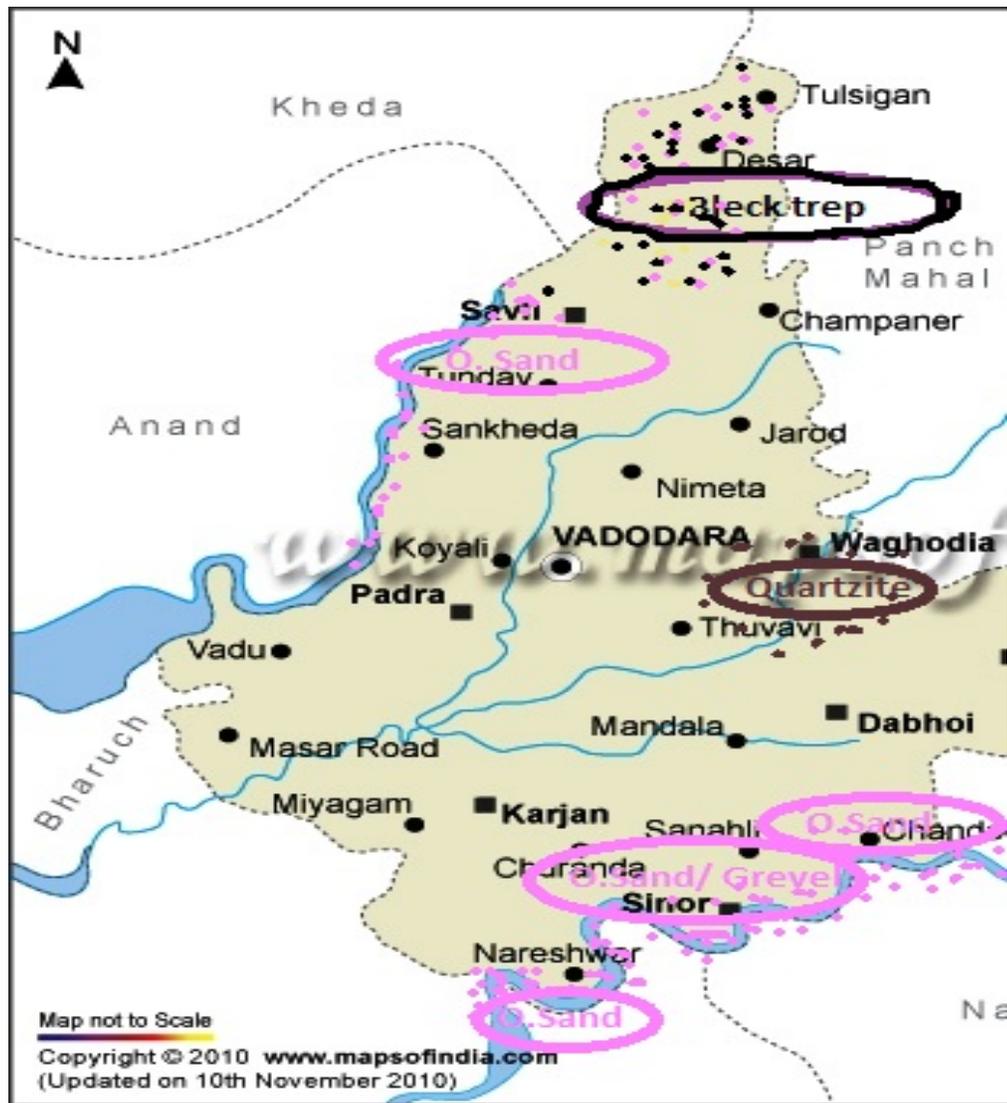
1	QL150508360 1	Dahyabhai Kesurbhai Patel	Vasvel	Waghodia	183 Paiki	1.0000	31.07.03	15.12.03
2	QL150508380 1	Dharmishthaben Nitinbhai Barot	Kherwadi	Waghodia	92 Paiki	2.0000	31.1.08	17.3.08
3	QL150508390 1	Dharmishthaben Nitinbhai Barot	saidal	Waghodia	92 Paiki	1.0000	25.09.00	22.07.02
4	QL150509840 1	Mass Construction Co.	Gugalpur	Waghodia	122 Paiki	4.5000	27.05.15	
5	QL150508430 1	Shanabhai Bhagabhai Vasava	Gugalpur	Waghodia	122 Paiki	1.0000	31.05.05	29.05.06
6	QL150508440 1	Niruben Budhabhai Vasava	Vasvel	Waghodia	183	1.0000	15.5.08	1.8.08
7	QL150508450 1	Nasirkha Alimahamad Pathan	Chadpura	Waghodia	41	0.6813	25.7.08	12.9.08
8	QL150508460 1	Kiritsinh Pratapsinh Sindha	Gugalpur	Waghodia	122	1.0000	29.9.08	26.12.08

