

Indian Mineral Industry at a Glance

2016-17



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PREFACE

"Indian Mineral Industry at a Glance 2016-17" is the thirty-seventh edition in its series. The publication has been divided into eight sections viz., General, Mineral Production, Production of Metals and Alloys, Foreign Trade, Employment in Mines, Consumption of Minerals, Production of Mineral-based Products and Mining Machinery for ease of reference. The salient features of the data presented in each section are highlighted at the beginning of the section. The Indian Mineral Industry at a Glance pocket book is handy and a ready reckoner with important features of the mining sector. It is stated that some of the figures of GDP/GVA, consumption, foreign trade, mineral based product etc. pertaining to previous years are updated based on latest data.

The publication has been brought out by the Mining and Mineral Statistics Division of the Bureau. This Division, in addition to the extensive data available with it, has also utilised the data furnished by the Mineral Development and Regulation Division on Afforestation for Section-1 and Mining Machinery for Section-8. Similarly, Mineral Economics Division has furnished data on Mineral Resources and Mining Leases for Section-1 and on Consumption of Minerals for Section-6.

The foreign trade data on minerals, metals and selected mineral-based products is received from the Director General of Commercial Intelligence & Statistics (DGCI&S), Kolkata. The export data includes re-exports for the years

2006-07 to 2015-16. Country-wise break-up of some of the minerals and metals at 8-digit customs tariff / ITC (HS) code level is not available for few items. The entire data of such minerals and metals have been grouped under country-item 'unspecified', which has been clubbed with 'others'. The data for the remaining countries in respect of tables of such minerals have limitations to that extent.

The Bureau is thankful to the Ministry of Petroleum and Natural Gas, New Delhi; Office of the Coal Controller, Kolkata; Joint Plant Committee, Kolkata; The Director General of Commercial Intelligence and Statistics, Kolkata; The Department of Industrial Policy & Promotion, Office of the Economic Advisor, Ministry of Commerce & Industry, Ministry of Chemical and Fertiliser and Central Statistical Office for providing the valuable information for this publication.

During the year 2014-15, 31 non-metallic minerals were notified as minor minerals by the Central Government w.e.f.10.02.2015. The figures of such minerals for the year 2014-15 were available for the period from April 2014 to January 2015. Therefore the figures of these minerals are of the period of 10 months (April 2014 to January 2015) and not comparable with those of previous years.

This publication is compiled as a reference material on mining and minerals related information to all those who are directly or indirectly associated with the mineral sector.

Nagpur

Dated: 30th January, 2020

Indian Bureau of Mines

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(ii) In certain cases sum of individual items may not tally with the total of the table due to rounding off the figures

Symbols and Abbreviations

(e)	Estimated
N.A.	Not Available
(R)	Revised
++	Negligible
-	Nil
(P)	Provisional
%	Percentage
kg.	Kilogram
t	Tonne
'000 t	Thousand Tonnes
m.t.	Million Tonnes
m.cu.m.	Million Cubic Metres
R.O.M.	Run-of-mine
Av.	Average
m.m.	Millimetre
h.p.	Horsepower

Section – 1

General

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Section-1

General

The value of mineral production in India covering metallic, non-metallic and minor minerals touched the level of Rs. 101426 crores in 2016-17 from last 6 decades since 1956.

During 2016-17, production of principal minerals like coal, lignite, petroleum (crude), bauxite, chromite, copper ore and concentrates, iron ore, lead and zinc concentrates, manganese ore, silver, diamond, limestone, phosphorite etc. has gone up whereas it declined in case of gold, kyanite etc. as compared with that of 1956.

The index of mineral production (base 2004-05=100) has increased from 129.3 in 2015-16 to 132.2 in 2016-17 showing an increase as compared to previous year.

The value of fuel minerals production is not received from source agency, hence not reflected in the year 2016-17. In the value of mineral production in 2016-17, metallic minerals contributed about 39% and non-

metallic minerals (including minor minerals) about 61 percent.

