Indian Minerals Yearbook 2018

(Part- III : Mineral Reviews)

57th Edition

LIMESTONE & OTHER CALCAREOUS MATERIALS

(FINAL RELEASE)

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES

Indira Bhavan, Civil Lines,
NAGPUR – 440 001

PHONE/FAX NO. (0712) 2565471
PBX : (0712) 2562649, 2560544, 2560648
E-MAIL : cme@ibm.gov.in
Website: www.ibm.gov.in

November, 2019

18 Limestone & Other Calcareous Materials

Limestone is a sedimentary rock composed mainly of calcium carbonate ($CaCO_3$) in the form of the mineral calcite. About 10% of sedimentary rocks are limestone and most cave systems are through limestone bedrock. The two most important constituents of limestone are calcite and dolomite. Limestone often contains magnesium carbonate, either as dolomite $CaMg(CO_3)_2$ or magnesite ($MgCO_3$) mixed with calcite. Such rocks are termed as 'dolomitic' or 'magnesian' limestone. Limestone altered by dynamic or contact metamorphism become coarsely crystalline and are referred to as 'marble' and 'crystalline limestone'. Other common varieties of limestone are 'marl', 'oolite' (oolitic limestone), shelly limestone, algal limestone, coral limestone, pisolitic limestone, crinoidal limestone, travertine, onyx, hydraulic limestone, lithographic limestone, etc. However, the limestone which is used by industries in bulk quantity is a bedded type sedimentary limestone.

Other calcareous material used by industry are 'limeshell', the thick calcareous shells of molluscs deposited in the form of beds as well as present in ancient lakes and shallow seas. "Marl", a lime-rich mud which contains variable amounts of clays and silt.

A limestone rock which separates well along the stratification into a few centimetres thick slab is termed 'flagstone'. The dimensional limestone is used for building and ornamental stone.

RESERVES/RESOURCES

The total reserves/resources of limestone of all categories and grades as per NMI database based on UNFC system as on 1.4.2015 has been estimated at 2,03,224 million tonnes, of which 16,336 million tonnes (8%) are placed under Reserves category and 1,86,889 million tonnes (92%) are under Remaining Resources category. Karnataka is the leading state having 27% of the total resources followed by Andhra Pradesh & Rajasthan (12% each), Gujarat (10%), Meghalaya (9%), Telangana (8%) and Chhattisgarh & Madhya Pradesh (5% each). The remaining 12% is shared by other states. Grade-wise, cement grade (Portland) has leading share of about 70% followed by Unclassified grades (12%) and BF grade (7%). The remaining 11% is shared by various other grades [Table-1(A)].

The total reserves/resources of marl of all categories and grades as per NMI database based on UNFC system as on 1.4.2015 has been estimated in Gujarat at 135.56 million tonnes of which 123.86 million tonnes (91%) are under Reserves category and 11.70 million tonnes (9%) are under Remaining Resources category [Table - 1 (B)].

EXPLORATION & DEVELOPMENT

The exploration & development details, if any, are given in the Review on "Exploratiion & Development" in "General Reviews".

PRODUCTION AND STOCKS

Limestone

The production of limestone in 2017-18 at 338.55 million tonnes increased by about 7.59% as compared to that of the previous year.

There were 711 reporting mines in 2017-18 as against 832 during the previous year. Twenty-nine mines each producing more than 3 million tonnes per annum contributed about 43% of the total production of limestone in 2017-18. The share of 20 mines each in the production range of 2 to 3 million tonnes was 14% of the total production. Of the total production 22% was contributed by 54 mines each producing 1 to 2 million tonnes annually. The remaining 21% of the total production was reported by 608 mines and four associated mines during the year. Ten principal producers contributed about 53% of the total production. About 3.28% of the production was reported by Public Sector mines as against 3.35% in the previous year.

About 97% of the total production of limestone during 2017-18 was of cement grade and the remaining 3% was of other grades.

Table – 1(A) : Reserves/Resources of Limestone as on 01.04.2015
(By Grades/States)

(In '000 tonnes)

Grade/State	Reserves				Remaining Resources								Total Resources (A+B)
	Proved STD111	Probable STD121	Probable STD122	Total (A)	Feasibility STD211	Pre-feasibility STD221	Pre-feasibility STD222	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	
All India: Total	**9438939**	**3015917**	**3880897**	**16335753**	**4870440**	**4852713**	**8623172**	**7111337**	**22629060**	**130787772**	**8014504**	**186888998**	**203224752**
By Grades													
Chemical	184411	98399	95562	378372	126704	113184	601969	19590	1825142	2372558	14268	5073415	5451787
S.M.S.(O.H.)	135571	853518	10146	999235	12497	280089	740140	512977	458258	1822480	239223	4065664	5064898
S.M.S.(L.D.)	2636	182	584	3402	821	108139	11468	7992	49894	223762	-	402075	405477
S.M.S.(O.H. & L.D. mixed)	-	-	-	-	-	-	-	-	-	167182	-	167182	167182
B.F.	247462	44404	51201	343068	139602	569999	77704	509245	1053678	11302892	6871	13659989	14003057
S.M.S. & B.F. mixed	40226	101941	27728	169894	32974	7234	49524	4712	122103	711755	240733	1169033	1338928
Cement (portland)	8373610	1693372	3549049	13616030	4282507	3601959	6651670	5069573	13298490	88338670	6895165	128138034	141754065
Cement (white)	133	23	115	270	4730	3054	2702	117000	-	2231	-	129716	129986
Cement (portland & white)	1776	-	930	2706	14125	8540	13707	338670	62101	506688	39000	982832	985538
Cement (blendable/ beneficiable)	183933	51087	64749	299769	165958	91508	340110	42227	44217	490999	-	1175019	1474788
B.F. & cement mixed	49731	208	35456	85394	1040	26623	6308	3869	45	89942	-	127828	213222
S.M.S.,chemical & paper	2207	-	273	2479	353	2169	1329	-	151	1228617	-	1232618	1235097
Paper	25551	-	-	25551	472	-	359	120738	27197	747971	-	896737	922289
Others	43906	41787	7861	93555	18419	15407	33432	102098	515719	2509307	232908	3427289	3520844
Unclassified	138164	108746	36731	283642	69172	17934	81277	217708	5092748	19027097	324804	24830740	25114381
Not-known	9623	22250	513	32385	1066	6876	11474	44938	79318	1245622	21532	1410827	1443212
By States													
Andhra Pradesh	1003483	19713	385133	1408329	269901	53722	706890	82112	268002	18666131	3466741	23513499	24921828
Arunachal Pradesh	-	-	-	-	-	-	-	-	49220	433575	1	482796	482796
Assam	25542	152546	-	178088	167902	21973	4257	154644	39859	901623	-	1290258	1468346
Bihar	12410	-	306	12715	3096	2558	1405	67926	38210	724118	10558	847872	860588
Chhattisgarh	1025180	7128	145576	1177885	1071824	751825	427410	1332250	485933	5558135	-	9627377	10805262
Daman & Diu	-	-	-	-	-	-	-	-	-	128670	-	128670	128670
Gujarat	750236	173244	76324	999804	277146	159554	120210	21110	906641	18772852	-	20257514	21257318

(Contd.)

Table-1(A) (Concld.)