Grevel

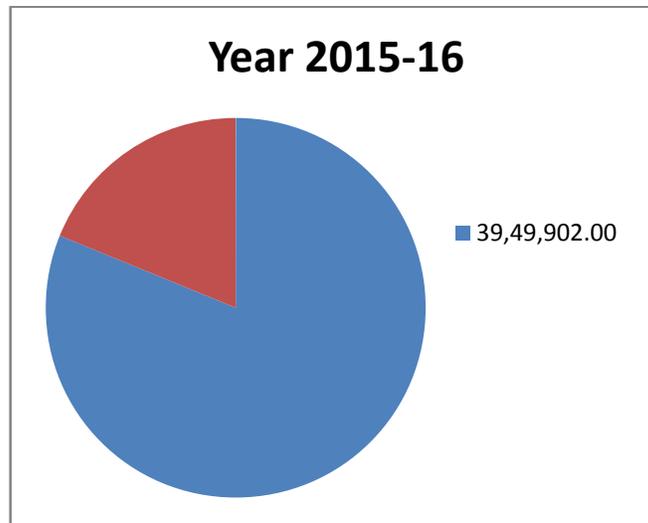
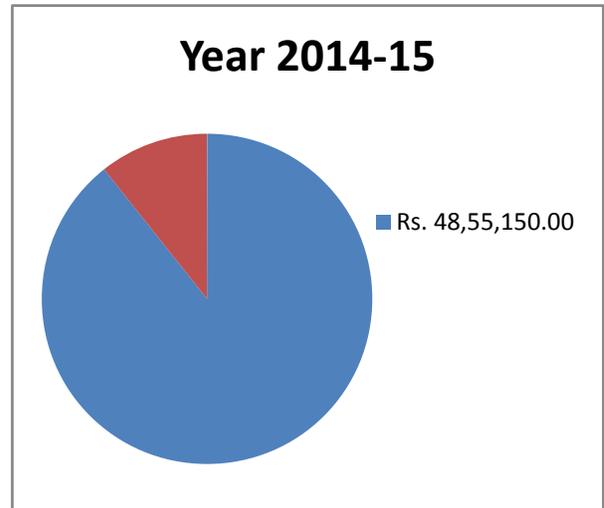
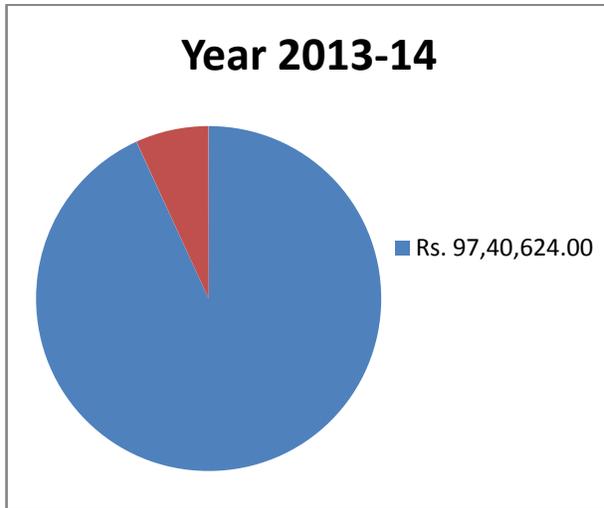
1	QL151208910 5	shardaben zaverbhai dodiya	moletha	shinor	805,810 opp narmada	4.9000	29/6/09	12.10.09
2	QL151209590 5	shardaben zaverbhai dodiya	moletha	shinor	8,11,771	4.9000	29/6/09	30.10.09
3	QL150409870 5	ASHAJEE H. VANZARA	KALUPURA	SAVLI	MAHI OPP 25	1	29.8.09	11.1.10
4	QL150409930 5	Ranjitji Rupaji Vanzara	Poicha	Savli	1008,1012.,1013	1.0000	20.2.08	29.4.08