The value of mineral production in India in 2016-17 was at Rs. 101426 crores. Public sector accounted for around 16% of the total value of mineral production during the year. The total number of reporting mines in 2016-17 (excluding those of petroleum (crude), natural gas (utilised), atomic and minor minerals was 2020. Of these, 512 mines belonged to coal & lignite, 644 to metallic minerals and 864 to non-metallic minerals.

Growth during 1956 to 2016-17

The mining sector has shown significant growth since 1956. The value of mineral production reached the level of Rs. 101426 crore in 2016-17 from Rs. 106 crore in 1956. This was mainly due to significant achievements made in the production of fuel, metallic & non-metallic minerals. The value of metallic minerals rose from Rs. 29 crores to Rs. 40017 crores and that of non-metallic minerals including minor minerals from Rs. 9 crores to Rs. 61409 crores during the year 2016-17.

The performance of some important minerals such as fuel, metallic and non-metallic minerals in the last 60 years is shown under Appendix-I at the end of this publication.

Fuel Minerals

The production of coal at 663 million tonnes in 2016-17 was more than 17 times of its production at 40 million tonnes 1955. The production of lignite at 45 million tonnes was substantially higher than that of 25 thousand tonnes in 1956. The production of petroleum (crude) at 36 million tonnes during 2016-17 was also rose manifold than that of the 396 thousand tonnes in 1956. Natural gas (utilised), which had no production in 1956, recorded a production of 31896 m.cu.m. in 2016-17.

Metallic Minerals

The production of all metallic minerals, except gold, registered a spectacular growth during the last 60 years. The production of iron ore increased from 7.5 million tonnes in 1956 to 192 million tonnes in 2016-17. The production of bauxite increased from 101 thousand tonnes in 1956 to 25 million tonnes in 2016-17, chromite from 54 thousand tonnes to 3.7 million tonnes, manganese ore from 1998 thousand tonnes to 2393 thousand tonnes, lead concentrates from 4 thousand tonnes to 268 thousand tonnes and zinc concentrates from 7 thousand tonnes to 1484 thousand tonnes. The

production of silver, a by-product in the country, was at 460811 kg. in 2016-17 as compared to 3253 kg. in 1956.

Non-Metallic Minerals

In the non-metallic group of minerals, the production of limestone at 313 million tonnes in 2016-17 was more than 37 times of the output recorded in 1956. The production of apatite & phosphorite rose from 9 thousand tonnes in 1956 to 1181 thousand tonnes during 2016-17, magnesite from 93 thousand tonnes to 299 thousand tonnes in the same period of 60 years.

Mineral Reserves and Resources				
Mineral	Unit	As on 1.4.2015 (P)		
		Reserves (A)	Remaining Resources (B)	Total (A+B)
Andalusite	'000 t	-	28201	28201
Antimony				
Ore	tonnes	-	10588	10588
Metal	tonnes	-	174	174
Apatite	'000 t	29	24016	24045
Asbestos	'000 t	24	22923	22947
Ball Clay	'000 t	49493	85250	134743
Barytes	'000 t	51347	35324	86671
Bauxite	'000 t	656422	3240442	3896864
Bentonite	'000 t	14585	568303	582888
Borax	tonnes	-	74204	74204
Calcite	'000 t	3449	19555	23004
Chalk	'000 t	5064	1687	6751
Chromite	'000 t	102210	241806	344016
Cobalt (Ore)	m. tonnes	-	45	45
Copper	'000 t			
Ore		207767	1303730	1511498
Metal		2734.62	9423.53	12158.15
Corundum	tonnes	200	293497	293697
Diamond	th. carats	960	30876	31836

Mineral Reserves and Resources (Contd...)