Grade/State	Reserves				Remaining Resources								Total Resources (A+B)
	Proved STD111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	
		STD121	STD122			STD221	STD222						
Haryana	-	-	-	-	1425	15507	3382	-	2200	52163	-	74677	74677
Himachal Pradesh	555180	209851	69908	834938	191300	327757	40840	1530937	26121	3234938	37339	5389231	6224169
Jammu & Kashmir	443339	31917	79147	554404	54863	9008	20510	43611	370	1752569	207283	2088214	2642618
Jharkhand	88172	-	29116	117288	95008	13529	29265	89572	13220	354319	11803	606715	724003
Karnataka	461049	2154	1113795	1576998	497136	559903	1355522	1572501	13920771	34952588	-	52858420	54435419
Kerala	11472	-	-	11472	123106	77	-	21161	2888	35228	-	182459	193931
Madhya Pradesh	816293	1093490	545321	2455103	419938	256187	498590	566011	830331	4045838	269859	6886754	9341858
Maharashtra	424035	143115	39905	607055	583978	206162	136835	28595	234518	1056168	-	2246255	2853310
Manipur	-	-	-	-	-	-	-	10197	2138	33718	-	46053	46053
Meghalaya	135836	87904	1822	225562	68457	39289	46200	464670	2811179	14048758	-	17478553	17704116
Nagaland	-	-	-	-	825	-	-	-	1005500	745875	-	1752200	1752200
Odisha	255555	77879	61007	394442	173797	548527	420634	139924	50397	361350	32635	1727264	2121706
Puducherry	-	-	-	-	-	-	-	4433	4333	6966	-	15732	15732
Rajasthan	2471143	933889	863351	4268382	367799	1538090	4529048	596071	761855	11365794	939808	20098465	24366847
Sikkim	-	-	-	-	-	-	-	-	-	2380	-	2380	2380
Tamil Nadu	334445	82892	56572	473909	209632	99882	91350	92843	33440	598942	-	1126088	1599997
Telangana	625569	195	400766	1026529	254912	28110	92020	113416	921577	11710694	3038478	16159208	17185736
Uttar Pradesh	-	-	12849	12849	33360	129180	38375	142763	40000	31200	-	414878	427727
Uttarakhand	-	-	-	-	5035	91872	60429	29486	164879	1191059	-	1542760	1542760
West Bengal	-	-	-	-	-	-	-	7104	15482	22120	-	44706	44706

Figures rounded off

Table – 1 (B) : Reserves/Resources of Marl as on 01.04.2015
(By Grades/States)

(In tonnes)

Grade/State	Reserves				Remaining Resources								Total Resources (A+B)
	Proved STD111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	
		STD121	STD122			STD221	STD222						
All India : Total	**117115856**	**4650000**	**2090000**	**123855856**	**11704870**	-	-	-	-	-	-	**11704870**	**135560726**
By Grade													
Unclassified	117115856	4650000	2090000	123855856	11704870	-	-	-	-	-	-	11704870	135560726
By State													
Gujarat	117115856	4650000	2090000	123855856	11704870	-	-	-	-	-	-	11704870	135560726

Figures rounded off

Rajasthan was the leading producing State accounting for (22%) of the total production of limestone, followed by Madhya Pradesh (13%), Andhra Pradesh & Chhattisgarh (11% each), Karnataka (9%), Telangana (8%), Gujarat (7%) and Tamil Nadu (6%). The remaining 13% was contributed by Maharashtra, Himachal Pradesh, Meghalaya, Odisha, Uttar Pradesh, Assam, Jharkhand, Jammu & Kashmir, Kerala and Bihar.

Mine-head closing stocks of limestone for the year 2017-18 were 15.2 million tonnes as against 14.6 million tonnes in previous year.

Average daily labour employment in limestone mines in 2017-18 was 20,239 as against 23,892 in the previous year (Tables - 2 to 6).

Table – 2 : Principal Producers of Limestone, 2017-18

Name and address of producer	Location of mine	
	State	District
Ultra Tech Cement Ltd, 'B' Wing, Ahura Centre, 2nd Floor, Mahakali Caves Road, Andheri (E), Mumbai-400 093, Maharashtra	Andhra Pradesh Chhattisgarh Gujarat Himachal Pradesh Karnataka Madhya Pradesh Maharashtra Rajasthan Tamil Nadu Uttar Pradesh	Kurnool Raipur Amreli Solan Kalaburagi Dhar Neemuch Rewa Satna Sidhi Chandrapur Chittorgarh Jaipur Nagaur Ariyalur Sonbhadra
Shree Cement Ltd, Post Box No. 33 Bangur Nagar, Beawar – 305 901, Rajasthan.	Chhattisgarh Rajasthan	Raipur Ajmer Pali
The ACC Ltd, Cement House, 121, Maharshi Karve Road, Mumbai – 400 020, Maharashtra	Chhattisgarh Himachal Pradesh Jharkhand Karnataka Madhya Pradesh Maharashtra Rajasthan Tamil Nadu	Durg Bilaspur Singhbhum (W) Kalaburagi Katni Yavatmal Bundi Coimbatore
Ambuja Cement Ltd, Elegant Business Park, MIDC Cross Road B Off Andheri Kurla Road, Andheri-(East), Mumbai - 400 059 Maharashtra	Chhattisgarh Gujarat Himachal Pradesh Maharashtra Rajasthan	Baloda Bazar Raipur Junagadh Solan Chandrapur Pali

(Contd.)

Table - 2 (Contd.)

Name and address of producer	Location of mine	
	State	District
Century Textiles & Industries Ltd, Century Bhawan, Dr Annie Besant Road, Worli, Mumbai– 400 030, Maharashtra.	Chhattisgarh Madhya Pradesh Maharashtra	Raipur Satna Chandrapur
The Ramco Cement Ltd, 5th Floor, Auras Corporate Centre, 98, Dr Radhakrishanan Salai, Mylapore- 600 004, Chennai. Tamil Nadu	Andhra Pradesh Karnataka Tamil Nadu	Krishna Chitradurga Ariyalur Perambalur Thoothukudi Virudhunagar
J. K. Lakshmi Cement Ltd, JK Puram, Basantgarh Pindwara -307 019, Rajasthan	Chhattisgarh Rajasthan	Durg Sirohi
Dalmia Cement Ltd (Bharat), Dalmiapuram,Main Road, Kallakudi Lalgudi, Tiruchirappalli- 621 651, Tamil Nadu	Andhra Pradesh Tamil Nadu Karnataka	Cuddapah Ariyalur Tiruchirapalli Belgaum
Lafarge India Private Ltd, Equinox Business Park Tower-3, East Wing 4th Floor, Off Bandra Kurla Complex, LBS Road, Kurla-West, Mumbai-400 070, Maharashtra	Chhattisgarh Rajasthan	Janjgir-Champa Raipur Chittorgarh
Jaiprakash Associates Ltd, Sector – 28, Noida – 201 304, Gautam Buddha Nagar Uttar Pradesh	Andhra Pradesh Gujarat Madhya Pradesh	Krishna Kachchh Rewa