Ordinary Clay

1	QL150100161 3	Harivadan Kashibhai Prajapati	Anakhi	Vadodara	Opp 70	0.5225	20.5.08	23.6.08
2	QL150109611 3	Vasantbhai Kashibhai Prajapati	Por	Vadodara	182 Lagu	1	24.5.08	24.6.08
3	QL150100081 3	Ikshitbhai M. Amin	Sindhrot	Vadodara	570	7	9.2.09	22.2.09
4	QL150100171 3	Manoj Chaturbhai Khambhati(.Sand)	Por	Vadodara	49 (Private)	0.9813	16.9.10	2.2.11



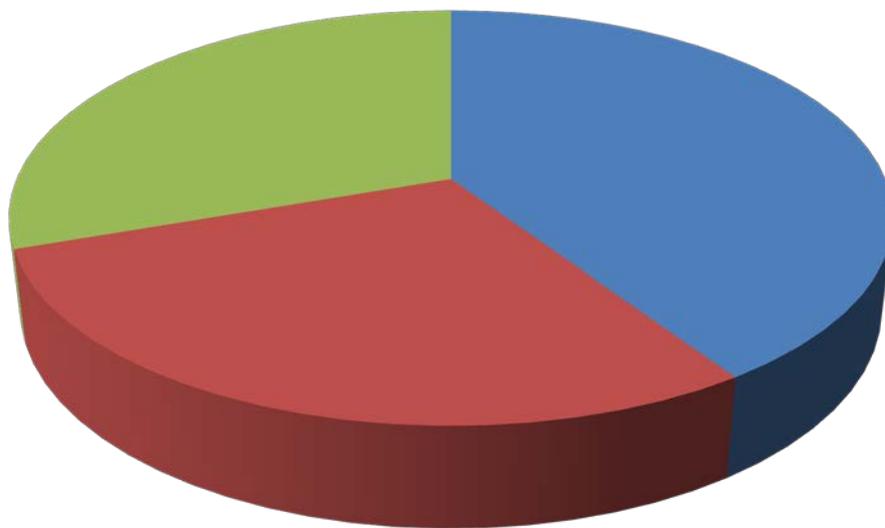
4. Details of Royalty (Mineral wise) Received in Last Three Years



5. Detail of Production of Sand or Bajri in last Three Years:

Financial Year	Production of Sand in Cum
2013-14	97,40,627.00
2014-15	48,55,150.00
2015-16	39,49,902.00

Production of Sand or Bajri in Cum



6. Process of Deposition of Sediments in the rivers of the District

Process -

Sediment is a naturally occurring material that is broken down by processes of weathering and erosion, and is subsequently transported by the action of wind, water and/or by the force of gravity acting on the particles. Sediments are most often transported by water.

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

If the upwards velocity approximately equal to the settling velocity, sediment will be transported downstream entirely as suspended load. If the upwards 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 saltating (jumping up into the flow, being transported a short distance then settling again). If the upwards velocity is higher than the settling velocity, the sediment will be transported high in the flow as wash load.

As there are generally a range of different particle sizes in the flow, it is common for material of different sizes to move through all areas of the flow for given stream conditions.

Sand mining is critical to infrastructure development around the globe. Sand is an essential minor mineral used extensively across the country as a useful construction constituent and variety of other uses in sports, agriculture, glass making (a form of sand with high silica content) etc. The rivers are the most important source of Sand. It acts as source of transportation and deposition of sand and Bajri etc. The various factors governing the occurrence and deposition of sand is country rock i.e. geological disposition, climate, rainfall, water load physical parameters of river and velocity of water current.

It is common knowledge that minerals are non-renewable but this form of mineral naturally gets replenished from time to time in a given river system and is very much interrelated to the hydrological cycle in a river basin.