Mineral	Unit	As on 1.4.2015 (P)		
		Reserves (A)	Remaining Resources (B)	Total (A+B)
Diaspore	'000 t	7882	2311	10193
Diatomite	'000 t	-	2885	2885
Dolomite	'000 t	677884	7737007	8414891
Dunite	'000 t	12768	175049	187817
Emerald	Kilogram	-	55869	55869
Felspar	'000 t	319841	313726	633567
Fireclay	'000 t	27037	695791	722828
Fluorite	'000 t	289	17893	18182
Fullers Earth	'000 t	3941	257438	261379
Garnet	'000 t	12784	43377	56161
Gold				
Ore (Primary)	'000 t	17228	484611	501839
Metal (Primary)	tonnes	70.09	584.65	654.74
Ore (Placer)	'000 t	-	26121	26121
Metal (Placer)	tonnes	-	5.86	5.86
Granite (Dimension stone)	'000 cu.m	263692	46056098	46319790
Graphite	'000 t	7961	186926	194887
Gypsum	'000 t	36621	1292892	1329513

Mineral Reserves and Resources (Contd...)

Mineral	Unit	As on 1.4.2015 (P)		
		Reserves (A)	Remaining Resources (B)	Total (A+B)
Iron Ore & Conc. Hematite Magnetite	'000 t	5421751 52699	17065214 10736455	22486965 10789154
Kaolin	'000 t	229469	2711777	2941247
Kyanite	'000 t	688	104293	104981
Laterite	'000 t	124733	581819	706552
Lead & Zinc Ore Lead Metal Zinc Metal Lead & Zinc Metal	'000 t	106116 2482.34 9999.52 -	643343 10521.36 26363.24 143.13	749459 13003.7 36362.76 143.13
Limestone	m.t.	16336	186889	203225
Magnesite	'000 t	82276	311711	393987
Manganese Ore	'000 t	93475	402399	495874
Marble	'000 t	4551	1941341	1945892
Marl	'000 t	123856	11705	135561
Mica	tonnes	114433	520869	635302

Mineral Reserves and Resources (Contd...)

Mineral	Unit	As on 1.4.2015 (P)		
		Reserves (A)	Remaining Resources (B)	Total (A+B)
Molybdenum				
Ore	tonnes	-	19371698	19371698
Contained MOS ₂	tonnes	-	12668.37	12668.37
Nickel	m.t.	-	189	189
Ochre	'000 t	36934	130859	167793
Perlite	'000 t	-	2406	2406
PGM (Metals)	Tonnes of Metal Content	-	15.71	15.71
Phosphorite/Rock Phosphate	'000 t	45808	266871	312679
Potash	m.t.	-	22508	22508
Pyrites	'000 t	-	1674401	1674401
Pyrophyllite	'000 t	24933	34683	59616
Quartz	'000 t	647522	3260298	3907819
Quartzite	'000 t	83472	1575325	1658798
Rare Earth Elements	tonnes	-	25493	25493
Ruby	kg.	-	5349	5349
Salt (Rock)	'000 t	-	16025	16025
Sapphire	kg	-	450	450
Shale	'000 t	15472	3781	19253

Mineral Reserves and Resources (Concld...)				
Mineral	Unit	As on 1.4.2015 (P)		
		Reserves (A)	Remaining Resources (B)	Total (A+B)
Sillimanite	'000 t	6502	63702	70204
Silver				
Ore	'000 t	150444	361511	511955
Metal	tonnes	7171.94	22809.88	29981.82
Slate	'000 t	20286	2586	22872
Sulphur (Native)	'000 t	-	210	210
Talc/Steatite/Soap Stone	'000 t	106490	209434	315924
Tin Ore	'000 t	4	83721	83725
Metal	tonnes	154.2	102259.16	102413.36
Titanium Minerals	'000 t	14421	399205	413626
Tungstun				
Ore	tonnes	-	87387464	87387464
Contained WO ₃	tonnes	-	142094.35	142094.35
Vanadium				
Ore	tonnes	-	24633855	24633855
Contained V ₂ O ₅	tonnes	-	64594.01	64594.01
Vermiculite	tonnes	1632885	719582	2352467
Wollastonite	tonnes	2241462	14227824	16469286
Zircon	tonnes	1158290	2264913	3423203