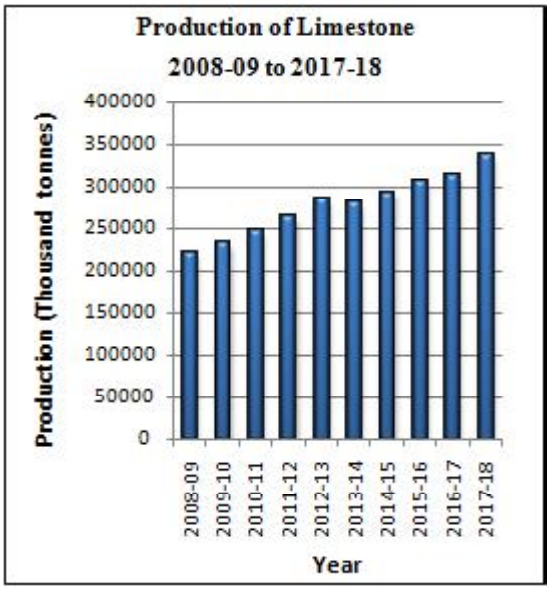

Table – 3 : Production of Limestone, 2015-16 to 2017 -18 (By States)

(Qty in '000 tonnes; Value in `'000)

State	2015-16		2016-17		2017-18 (P)	
	Quantity	Value	Quantity	Value	Quantity	Value
India	**307001**	**68673970**	**314669**	**73878426**	**338552**	**74407420**
Andhra Pradesh	32579	6556564	35515	7446888	38909	8193623
Assam	777	230415	1594	444644	1432	461205
Bihar	459	172141	190	104495	43	24899
Chhattisgarh	27667	7013331	32156	8622865	36352	8283771
Gujarat	25622	4370924	25813	5110332	24948	4884583
Himachal Pradesh	12390	2180979	11009	2185480	11500	2357252
Jammu & Kashmir	1232	395375	1032	200602	1262	332351
Jharkhand	1076	509938	1146	501660	1191	516664
Karnataka	27062	4325671	29751	5475530	30052	5155861
Kerala	487	353323	376	325069	444	262352
Madhya Pradesh	39430	8868182	36164	8405039	42744	8820080
Maharashtra	13036	2842122	12124	2840194	14152	3134443
Meghalaya	3834	2622258	5095	2540552	6593	2786265
Odisha	4532	1489611	4752	1598449	4968	1607827
Rajasthan	67336	15253871	66906	15908982	74036	16197297
Tamil Nadu	23008	6623612	23670	6692906	20277	5507871
Telangana	23878	4437332	24720	4959547	27250	5283048
Uttar Pradesh	2596	428321	2656	515192	2399	598028

Table – 4 : Production of Limestone, 2016-17 and 2017-18 (By Frequency Groups)

Production group (In tonnes)	No. of mines		Production for the group ('000 tonnes)		Percentage in total production		Cumulative percentage	
	2016-17	2017-18(P)	2016-17	2017-18(P)	2016-17	2017-18(P)	2016-17	2017-18(P)
All Groups	**832(4)**	**711(4)**	**314669**	**338552**	**100.00**	**100.00**	-	-
Up to 10000	332(1)	251(3)	699	472	0.22	0.14	0.22	0.14
10001 - 50000	164(3)	132(1)	4408	3604	1.40	1.06	1.62	1.20
50001 - 100000	76	57	5564	4045	1.77	1.19	3.39	2.39
100001 - 200000	57	57	8094	8282	2.57	2.45	5.96	4.84
200001 - 300000	27	31	6749	8038	2.14	2.37	8.10	7.21
300001 - 400000	20	18	7096	6254	2.26	1.85	10.36	9.06
400001 - 500000	15	19	6747	8623	2.14	2.55	12.50	11.61
500001 - 600000	8	13	4412	7149	1.40	2.11	13.90	13.72
600001 - 700000	7	8	4412	5255	1.40	1.55	15.30	15.27
700001 - 800000	8	7	6128	5284	1.95	1.56	17.25	16.83
800001 - 900000	13	9	11021	7619	3.50	2.25	20.75	19.08
900001 - 1000000	8	6	7543	5836	2.40	1.72	23.15	20.80
1000001 - 2000000	55	54	75946	72987	24.14	21.56	47.29	42.36
2000001 - 3000000	15	20	34601	47816	11.00	14.12	58.29	56.48
3000001 & above	27	29	131249	147288	41.71	43.52	100.00	100.00

Figures in parentheses indicate associated mine of limestone with chalk, dolomite & shale

Table –5 : Production of Limestone, 2016-17 & 2017 -18
(By Sectors/States/Districts/Grades)

(Qty in '000 tonnes; Value in `'000)

State/District	2016-17						2017-18 (P)					
		Grades			Total			Grades			Total	
	No.of mines	Cement	LD, SMS & BF	Chemical	Qty	Value	No. of mines	Cement	LD, SMS & BF	Chemical	Qty	Value
India	**832(4)**	**303854**	**6430**	**4385**	**314669**	**73878426**	**711(4)**	**327031**	**7763**	**3758**	**338552**	**74407420**
Public Sector	**27**	**6968**	**3573**	**-**	**10541**	**4009203**	**26**	**6975**	**4136**	**-**	**11111**	**4256859**
Private Sector	**805(4)**	**296886**	**2857**	**4385**	**304128**	**69869223**	**685(4)**	**320056**	**3627**	**3758**	**327441**	**70150561**
Andhra Pradesh	**79(1)**	**34632**	**774**	**109**	**35515**	**7446888**	**80(1)**	**37977**	**871**	**61**	**38909**	**8193623**
Anantapur	12(1)	2396	74	-	2470	449405	12**(1)**	2511	51	-	2562	455870
Cuddapah	6	11440	-	-	11440	2084904	6	12010	-	-	12010	2247016
Guntur	16	4408	60	109	4577	903894	15	4852	167	61	5080	977986
Krishna	11	5287	348	-	5635	1841589	11	7564	342	-	7906	2216137
Kurnool	34	11101	292	-	11393	2167096	36	11040	311	-	11351	2296614
Assam	**3**	**1594**	**-**	**-**	**1594**	**444644**	**3**	**1432**	**-**	**-**	**1432**	**461205**
Karbi Anglong	1	105	-	-	105	39412	1	133	-	-	133	65667
North Cachar Hills	2	1489	-	-	1489	405232	2	1299	-	-	1299	395538
Bihar	**1**	**190**	**-**	**-**	**190**	**104495**	**1**	**43**	**-**	**-**	**43**	**24899**
Rohtas	1	190	-	-	190	104495	1	43	-	-	43	24899
Chhattisgarh	**76**	**31881**	**275**	**-**	**32156**	**8622865**	**69**	**36036**	**316**	**-**	**36352**	**8283771**
Baloda bazar	3	1111	-	-	1111	250042	2	3282	-	-	3282	639681
Bastar	10	46	++	-	46	17653	9	10	2	-	12	4770
Bilaspur	-	-	-	-	-	-	1	39	-		39	29262
Durg	34	4897	275	-	5172	1617339	30	5785	314	-	6099	1623241
Janjgir-Champa	2	2110	-	-	2110	598292	2	2291	-	-	2291	580347
Kabirdham	1	++	-	-	++	37	1	14	-	-	14	5288
Raigarh	1*	-	-	-	-	-	-	-	-	-	-	-
Raipur	24	23717	-	-	23717	6139496	23	24615	-	-	24615	5401180
Rajnandgaon	1	++	-	-	++	6	1	++	-	-	++	2

(Contd.)