Riverine environmental systems are unique in themselves and provide environmental services, natural resources to meet variety of needs of urban and rural communities. The Rivers originating from the highland of vindhyan in Madhya pradesh bring with them lots of aggregate materials whereas as they move downstream, only finer elements / minerals like sand are found in abundance.

SEDIMENTATION YIELD and PRODUCTION

The Universal Soil Loss Equation (USLE) is a widely used mathematical model to compute sedimentation yield from a river bed. Soil erosion within watersheds results in sedimentation which gets deposited along the river course. The rainfall energy interacts with terrain parameters and results in water induced soil erosion. It comprises of sequential actions viz. detachment of particles from soil mass, transportation of soil particles. The parameters like soil characteristics, terrain slope length & steepness, land-use/land-cover and land management practices are considered as given below in the empirical equation (Source: Auckland Regional Council Landfacts S-05, "Estimating Sedimentation Yield Using Universal Soil Loss Equation (USLE)".)

$$A = R \times K \times LS \times C \times P \times SD \times SE$$

Where,

A= Sedimentation Yield, (tons/annum)

R=Rainfall Erosion Index, (J/ha)

K=Soil Erodibility Factor (tons/unit of R)

LS=Slope Length and Steepness Factor

C=Ground Cover Factor

P=Roughness Factor

SD= Sediment Delivery Ratio

SE=Sediment Control Efficiency

Calculation of Sedimentation Yield for Proposed Project Site:

Using USLE, Year-wise Sedimentation Yield is calculated. All the parameters for the USLE and Sedimentation Yield is given below in Table.

Parameters for the USLE and Sedimentation Yield

Parameters
Rainfall Erosion Index, (J/ha)
Soil Erodibility Factor (tons/unit of R)
Slope Length and Steepness Factor
Ground Cover Factor
Roughness Factor
Study Area (ha)
Time (Years)
Sediment Delivery Ratio
Sediment Control Efficiency
Sedimentation Yield, (tons/annum)
Drainage Area(ha)
Lease Area (ha)
Sedimentation Yield for the Site

After extraction of the mineral from the Reserve, the remaining Reserve as well as sediment replenishment of that year will be available for extraction every next year. As the sediment control efficiency will gradually increase every year due to increase in mining activity, the sedimentation yield will also increase every year.

7. General Profile of the District

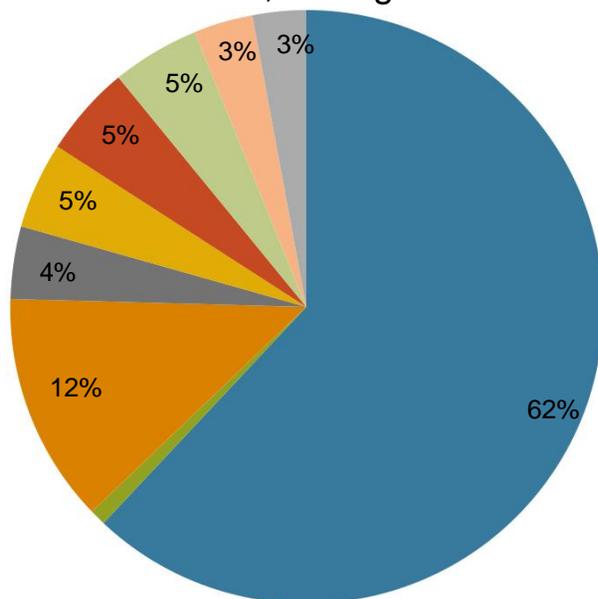
S.No	Particular	Statistics
1)	General Information	
	Geographical Area	235 Sq.km.
	Administrative Division/Number of Tehsil	7
	No. of Panchayat/Villages	869/1537
	Population(As per Census 2011)	41,57,626
	Average Annual Rainfall	1171.4mm
2)	Geomorphology	
	Major Physiographic Units	Plateau, Denudation slope.
	Major Drainage	Nil
3)	Land use (Km ³)	
	Forest Area	77788 H(with Chhota udepur Dist.)
	Net area sown	198024
	Gross cropped area	564043 H(with Chhota udepur Dist.)
4)	Major Soil Types	4
5)	Principal Crops	
	Irrigation By Different Sources	
	Dugwells	123669H(with Chhota udepur Dist.)
	Tube Wells/Borewells	
	Tanks/Ponds	24
	Canals	7
	Other Sources	125931
	Net Irrigated Area	1,99,808H (with Chhota udepur Dist.)
	Gross Irrigated Area	2,35,860H(with Chhota udepur Dist.)
6)	Number of Ground Water Monitoring Wells of CGWB(31.03.2013)	
	Number of Dug Wells	
	No. Piezometers	40m amsl(N)
7)	Hydrogeology	
	Major Water Bearing Formation	
	Pre-Monsson depth to Water level during 2012	10-20(m.bgl.)
	Post Monsoon depth to water level during 2012	02-10(m.bgl.)
8)	Efforts of artificial Recharge & Rain Water Harvesting	
	Projects completed by CGWB (No. & Amount Spent)	Nil
	Projects under technical guidance of CGWB (Numbers)	Nil
10)	Ground Water Control and regulation	
	Number of Blocks	Nil
	Number of Critical Blocks	Nil
	Number of Blocks Notified	Nil
11)	Major Ground water problems and issues	Depletion of water levels