Mining Leases as on 31-3-2017[@] (P) (By Principal Minerals)				
Mineral	No. of Mining Leases Granted/Executed	% to Total Leases	Area (‘000 ha)	% to Total Area
Total	4382	100	366	100
Limestone	2117	48	160	44
Iron ore	777	18	95	26
Bauxite	391	9	31	8
Manganese ore	296	7	15	4
Graphite	135	3	4	1
Others	666	15	61	17

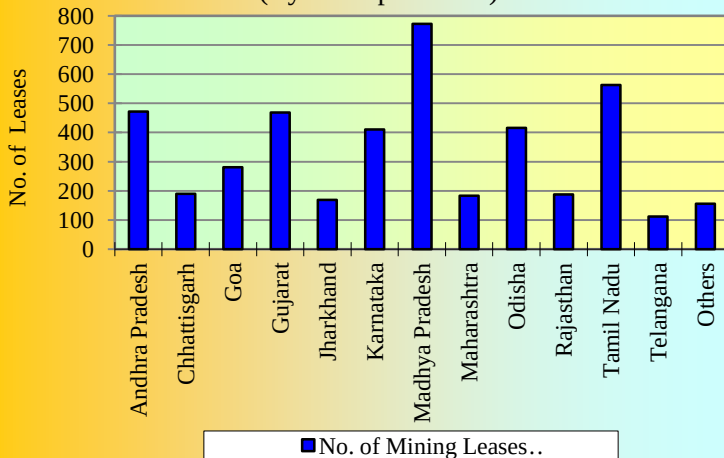
@ Excluding fuel, atomic & minor minerals and also the minerals declared as ‘Minor’ vide

Gazette Notification Part II- Section 3- Sub- section (ii) dated 10 February, 2015.

(P): Provisional

Source: Data as received from respective State Government Departments.

Mining Leases as on 31-3-2017
(By Principal States)



Mining Leases as on 31-3-2017[@] (P) (By Principal States)				
State	No. of Mining Leases Granted/Executed	% to Total Leases	Area ('000 ha)	% to Total Area
All States	4382	100	366	100
Andhra Pradesh	472	11	27	7
Chhattisgarh	190	4	26	7
Goa	281	6	21	6
Gujarat	469	11	23	6
Jharkhand	169	4	24	7
Karnataka	410	9	42	11
Madhya Pradesh	773	18	36	10
Maharashtra	183	4	13	4
Odisha	416	9	73	20
Rajasthan	188	4	47	13
Tamil Nadu	563	13	11	3
Telangana	112	3	11	3
Others	156	4	12	3

*@ Excluding fuel, atomic & minor minerals and also the minerals declared as 'Minor' vide
Gazette Notification Part II- Section 3- Sub- section (ii) dated 10 February, 2015*

(P): Provisional

Source: Data as received from respective State Government Departments.

Concentration of Mining Leases as on 31-3-2017[@] (P) (By Potential)					
Potential Bearing Districts	No. of Districts	No. of Mining Leases Granted/ Executed	% to Total Leases	Area ('000 ha)	% to Total Area
Total	214	4382	100	366	100
Low	194	2067	47	215	59
Medium	10	770	18	50	14
High	10	1545	35	101	27

Gazette Notification Part II- Section 3- Sub- section (ii) dated 10 February, 2015.

High : > 100 mining leases in a district

Medium : 51 – 100 mining leases in a district

Low : 1– 50 mining leases in a district

(P): Provisional

Source: Data as received from respective State Government Departments.

Distribution of Mining Leases as on 31-3-2017[@] (P) (By Sectors)				
Sector	No. of Mining Leases Granted/Executed	% to Total Leases	Area ('000 ha)	% to Total Area
Total	4382	100	366	100
Public	304	7	102	28
Private	4078	93	264	72

Distribution of Mining Leases as on 31-3-2017[@] (P) (By Lease Groups)					
Frequency Groups (No. of Leases)	Minerals Covered	No. of Mining Leases Granted/Executed	% to Total Leases	Area ('000 ha)	% to Total Area
Total	44	4382	100	366	100
1 to 50	37	449	10	58	15
51 to 100	-	-	-	-	-
101 to 200	3	352	8	8	2
201 to 300	1	296	7	15	4
301 to 500	1	391	9	30	8
501 to 1000	1	777	18	95	26
Above 1000	1	2117	48	160	45

@ Excluding fuel, atomic & minor minerals and also the minerals declared as 'Minor' vide

Gazette Notification Part II- Section 3- Sub- section (ii) dated 10 February, 2015

(P): Provisional

Source: Data as received from respective State Government Departments.