Table - 5 (Contd.)

State/District	2016-17						2017-18 (P)					
		Grades			Total			Grades			Total	
	No.of mines	Cement	LD, SMS & BF	Chemical	Qty	Value	No. of mines	Cement	LD, SMS & BF	Chemical	Qty	Value
Gujarat	**117(1)**	**21930**	**-**	**3883**	**25813**	**5110332**	**106(1)**	**21630**	**-**	**3318**	**24948**	**4884583**
Amreli	2	4993	-	-	4993	944345	2	4767	-	-	4767	935204
Devbhoomi Dwarka	-	-	-	-	-	-	1	1	-	-	1	89
Jamnagar	21	524	-	142	666	142413	14	753	-	-	753	149012
Junagadh	61	6857	-	2032	8889	1652809	53	7534	-	1533	9067	1746877
Kachchh	5	7153	-	-	7153	1281561	4	6642	-	-	6642	1049753
Porbandar	27(1)	2151	-	1709	3860	1023703	31(1)	1647	-	1785	3432	944662
Surat	1	252	-	-	252	65501	1	286	-	-	286	58986
Himachal Pradesh	**21**	**10786**	**213**	**10**	**11009**	**2185480**	**20**	**11355**	**145**	**-**	**11500**	**2357252**
Bilaspur	1	3334	-	-	3334	596831	1	3671	-	-	3671	623446
Sirmaur	18	909	213	10	1132	387636	17	810	145	-	955	333166
Solan	2	6543	-	-	6543	1201013	2	6874	-	-	6874	1400640
Jammu & Kashmir	**10**	**1004**	**28**	**-**	**1032**	**200602**	**13**	**1262**	**-**	**-**	**1262**	**332351**
Anantnag	2	43	-	-	43	13912	3	63	-	-	63	17467
Pulwama	6	409	28	-	437	102415	8	764	-	-	764	226828
Srinagar	2	552	-	-	552	84275	2	435	-	-	435	88056
Jharkhand	**10**	**1146**	**-**	**-**	**1146**	**501660**	**5**	**1191**	**-**	**-**	**1191**	**516664**
Garhwa	3*	-	-	-	-	-	-	-	-	-	-	-
Palamau	1*	-	-	-	-	-	1*	-	-	-	-	-
Ranchi	2*	-	-	-	-	-	2*	-	-	-	-	-
Singhbhum (West)	4	1146	-	-	1146	501660	2	1191	-	-	1191	516664
Karnataka	**69**	**28977**	**774**	**-**	**29751**	**5475530**	**66**	**29227**	**825**	**-**	**30052**	**5155861**
Bagalkot	42	4069	672	-	4741	1242488	40	1712	746	-	2458	830027
Belagavi	9	122	70	-	192	65050	9	1577	75	-	1652	388385
Chitradurga	3	68	-	-	68	35596	3	23	-	-	23	9905
Kalaburagi	12	24632	-	-	24632	4079158	12	25915	-	-	25915	3926756
Shivamogga	1	-	32	-	32	7744	1	-	4	-	4	788
Tumakuru	2	86	-	-	86	45494	1	-	-	-	-	-

(Contd.)

Table -5 (Contd.)

State/District	2016-17						2017-18 (P)					
		Grades			Total			Grades			Total	
	No.of mines	Cement	LD, SMS & BF	Chemical	Qty	Value	No. of mines	Cement	LD, SMS & BF	Chemical	Qty	Value
Kerala	**1**	**376**	**-**	**-**	**376**	**325069**	**1**	**444**	**-**	**-**	**444**	**262352**
Palakkad	1	376	-	-	376	325069	**1**	**444**	-	-	**444**	**262352**
Madhya Pradesh	**127(1)**	**33465**	**2650**	**49**	**36164**	**8405039**	**142(1)**	**39560**	**3124**	**60**	**42744**	**8820080**
Balaghat	1*	-	-	-	-	-	-	-	-	-	-	-
Damoh	1	3482	-	-	3482	800747	1	3887	-	-	3887	455078
Dhar	10	66	-	-	66	15324	8	323	-	-	323	59899
Jabalpur	1	-	9	-	9	2718	1	-	22	-	22	22860
Katni	53(1)	3565	2428	49	6042	1987480	55(1)	4335	2557	60	6952	2216478
Neemuch	2	2817	-	-	2817	456173	4	4123	-	-	4123	562209
Rewa	9	3153	7	-	3160	868160	8	4038	-	-	4038	1068172
Satna	46	19354	206	-	19560	4115075	61	21110	545	-	21655	4101807
Sidhi	4	1028	-	-	1028	159362	4	1744	-	-	1744	333577
Maharashtra	**18**	**12123**	**++**	**1**	**12124**	**2840194**	**16**	**14152**	**++**	**++**	**14152**	**3134443**
Chandrapur	7	9492	-	1	9493	2070514	7	11167	-	++	11167	2286361
Yavatmal	11	2631	++	-	2631	769680	9	2985	++	-	2985	848082
Meghalaya	**13**	**5028**	**-**	**67**	**5095**	**2540552**	**18**	**6534**	**-**	**59**	**6593**	**2786265**
Jaintia Hills	10	2583	-	-	2583	743881	15	4220	-	-	4220	1179489
Khasi Hills East	3	2445	-	67	2512	1796671	3	2314	-	59	2373	1606776
Odisha	**7(1)**	**4751**	**1**	**-**	**4752**	**1598449**	**7(1)**	**4966**	**2**	**-**	**4968**	**1607827**
Bargarh	1	754	-	-	754	449365	1	849	-	-	849	405758
Koraput	1	136	-	-	136	40695	1	116	-	-	116	35099
Sundergarh	5(1)	3861	1	-	3862	1108389	5(1)	4001	2	-	4003	1166970
Rajasthan	**35**	**65050**	**1596**	**260**	**66906**	**15908982**	**34**	**71296**	**2480**	**260**	**74036**	**16197297**
Ajmer	2	1026	-	-	1026	294494	1	1042	-	-	1042	256560
Banswara	1	1270	-	-	1270	232307	1	1253	-	-	1253	244051
Bundi	1	808	-	-	808	225365	1	238	-	-	238	69062
Chittorgarh	10	21701	-	-	21701	4765873	10	26132	-	-	26132	5315438
Jaipur	1	4462	-	-	4462	941466	1	4613	-	-	4613	906334
Jaisalmer	2	450	1596	-	2046	952982	2	708	2480	-	3188	1303293
Kota	1	2515	-	-	2515	596154	1	2858	-	-	2858	682664
Nagaur	4	1117	-	260	1377	576594	5	1143	-	260	1403	586037
Pali	6	20286	-	-	20286	4447662	6	22583	-	-	22583	4215161
Sikar	2	18	-	-	18	6795	1*	-	-	-	-	-
Sirohi	3	11089	-	-	11089	2787332	3	9446	-	-	9446	2285823
Udaipur	2	308	-	-	308	81958	2	1280	-	-	1280	332874

(Contd.)

Table -5 (Concld.)