8. Land Utilization Pattern in the district: Forest, Agriculture, Horticulture, Mining etc.

(Area in Hect.)

Area For Land Utilization Statistics	Area Under Mining Activities	Forests	Not Available for Cultivation			Other Uncultivated Land Excluding Fallow Land				Fallow Land			Net Area Sown	Total Cropped Area	Area Sown More Than Once
			Area Under Non Agricultural Uses	Barren And Un-Cultivated Land	Total	Permanent Pastures And other Grazing Lands	Land Under Misc Tree Crops and Groves Not included in Net Area	Cultivable Waste Land	Total	Fallow Land Other Than Current Fallows	Current Fallow	Total			
493092	6610.951	100028	31398	37192	68590	39621	129	37669	77419	25767	23264	49031	198024	263555	65531

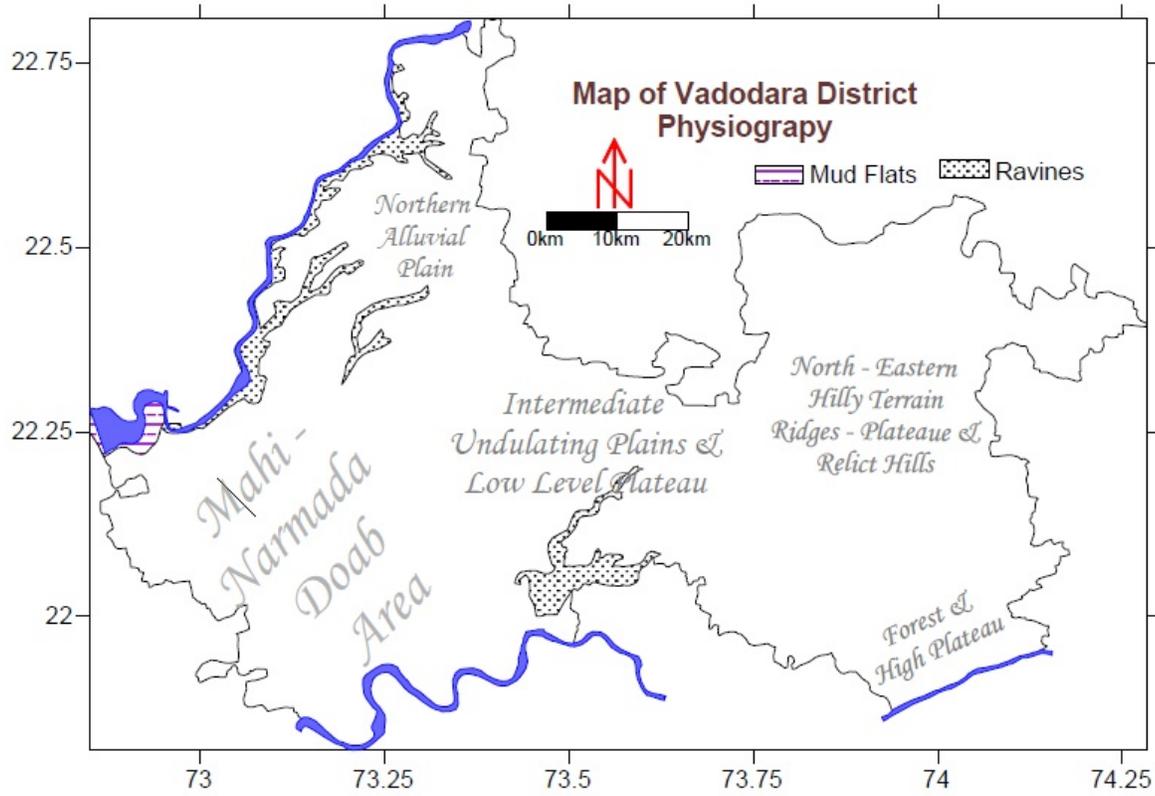
Land Utilization Pattern in the District: Forest, Agriculture, Horticulture, Mining