Distribution of Mining Leases as on 31-3-2017 @ (P) (By Area Groups)				
Frequency Groups (Area in ha.)	No. of Mining Leases Granted/Executed	% to Total Leases	Area (’000 ha)	% to Total Area
Total	4382	100	366	100
1 to 50	449	10	58	15
51 to 100	-	-	-	-
101 to 200	352	8	8	2
201 to 300	296	7	15	4
301 to 500	391	9	30	8
501 to 1000	777	18	95	26
Above 1000	2117	48	160	45

*@ Excluding fuel, atomic & minor minerals and also the minerals declared as ‘Minor’ vide
Gazette Notification Part II- Section 3- Sub- section (ii) dated 10 February, 2015*

(P): Provisional

Source: Data as received from respective State Government Departments.

Number of Reporting Mines, 2007-08 to 2016-17 (By Mineral Groups)				
Year	Total*	Coal & Lignite	Metallic Minerals	Non-Metallic Minerals ^{\$}
2007-08	3025	570	693	1762
2008-09	3150	574	719	1857
2009-10	3055	573	701	1781
2010-11	3118	573	719	1826
2011-12	3473	573	668	2232
2012-13	3978	575	708	2695
2013-14	3979	552	711	2716
2014-15 ^{\$}	2117	558	693	866
2015-16	2131	512	715	904
2016-17(P)	2020	512	644	864

* Excluding Petroleum (crude), Natural Gas (Ut.), Atomic and Minor minerals

Reporting Mine: A mine reporting production or reporting 'Nil' production during a year but engaged in developmental work such as, overburden removal; underground driving, winzing, sinking work; exploration by pitting, trenching or drilling as evident from the MCDR returns.

\$: Figures for 2014-15 excludes data of 31 minerals notified as minor minerals on 10/02/2015.

Number of Underground Mines, 2016-17 [@] (By Principal Minerals)			
Mineral	Total	'A' Category	'B' Category
Total	44	34	10
Apatite	1	-	1
Chromite	6	6	-
Copper Ore	6	6	-
Gold	6	5	1
Lead & Zinc	8	8	-
Manganese Ore	16	9	7
Salt (rock)	1	-	1

@ Excluding fuel, atomic & minor minerals

'A' Mechanised Mines: > 150 labours in all

> 75 labours in workings below ground

'B' Other than 'A'

Decennial Growth in the Value of Mineral Production, 1956 to 2016-17[@] (By Groups) (Rs. Crore)				
Year	Total	Fuels	Metallic Minerals	Non-Metallic and Minor Minerals
1956	106	68	29	9
1966	328	225	42	61
1976	1365	1009	178	178
1986	10159	8606	673	880
1996-97	38269	31689	2718	3862
2006-07	104490	66158	18286	20046
2016-17 ^{\$} (P)	101426	NA	40017	61409

@ Excluding atomic minerals

\$: Excludes the value of all fuel minerals for 2016-17.

Value of Mineral Production, 2007-08 to 2016-17[@] (By Mineral Groups) (Rs. Crore)				
Year	All Minerals	Fuels ^{\$}	Metallic Minerals	Non-Metallic and Minor Minerals [#]
2007-08	159658	102119	29182	28357
2008-09	174133	114717	35076	24340
2009-10	192115	133658	31734	26723
2010-11	267032	168581	47639	50812
2011-12	284149	178922	47025	58202
2012-13	280006	182689	43164	54153
2013-14	277360	186467	42390	48503
2014-15	194665	97450	37909	59306
2015-16	191070	95882	33622	61566
2016-17(P)	101426	NA	40017	61409

@ Excluding atomic minerals.