State/District	2016-17						2017-18 (P)					
		Grades			Total			Grades			Total	
	No.of mines	Cement	LD, SMS & BF	Chemical	Qty	Value	No. of mines	Cement	LD, SMS & BF	Chemical	Qty	Value
Tamil Nadu	**213**	**23545**	**119**	**6**	**23670**	**6692906**	**98**	**20277**	**-**	**-**	**20277**	**5507871**
Ariyalur	37	12222	-	-	12222	3067545	37	10358	-	-	10358	2537495
Coimbatore	4	905	-	-	905	371707	3	1038	-	-	1038	424833
Dindigul	18	2142	-	5	2147	622996	4	2132	-	-	2132	575633
Kamarajar	1	++	-	-	++	160	-	-	-	-	-	-
Karur	18	936	-	-	936	320703	2	629	-	-	629	195695
Krishnagiri	2	10	-	-	10	4301	-	-	-	-	-	-
Madurai	8	233	-	1	234	107717	2	17	-	-	17	7069
Namakkal	13	39	-	-	39	18423	-	-	-	-	-	-
Perambalur	29	2715	-	-	2715	706696	23	2181	-	-	2181	562043
Salem	24	424	13	-	437	207591	4	474	-	-	474	193568
Thoothukudi/Tuticorin	7	791	19	-	810	314281	3	791	-	-	791	311476
Tiruchirappalli	14	2217	-	-	2217	460889	9	2202	-	-	2202	453712
Tirunelveli	25	379	78	-	457	289639	5	150	-	-	150	152488
Virudhunagar	13	532	9	-	541	200258	6	305	-	-	305	93859
Telangana	**29**	**24720**	**-**	**-**	**24720**	**4959547**	**30**	**27250**	**-**	**-**	**27250**	**5283048**
Adilabad	2	3885	-	-	3885	787952	2	4038	-	-	4038	868577
Karimnagar	2	870	-	-	870	508089	2	920	-	-	920	486264
Nalgonda	21	16027	-	-	16027	2994793	22	17939	-	-	17939	3205789
Ranga Reddy	4	3938	-	-	3938	668713	4	4353	-	-	4353	722418
Uttar Pradesh	**2**	**2656**	-	-	**2656**	**515192**	**2**	**2399**	-	-	**2399**	**598028**
Sonbhadra	2	2656	-	-	2656	515192	2	2399	-	-	2399	598028

Figures in parentheses indicate mines of chalk, dolomite and shale with limestone as an associate mineral
(*) Only labour reported
(++); Negligible

Table – 6 : Mine-head Closing Stocks of Limestone, 2016-17 & 2017-18 (By States/Grades)

(In '000 tonnes)

State	2016-17				2017-18 (P)			
	Grades				Grades			
	Cement	LD, SMS & BF	Chemical	Total	Cement	LD, SMS & BF	Chemical	Total
India	**11680**	**1930**	**1005**	**14615**	**11769**	**2404**	**1045**	**15218**
Andhra Pradesh	592	76	6	674	270	122	6	398
Assam	37	-	-	37	5	-	-	5
Chhattisgarh	363	14	-	377	441	19	-	460
Gujarat	1559	3	907	2469	1279	3	898	2180
Himachal Pradesh	126	50	-	176	238	74	-	311
Jammu & Kashmir	62	-	-	62	53	-	-	53
Jharkhand	14	163	-	177	11	4	-	15
Karnataka	3589	371	-	3960	2924	651	-	3576
Kerala	16	-	-	16	30	-	-	30
Madhya Pradesh	1866	708	30	2604	2348	995	29	3372
Maharashtra	11	9	++	20	11	6	++	17
Meghalaya	209	-	9	218	190	-	13	203
Odisha	144	423	-	567	103	413	-	516
Rajasthan	1597	-	52	1649	1989	1	98	2088
Tamil Nadu	550	113	1	664	699	116	1	816
Telangana	945	-	-	945	1178	-	-	1178

Limeshell

The production of limeshell at 10,893 tonnes during 2017-18 decreased by 12% as compared to the preceding year.

There were 5 reporting mines in 2017-18 as against 7 reporting mines in 2016-17 (Tables 7 to 9).

Mine-head closing stocks of limeshell in the year 2017-18 were 2,962 tonnes as against 2,719 tonnes in the previous year (Table - 10).

The average daily employment of labour during the year 2017-18 was 478 as against 483 in the previous year.

Table – 7 : Principal Producers of Limeshell 2017-18

Name and address of producer	Location of mine	
	State	District
The Vaikom Limeshell Co.op Society Ltd, No. 3145, P.O. Pallippurathussery, Vaikom-686 606, Distt. Kottayam, Kerala	Kerala	Kottayam
Karappuram White Limeshell Vyavasaya Co-op. Society Ltd, Muhamma,Taluk: Cherthala Alappuzha-688 525, Kerala	Kerala	Alappuzha
Muhamma Clam Marketing Society Ltd, Vill. Thanneermukom South, Taluk: Cherthala Alappuzha-688 525, Kerala	Kerala	Alappuzha

Table – 8 : Production of Limeshell, 2015-16 to 2017-18
(By States)

(Qty in tonnes; Value in `'000)

State	2015-16		2016-17		2017-18 (P)	
	Quantity	Value	Quantity	Value	Quantity	Value
India	**10353**	**28613**	**12344**	**34774**	**10893**	**39593**
Karnataka	1221	1258	4003	7779	760	1475
Kerala	9132	27355	8341	26995	10133	38118

Table – 9 : Production of Limeshell, 2016-17 & 2017-18
(By Sectors/States/Districts)

(Qty in tonnes; Value in `'000)

State/District	2016-17			2017-18 (P)		
	No. of mines	Quantity	Value	No. of mines	Quantity	Value
India	**7**	**12344**	**34774**	**5**	**10893**	**39593**
Public Sector	-	-	-	-	-	-
Private Sector	7	12344	34774	5	10893	39593
Karnataka	**2**	**4003**	**7779**	**1**	**760**	**1475**
Uttara Kannada	2	4003	7779	1	760	1475
Kerala	**4**	**8341**	**26995**	4	10133	**38118**
Alappuzha	2	4974	16141	2	5035	20039
Kottayam	2	3367	10854	2	5098	18079
Tamil Nadu	**1***	**-**	**-**	**-**	**-**	**-**
Cuddalore	1	-	-	-	-	-

(*) Only labour reported

Table – 10 : Mine-head Closing Stocks of Limeshell, 2016-17 & 2017-18
(By States)

(In tonnes)

State	2016-17	2017-18 (P)
India	**2719**	**2962**
Karnataka	2635	2906
Kerala	59	56
Tamil Nadu	25	-

Marl

Production of marl during 2017-18 was 1,823 thousand tonnes as compared to 2,204 thousand tonnes in the preceding year. The entire production of marl was reported as an associate mineral with limestone in both the years. There were four associate mines reporting production of marl during 2017-18 as compared to five associated mines during the previous year.

Entire production of marl during 2017-18 was reported from Gujarat State. (Tables-11 to 13)

Mine-head stocks of marl at the end of 2017-18 were 1,178 thousand tonnes as against 1,321 thousand tonnes at the beginning of the year (Table - 14).