- Area for land utilization statistics
- Area under mining activities
- Forests
- Area Under Non agricultural uses
- Barren and uncultivated land
- Permanent pastures and other grazing lands
- Land under misc tree crops and groves not included in net area
- Cultivable waste land
- Fallow land other than current fallows

9. Physiography of the District

Vadodara district forms a part of the great Gujarat plain. The south eastern plateau have the highest peaks of the district – AmbaDungar&MandaiDongar 637 m amsl. The rest of the district, the western & southern part, comprising of Mahi& Narmada Doab, is a level plain with gentle undulating terrain have elevation in range of 120 to 20 m amsl . The overall elevation ranges from 610m in east to 20 m amsl in south-west The most of the western part, comprising of Mahi – Narmada Doab and northern alluvial plain is more or less level terrain, have elevation in range from 20 to 80 m amsl. There are some linear tracts, along Mahi, Viswamitre, Narmada and Orsang rivers, have ravine landforms, with typical head ward erosional featured gully formation in soft alluvium. The banks of the Mahi has high vertical cliff , 10 to 25 m height, generally on left bank; same way left bank of the Narmada also has high cliff of 10 to 20 m high on right bank. All such features of Mahi-Narmada Doab, like ravine features, high cliff along banks and entrenched meandering courses with dry and wide sandy river bed of intermediate independent river systems of the Dhadhar& its tributaries indicate mature river stage and also tectonic uplift of Doab portion in Recent geological past. The central part of the district is low level undulating plain with low level plateau and few relict hills. The area between the Unch and the Orsangriver have aeolian low level stabilized dune with rolling topography. The hilly terrains of north - eastern part have residual hill features with more or less flat topped plateau. Except few volcanic peaks – Phenai Mata Hills and AmbaDungar, all have plateau or ridge type features and are few tens of meter height than surrounding rocky dissected plain. The highest plateaus are in south eastern part of the district, marked with rift valley of the Narmada to the south.