: Excludes the data of 31 minerals for February and March 2015, declared as Minor Minerals vide Notification dated 10th February 2015 for 2014-15.

\$: Excludes the value of Petroleum (crude) & Natural Gas (utilised) for 2014-15 and 2015-16 and also excludes the value of all fuel minerals for 2016-17.

Value of Mineral Production[@] (By Minerals)		
		(Rs. Crore)
Minerals	2007-08	2016-17 ^{\$} (P)
All Minerals	159658	101426
Coal	38465	--
Petroleum (crude)	49694	--
Natural Gas (utilised)	11000	--
Iron Ore	23379	25139
Lignite	2961	--
Limestone	2400	6688
Lead & Zinc Concentrates	1084	5305
Chromite	2142	3644
Silver	152	1832
Bauxite	568	1417
Manganese Ore	1206	1603
Copper Concentrates	347	640
Apatite & Phosphorite	215	389
Gold	302	436
Others	25743	54333

@ Excluding atomic minerals.

\$: Excludes the value of all fuel minerals for 2016-17.

Value of Mineral Production [@] (By States)		
		(Rs. Crore)
State	2007-08	2016-17 ^s (P)
India	159658	101426
Andhra Pradesh	17167	10248
Assam	7454	76
Bihar	132	4278
Chhattisgarh	11014	7605
Gujarat	12043	6527
Jharkhand	9621	1887
Karnataka	6619	6768
Kerala	588	2258
Madhya Pradesh	9121	2734
Maharashtra	5186	5172
Meghalaya	569	308
Odisha	14508	16509
Rajasthan	5436	19469
Tamil Nadu	3368	1095
Telangana	-	8200
Uttar Pradesh	3219	5655
West Bengal	3218	146
Off-Shore	41274	--
Others	9121	2491

@ Excluding atomic minerals. \$: Excludes the value of all fuel minerals for 2016-17.

Value of Mineral Production,[@] 2007-08 to 2016-17 (By Sectors)			
(Rs. Crore)			
Year	Total	Public Sector	Private Sector
2007-08	159658	100762	58896
2008-09	174133	115240	58893
2009-10	192114	121794	70320
2010-11	267032	141000	126032
2011-12	284149	152452	131697
2012-13	280006	156695	123311
2013-14	277360	167886	109474
2014-15 ^{# \$}	194665	106446	86800
2015-16 ^{\$}	191070	104104	86966
2016-17 ^{\$} (P)	101426	15725	85701

@ Excluding atomic minerals.

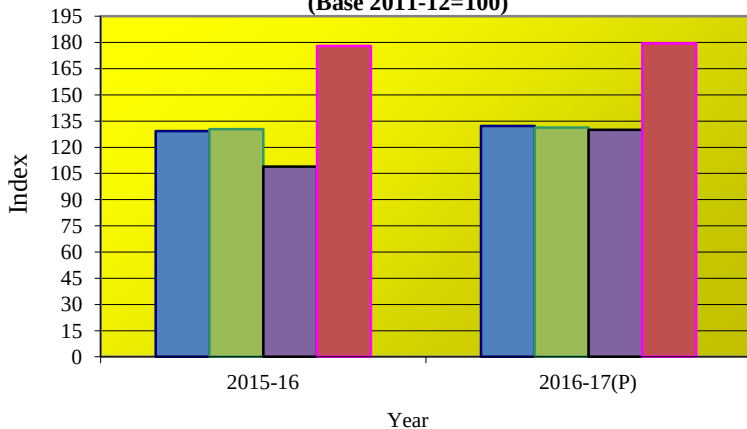
: Excludes the data of 31 minerals for February and March 2015, declared as Minor Minerals vide Notification dated 10th February 2015.

\$: Excludes the value of Petroleum (crude) & Natural Gas (utilised) for 2014-15 and 2015-16 and also excludes the value of all fuel minerals for 2016-17.