Table – 11 : Principal Producers of Marl, 2017-18

Name and address of producer	Location of mine	
	State	District
*Ultratech Cement Ltd, B-Wing, 2nd Floor, Ahura Centre, Mahakali Caves Road, Andheri (E), Mumbai– 400 093.	Gujarat	Amreli
* Ambuja Cement Limited, Elegant Business Park, MIDC, Cross Road B Off Andheri, Kurla Road Andheri East, Mumbai - 400 059.	Gujarat	Junagadh
*Saurashtra Cement Ltd, N.K.Mehta International House, 178, Backbay Reclamation, Mumbai-400 020.	Gujarat	Porbandar

** Producing as an associated mineral with limestone*

Table – 12 : Production of Marl, 2015-16 to 2017-18
(By States)

(Qty in tonnes, Value in `'000)

State	2015-16		2016-17		2017-18	
	Quantity	Value	Quantity	Value	Quantity	Value
India	**2389707**	**319957**	**2203700**	**317886**	**1822514**	**285095**
Gujarat	2389707	319957	2203700	317886	1822514	285095

Table – 13 : Production of Marl, 2016-17 and 2017-18
(By Sector/States/Districts)

(Qty in tonnes; Value in `'000)

State/District	2016-17			2017-18		
	No. of mines	Quantity	Value	No. of mines	Quantity	Value
India/ Private Sector	**(5)**	**2203700**	**317886**	**(4)**	**1822514**	**285095**
Gujarat	**(5)**	**2203700**	**317886**	**(4)**	**1822514**	**285095**
Amreli	(2)	1606109	264420	(2)	1512394	258660
Junagadh	(2)	68905	8528	(1)	12124	1403
Porbandar	(1)	528686	44938	(1)	297996	25032

Figures in parentheses indicate associated mines with limestone

Table – 14 : Mine-head Stocks of Marl, 2016-17 & 2017-18
(By States)

(Qty in tonnes)

State	2016-17	2017-18
India	**1321220**	**1177793**
Gujarat	1108242	958848
Tamil Nadu	212978	218945

MINING & MARKETING

In India, limestone mines are worked by opencast method. Captive mines are mechanised and supply feed to cement and iron & steel units. Some mines have well-laid road-cum-rail routes. The large mines are developed by forming benches in overburden and limestone bed. The face length, width and height of the benches correspond to the mining machinery deployed and production schedule. Heavy earth-moving machinery like 3.3 to 4 cu m capacity hydraulic excavators in combination with 10-35 tonnes dumpers are normally used. Other mines are mainly worked by semi-mechanised and manual opencast mining methods. As per MCDR reports, drilling is done by Jack hammer & Wagon drill and blasting is done by ANFO, Slurry explosives, emulsion explosives etc.

Limestone production from Kurnool, Andhra Pradesh and from Adilabad in Telangana is used in paper mills, sugar, cement and steel plants. Tile, mossaic, chip and polished stonemakers also use limestone.

Limestone produced in Bihar is supplied mainly to cement plants, foundries and lime kiln units.

In Raipur and Durg districts of Chhattisgarh, the limestone produced is suitable for Iron & Steel Industry. The Bhilai Steel Plant fulfills its requirements of limestone from Nandini mines in Durg district. The cement-grade limestone is also produced in the region and there is large cluster of cement plants in and around Raipur.

Limestone produced in Gujarat is consumed mainly in cement and chemical industries and also in textile, foundries and steel plants. The dolomitic limestone in Gujarat is used for making slabs and tiles.

Limestone produced in Himachal Pradesh is supplied to cement plants, paper industry, sugar mills and lime kilns. The limestone production from Bilaspur district is despatched to fertilizer unit of National Fertilizers Ltd (NFL) at Naya Nangal.

Limestone produced in Jammu & Kashmir is suitable for cement manufacturing.

In Karnataka, limestone is supplied generally to paper mills and cement plants. However, limestone of Kalaburagi district, commonly known as 'Shahabad stones', is used as flagstone or flooring stones.

Limestone from Madhya Pradesh is used in cement, sugar, paper, steel and lime industries.

In Maharashtra, apart from cement and sugar industries, limestone is used in Ferro-manganese Industry as flux and also in Tanning Industry.

Limestone mined in Rajasthan is consumed in captive cement plants on a large scale. Limestone of Nagaur district is utilised as feed for white cement plants as well as in steel plants as low silica SMS grade flux and in Chemical Industry. Crystalline limestone of Rajasthan is widely known as a decorative ornamental stone. The limestone worked in Bundi district and Raghunathgarh in Jaipur district is an excellent flagstone which find for use as paving stone.

The limestone produced in Dehradun-Garhwal areas of Uttarakhand was supplied to Sugar, Paper, Steel, Glass, Chemical and Cement Industries in the past.

Limestone in Tamil Nadu is consumed by various industries like Cement, Steel, Paper, Foundry, Fertilizer and Chemicals.

Limeshell from Kerala is used mainly in Chemical, Cement and White cement Industries. It is also used in the manufacture of polyfibre and in Tanning Industry.

USES

Limestone used for industrial purpose falls under 'major mineral', while the use of limestone in lime kilns and for building purposes comes under 'minor mineral' as per Mines and Minerals (Development and Regulation) Act, 1957.

The threshold value of limestone as per the revised Notification issued by IBM vide No.C-284/ 3/CMG/2017 dated 25th April 2018 is Cao 34% (min.) and Mgo 5% (max.).

The principal use of limestone is in the Cement Industry. Other important uses are as raw material in the manufacture of quicklime (calcium oxide), slaked lime (calcium hydroxide) and mortar. Pulverised limestone is used as a soil conditioner to neutralise acidic soils (agricultural lime). It is used in sculptures because of its suitability for carving. It is often found in medicines and cosmetics. In some circumstances, limestone is used for glass making. As a reagent in fuel-gas desulphurisation, it

reacts with sulphur dioxide which enables air pollution control. It can suppress methane explosions in underground coal mines. It is added to toothpaste, paper, plastic, paint, tiles and other materials as both white pigment and cheap filler. In blast furnaces, limestone binds with silica and other impurities and facilitates their removal from iron.

Lime is prepared by heating limestone in kilns up to 1000 ^{O}C. The CO_2 released is effluxed and 'quicklime' (CaO) formed remains as hard white lumps. This when slaked with water and mixed with sand, forms mortar or plaster. Commonly, the commercial lime is prepared as dry hydrated lime $Ca(OH)_2$ by adding to quicklime the right amount of water (18 parts to 56 parts of CaO). The value of lime for most purposes depends upon its CaO (or CaO + MgO) content.

The manufacture of metallic calcium is one of the latest uses of lime. Calcium is used in reducing organic compounds, desulphurising petroleum, debismuthising lead production of hard lead alloys and calcium-silicon alloys, and in the manufacture of calcium hydride which is further used as an efficient hydrogen carrier.

Limeshell is used mainly in Chemical and White Cement Industries. It is also used in the manufacture of polyfibre and in Tanning Industry. Marl is used as lithographic stone.

SPECIFICATIONS

Cement Industry

Cement is a binder, a substance used in construction that sets, hardens and adheres to other materials. Cement used in construction is usually inorganic, often lime or calcium silicate based. Magnesia, sulphur and phosphorus are regarded as deleterious elements. As per end use grade classification of IBM, it is mentioned that as reported by Cement Manufacture's association, limestone containing CaO 44 to 52% and MgO not more than 3.5% should be classified under portland cement. Limestone containing 38-44% Cao and up to 5% MgO should be placed under blendable/beneficiable cement. Limestone containing CaO 48% (min.) should be placed under white cement. The broad chemical specifications of cement grade limestone (r.o.m.) for cement manufacture suggested by the National Council for Cement and Building Materials, New Delhi, are given in Table-15.