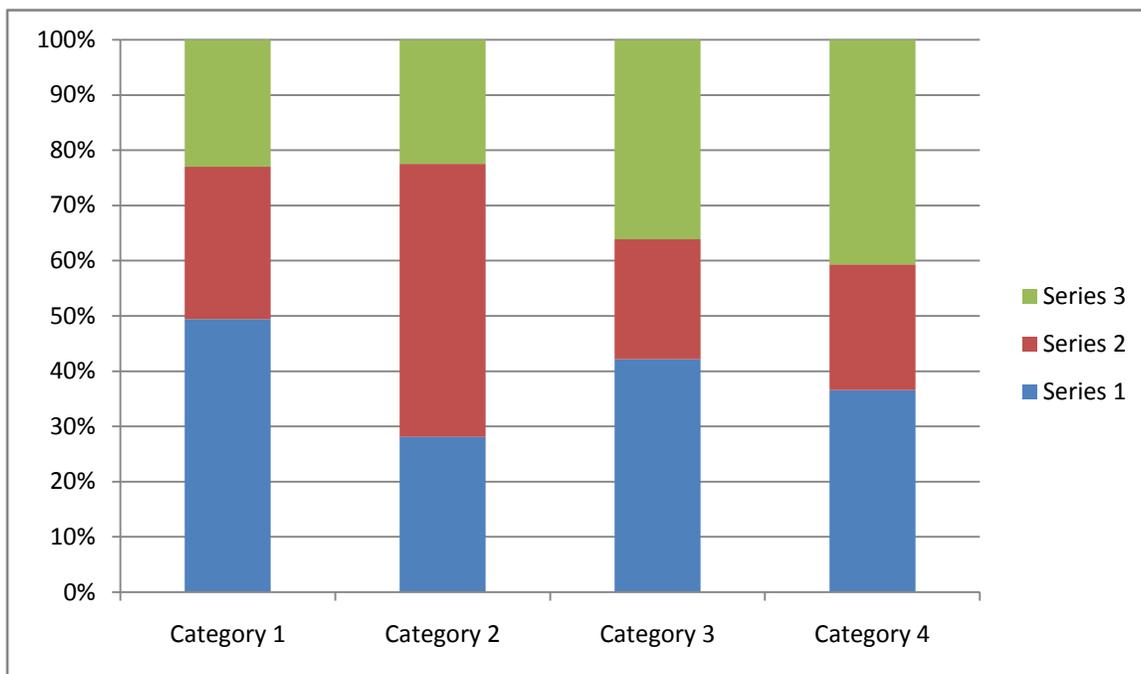


Physiography map of Vadodara

10. Rainfall: Month-wise:

The climate of Vadodara district is characterized by a summer and general dryness except during the south west monsoon season. The year may be divided into four seasons. The winter season, December to February is followed by the summer season from March to about middle of June. The period from the middle of June to September is the south west monsoon season. October and November form the post monsoon or transition period.

The nearest Observatory is Vadodara itself. The climatological parameters of Padra Taluka are used for analysis of rainfall. The average annual rainfall of Vadodara District is 1171.4 mm. Vadodara district received maximum rainfall during south west monsoon period i.e. June to September about 56.9% of the annual rainfall received during monsoon season. Only 13.1% of the annual rainfall takes place between October to May period. Thus surplus water for ground water recharge is available only during the



d.

11. Geology and Mineral Wealth:

STRATIGRAPHIC SET UP

The rocks of the Vadodara district shows an age from Proterozoic to Recent but a striking features of the district stratigraphy is the total absence of Paleozoic, and the development of only the uppermost Mesozoic rocks. The south westerly extended Precambrian basement of Peninsular India, the oldest rocks of Proterozoic age, are exposed in eastern and north eastern part of the district. Post Cretaceous sediments & major volcanic rocks rest over this south westerly extended Precambrian basement. Post Cretaceous sediments, Infratrappean and Intratrappean are exposed as scattered inliers while younger volcanic rocks unit as Deccan trap is well represented and so are the Tertiary and Quaternary, though the Tertiary records are not complete and fully exposed. The stratigraphic outline of the district is given in table no. 5.1. Table No. 5.1 Stratigraphic outline of the Vadodara District

Continental sediments – fluvio-marine, fluvial and aeolian

Quaternary

Marine and fluvio-marine sediments

Tertiary

.....Unconformity.....

Basalts of the Deccan Trap with associated differentiates and intrusive bodies

Lower Eocene to Upper Cretaceous

.....Unconformity.....