Table – 15 : Broad Chemical Specifications of Cement Grade (Run-of-Mine) Limestone (Clause 6.1.1)

Oxide component/ Other Constituents	Acceptable range for manufacture of Ordinary Portland Cement (33, 43 & 53 Grade) (percent)	Limiting values taking into consideration other types of cements, scope of beneficiation and blending (percent)
CaO	44-52	40 (min.)
MgO	3.5 (max.)	5.0 (max.)
SiO_2	To satisfy LSF, silica	–
Al_2O_3	Modules and alumina	–
Fe_2O_3	Modules	–
TiO_2	<0.5	<1.0
Mn_2O_3	<0.5	<1.0
R_2O (Na_2O + K_2O)	<0.6	<1.0
Total S as SO_3	<0.6	<0.8
P_2O_5	<0.6	<1.0
Cl	<0.015	<0.05
Free silica	<8.0	<10.0

Source: *Report on Norm for limestone deposits for cement manufacture by National Council for Cement and Building Materials, New Delhi, May 2001*

Iron & Steel Industry

In Iron & Steel Industry, limestone is used both in blast furnace and steel melting shop as a flux after calcining. It is also added as flux in self-fluxing iron ore sinters. It has two basic functions in steel making, first to lower the temperature of melting and second, to form calcium silicate which comes out as a slag, as it combines with silica in iron ore.

For use in the blast furnace, the calcium carbonate ($CaCO_3$) content in limestone should not be usually less than 90 percent. The combined SiO_2 and Al_2O_3 should not exceed 6% though up to 11.5% is allowed, MgO should be within 4% and sulphur & phosphorus as low as possible.

In Steel Melting Shop (SMS), insolubles in limestone should not exceed more than 4 percent. Good fluxing limestone should naturally be low in acid constituents like silica, alumina, sulphur and phosphorus. Limestone should be dense, massive, preferably fine-grained, compact and non-fritting on burning.

BIS has prescribed specifications for flux grade limestone for use in steel plants as per IS : 10345 - 2004 (Second Revision; Reaffirmed 2009).

Glass Industry

Glass Industry requires high calcium limestone (94.5% $CaCO_3$) and 97.5% of combined $CaCO_3$ and $MgCO_3$. Iron and other colouring matters are regarded as objectionable and Fe_2O_3 should be up to 0.20% (max.). For colourless glass, limestone should contain 98.5% $CaCO_3$ (min.), iron content as Fe_2O_3 should not be more than 0.04%; and for bottle glass, Fe_2O_3 up to 0.05% is used. The BIS specifications (IS : 997 - 1973), First Amendment (Reaffirmed Feb.2013) for limestone for use in Glass Industry are as follows:

Silica as SiO_2	2.5%
Total iron (Fe_2O_3)	
a) Calcite or marble	0.05%
b) Limestone	0.10%
c) Dolomitic limestone or dolomite	0.15%
Lime (as CaO)	53.0%
Total lime and magnesia (as CaO + MgO)	54.50%

Chemical Industry

The calcium carbide manufacturers generally prefer lime containing 95% CaO (min.) with limitations of not more than 3% SiO_2, not more than 0.95% phosphorus and other impurities not exceeding more than 2%. For the manufacture of bleaching powder, lime containing 95% and above CaO is required. Total $Fe_2O_3+Al_2O_3+MnO_2$ should be less than 2%; MgO should be below 2% and SiO_2 less than 1.5%. Bleaching powder is prepared by absorption of chlorine by dry hydrated lime. The hydrated lime should not contain more than 2% excess water. Iron and manganese oxides lead to unsuitability of the product and iron oxides tend to discolour the bleached material. Magnesia renders the bleaching powder hygroscopic. Silica and clay impede solution and settling of bleaching powder.

BIS has prescribed specification for limestone for use in Chemical Industry as per IS: 3204:1978 (First revision.Feb, 2009).

Sugar Industry

In Sugar Industry, lime is used for clarification of cane and beet juice, viz, removing the impurities from the juice and also for precipitating sugar from impurities. Milk of lime 1% in volume of cane juice is added to pre-heated juice. Limestone used in Sugar Industry must be high in active lime (CaO 80% min.), but low in iron, alumina and silica. Magnesia should be less than one percent. Excess silica is undesirable because it separates as a gelatinous precipitate which covers the sugar crystals and retards their growth and filtration. Magnesia is objectionable because magnesium carbonate is soluble in sugar juice. Presence of iron tends to colour the finished product.

Fertilizer Industry

Limestone is used only as carrier in the manufacture of calcium ammonium nitrate fertilizer. For this purpose, limestone should contain $MgCO_3+CaCO_3$ 85% (min.), SiO_2 5% (max.) and acid insolubles 14% (max.).

Foundry Industry

The chemical requirements of limestone for use in foundries as per BIS specification (IS : 4140 -1978) have been withdrawn.

INDUSTRY & CONSUMPTION

Limestone comprises 95% of core raw material for cement production. As per report of Mines & Minerals-CMA India, around 180-250 kg of coal and about 1.5 tonne of limestone is required to produce one tonne of cement.

India was the second largest cement producing country in the world after China. There were 210 large cement plants having an installed capacity of 532.16 million tonnes in 2017-18. The total installed capacity of cement in 2017-18 was thus about 502.03 million tpy against 479.35 million tpy in the preceding year. Besides, there are three white cement plants having a total 9,90,000 tpy capacity. The total production of cement reached 279.97 million tonnes in 2017-18 registering a negative growth of about 1.22% over that of the preceding year.

In 2017-18, the total cosumption of limestone, as reported by different industries was 288.43 million tonnes. Cement was the major consuming Industry accounting for 94% consumption, followed by Iron & Steel (4%) and Chemical (2%). Negligible consumption was reported by aluminium, sugar & other industries etc. Consumption of limestone from 2015-16 to 2017-18 is indicated in Table - 16.

Table - 16 : Consumption* of Limestone, 2015-16 to 2017-18 (By Industries)

(In tonnes)

Industry	2015-16	2016-17 (R)	2017-18 (P)
All Industries	**294263400**	**274799200**	**288427400**
Aluminium/Alumina	375500	176800	126100
Cement	276329400	254393600	271092700
Chemical	4887700	5009600	5397200
Iron & Steel	11064200	13625900	10228100
Sugar (e)	918800	717400	780000
Others**	687800	875900	803300

Figures rounded off

** Includes actual reported consumption and/or estimates made wherever required and due to paucity of data, coverage may not be complete*

*** Includes, Alloy steel,calcination,ceramic,electodes,oil well drilling,refractory,petroleum refinings,sponge iron fertilizers, ferro alloys, foundary, glass, paper, metallurgy & thermal power*

FOREIGN TRADE

Exports

As per the Foreign Trade Policy 2015-20, the exports of limestone and lime shell are free. Exports of limestone decreased drastically by 35% to 2.81 million tonnes in 2017-18 from 4.33 million tonnes in the previous year. Limestone in bulk was exported mainly to Bangladesh (95%) and UK (2%) on the other hand, during the same period, exports of chalk increased slightly by 4% to 683 tonnes from 659 tonnes in the previous year. Chalk was exported mainly to Nepal (90%) and Qatar & Egypt (4% each).

Exports of bleaching powder were at 16,349 tonnes in 2017-18 as compared to 13,773 tonnes in the previous year. Bleaching powder was exported mainly to Bangladesh (80%), Sri Lanka (7%) and Nepal (6%) besides other countries.

In 2017-18, about 464 tonnes of calcium carbide was also exported as against 493 tonnes in the previous year. Exports were mainly to Bangladesh (80%), Oman (10%) and Democratic Republic of the Congo & Angola (5% each) (Tables- 17 to 20).

Imports

As per the Foreign Trade Policy 2015-20, the import of limestone and lime shell are free. Imports of limestone increased considerably by 14% to 20.83 million tonnes in 2017-18 from 18.30 million tonnes in the previous year. On the other hand imports of chalk in 2017-18 substantially decreased by 15% to 6,989 tonnes as against 8,211 tonnes in the previous year. Limestone was imported mainly from UAE (78%), Oman (13%), Vietnam (4%) and Malaysia (3%), while chalk was imported mainly from Vietnam (99%).

Imports of calcium carbide decreased negligibly to 55,651 tonnes in 2017-18 from 55,691 tonnes in the previous year. Calcium carbide was imported mainly from China (37%), Bhutan (34%) and Indonesia & South Africa (14% each). The imports of bleaching powder during 2017-18 was only one tonne which was from Argentina. (Tables- 21 to 24).

Table – 17 : Exports of Limestone (By Countries)

Country	2016-17		2017-18	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**4330822**	**4990065**	**2812042**	**4102331**
Bangladesh	4199960	3666369	2659425	2457957
UK	51238	503147	62446	703277
Bhutan	17512	137796	20909	176913
USA	3561	74124	4494	93683
France	5366	63735	7193	81253
Ireland	6167	66992	6465	71579
Nepal	10093	52536	13405	69159
Belgium	4969	50469	4722	56548
Italy	2907	35680	3060	39094
Canada	4046	47841	3307	38551
Other countries	25003	291376	26616	314317

Table – 18 : Exports of Chalk (By Countries)

Country	2016-17		2017-18	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**659**	**4550**	**683**	**4344**
Nepal	573	3325	613	3009
Malaysia	11	449	5	221
Qatar	-	-	29	652
Egypt	21	193	25	246
Indonesia	-	-	++	31
Kuwait	-	-	2	29
UAE	++	9	1	20
Sri Lanka	1	10	1	17
Guinea	-	-	2	15
USA	++	5	++	14
Other countries	53	559	5	90

Table – 19 : Exports of Bleaching Powder (By Countries)

Country	2016-17		2017-18	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**13773**	**271672**	**16349**	**340455**
Bangladesh	11666	229944	13130	241952
Sri Lanka	854	21816	1198	26285
Nepal	1116	14441	951	11871
Vietnam	-	-	147	9866
Nigeria	-	-	142	8737
Iran	-	-	103	8352
Kenya	++	8	95	7693
Egypt	-	-	50	3869
Saudi Arabia	++	3	125	3792
Malaysia	-	-	136	3682
Other countries	137	5460	272	14356

Table – 20: Exports of Calcium Carbide (By Countries)

Country	2016-17		2017-18	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**493**	**28383**	**464**	**25823**
Bangladesh	434	25108	371	20775
Oman	20	1084	45	2204
Congo, D. Rep.	27	1517	24	1402
Angola	-	-	24	1241
Ethiopia	-	-	++	192
Qatar	-	-	++	8
Georgia	-	-	++	1
Ghana	6	115	-	-
UAE	6	557	-	-
Singapore	++	2	-	-

Table – 21 : Imports of Limestone (By Countries)

Country	2016-17		2017-18	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**18300359**	**24384182**	**20827697**	**29016416**
UAE	14362778	16174767	16239642	19143146
Oman	2351149	3654257	2729411	4437041
Malaysia	492622	1814801	685433	2714162
Vietnam	494343	1550141	767372	1676936
Thailand	68582	378441	37265	268814
Philippines	42003	62758	83072	145974
Iran	313801	351265	119212	128677
Pakistan	29314	68485	50147	117040
Egypt	17442	77572	31495	108108
Unspecified	51800	53554	49492	57225
Other countries	76525	198141	35156	219293

Table –22 : Imports of Chalk (By Countries)

Country	2016-17		2017-18	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**8211**	**48111**	**6989**	**36764**
Vietnam	7793	40507	6893	33212
France	42	1215	63	1478
Italy	12	905	12	969
Netherlands	-	-	7	360
Chinese Taipei/Taiwan	++	29	++	320
UAE	-	-	2	159
Germany	6	80	9	126
China	11	305	1	76
Switzerland	10	234	2	62
UK	2	189	++	2
Other countries	335	4647	-	-

Table – 23 : Imports of Calcium Carbide (By Countries)

Country	2016-17		2017-18	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**55691**	**2365221**	**55651**	**2394098**
China	28601	1136077	20838	882052
Bhutan	16787	804012	18909	840424
Indonesia	-	-	8022	343910
South Africa	10303	425098	7841	325831
Argentina	-	-	41	1869
Germany	++	27	++	12
France	++	7	-	-

Table – 24 : Imports of Bleaching Powder
(By Countries)

Country	2016-17		2017-18	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	-	-	**1**	**362**
Argentina	-	-	1	362

FUTURE OUTLOOK

India has huge resources of limestone distributed over different parts of the country. It is comfortably placed in terms of annual capacity and production of cement. Cement-grade limestone occurs in all the limestone-bearing areas, while SMS, BF and chemical-grade limestones occur in selective areas. Concerted efforts to locate SMS and BF grade limestone along with cement-grade limestone are imperative to meet the growing demand.

The demand of raw materials for cement, such as limestone and gypsum is expected to cause disruptive growth in the next few decades. The second largest Cement Industry in the world, the Indian Cement Industry, is expected to grow to an extent of 550 million tonnes per annum of capacity by FY2025 from 502 mtpa recorded in 2018.

India is largest importer of limestone, with 48% market share, followed by Japan, South Korea, Germany and Netherlands. The demand for paper in India is expected to rise at a healthy rate by 2020, due to the Packaging Industry and the increasing number of schools. The increasing number of construction projects is expected to lead to a thriving Building and Construction Industry in India. This is anticipated to contribute to around 10% to the GDP of India. Also with rising Indian pharmaceutical, food and beverage industries the consumption of calcium carbonate (limestone) in India is expected to increase.

To fulfil India's domestic demand as per the GOI's new policy of allotment of mining blocks through auctioning, up to 13.12.2018, a total of 53 blocks were auctioned. Out of these 53 blocks, 24 blocks were limestone blocks. (4 in Andhra Pradesh, 2 in Jharkhand, 4 in Chhattisgarh,1 in Odisha, 6 in Rajasthan, 3 in Gujarat, 1 in Maharashtra and 3 in Madhya Pradesh) with an estimate of 3,437.09 million tonnes reserves.