Marine, fluvio-marine and fluvial sediments

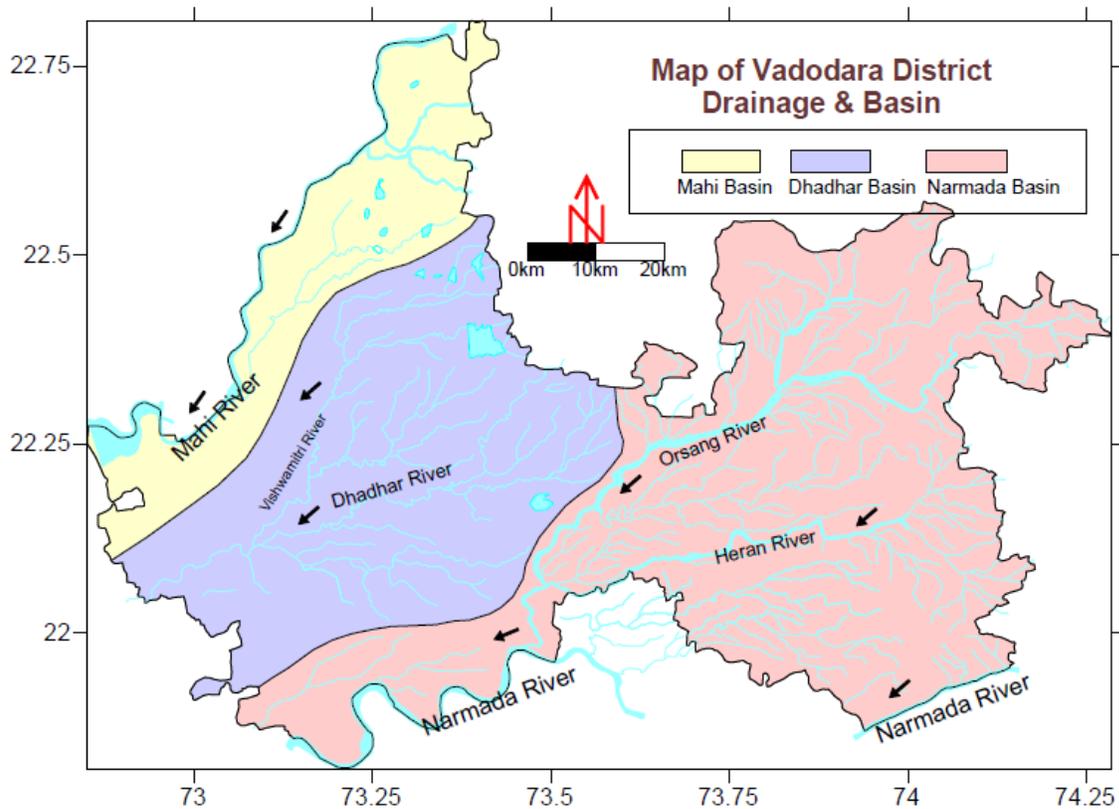
Cretaceous

.....Unconformity.....

Crystalline rocks -Metasediments associated with granite, gneiss and other mafic rocks

Precambrian

Drainage pattern of the district:



The Narmada and the Mahi are the chief rivers of the district, flow along the northwestern and southern boundary respectively while independent small river system of the Dhadhar with its numerous tributaries flow in south central part of the district. Broadly, the entire district, as a *River Basin* is divided into these three basin, namely the Narmada, the Mahi Basin and the Dhadhar. The Goma and the Karad are the small rivers flowing northwest part of the district, are tributaries of Mahi River, and are part of the Mahi Basin. The Vadodara, the Karjan, the Viswamitre and the Dhadhar, which flow through central part of the district and empty into the Gulf of Khambat, are part of the Dhadhar Basin. The eastern and the southern part of the district, drained by the Narmada River and its tributaries, like the Unch, the Heran, the Dev, the Orsang, the Karjan, the Aswan and the Bhukhi, constitutes the Narmada basin

Availability of sand or gravel or aggregate resources of the district:

□ Total Sand reserve = Area(Ha) x .010000 sqm x Depth x Bulk Density of Mineral

$$= 338.30 \times 10000 \times 1 \times 3$$

$$= 10149000 \text{ cum}$$

□ Total Farsi Pathar/Stone = Area(Ha) x 10000 sqm x Depth x Bulk Density of Mineral

$$= 230 \times 10000 \times 6 \times 2.4$$

$$= 33120000 \text{ Tones}$$

□ Total Reject Stone Reserve = Area(Ha) x 10000 sqm x Depth x BD x Recovery

$$= 160 \text{ ha} \times 10000 \text{ sqm} \times 10\text{m} \times 2.5 \times 0.90$$

$$= 36000000 \text{ tonnes}$$

12. Conclusion

Vadodara District is a district in the eastern part of the state of Gujarat in western India. The city of Vadodara (Baroda), in the western part of the district, is the administrative headquarters. The DEIAA and DEAC will scrutinize and recommend the prior environmental clearance of mining of minor minerals on the basis of District Survey Report. This 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 replenishment of minerals and is based on data of various departments, published reports, journals and websites. The District Survey Report will form the basis for application for environmental clearance, preparation of reports and appraisal of projects.