Index of Mineral Production

(By Groups)

(Base 2011-12=100)



■ All Minerals

■ Fuels

■ Metallic

■ Non-Metallic

Value of Mineral Production & Number of Mines, 2016-17(P) (By Sectors)			
	Total *	Public Sector	Private Sector
No. of Mines	1508	147	1361
Total Value #	47432	15725	31707
Metallic #	40017	14866	25151
Non-metallic #	7415	859	6556

* Excluding fuel, atomic & minor minerals

Value in Rs. crore

Index of Mineral Production, 2007-08 to 2016-17 (By Mineral Groups)				
	(Base 1993-94 = 100)			
	All Minerals	Fuels	Metallic Minerals	Non-Metallic Minerals
Year/Weight	1000.000	857.180	80.765	42.327
2007-08	173.55	159.43	311.28	210.63
2008-09	175.96	162.80	302.26	215.48
2009-10	193.36	183.00	291.38	239.14
2010-11	204.95	194.98	298.57	256.87

	(Base 2004-05 = 100)			
Year/Weight	1000.000	812.328	103.983	27.414
2011-12	128.5	129.4	115.4	150.6
2012-13	125.5	127.7	98.1	158.4
2013-14	124.7	125.5	106.7	162.1
2014-15	126.5	129.1	92.1	175.4
2015-16	129.3	130.3	108.9	178.1
2016-17(P)	132.2	131.2	130.0	179.5

Note: Weight of minor minerals production in the index of mineral is 19.728 for base year 1993-94 = 100 and it is 56.275 for base year 2004-05=100

Wholesale Price Index, 2007-08 to 2016-17					
(By Groups)					
(Base 2004-05 = 100)					
Year	All Commodities	Minerals	Metallic Minerals	Other Minerals	Mineral Oils
2007-08	116.63	152.78	192.77	116.14	126.25
2008-09	126.02	186.52	266.15	144.19	141.84
2009-10	130.81	202.92	258.32	145.98	135.75
2010-11	143.32	253.28	373.78	153.37	157.47
2011-12	156.13	320.65	411.52	165.88	184.02
(Base 2011-12=100)					
2012-13	106.9	118.2	112.1	139.5	110.9
2013-14	112.5	114.4	105.2	146.8	121.6
2014-15	113.9	118.6	112.2	140.7	108.7
2015-16	109.7	105.6	91.7	154.1	73.9
2016-17(P)	111.6	113.1	98.4	164.4	73.3

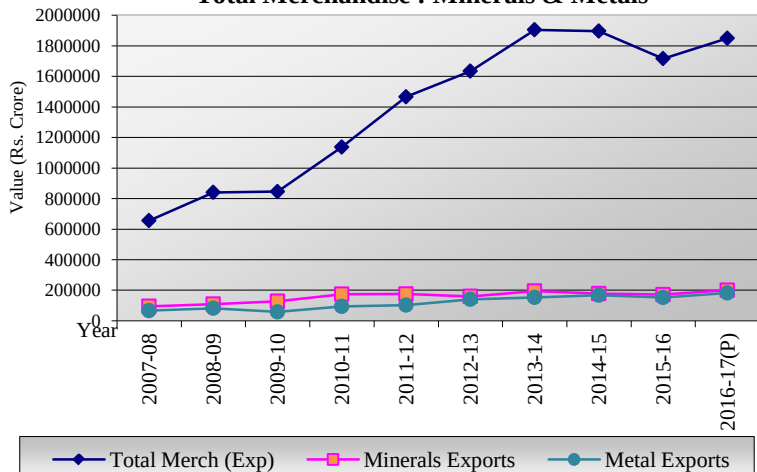
Gross Domestic Product (GDP) at Current Prices (Rs. Crore)			
Year	Total GDP	Mining & Quarrying	Percentage
2007-08	4582086	124812	2.7
2008-09	5303566	139828	2.6
2009-10	6108903	159304	2.6
2010-11	7248860	204866	2.8
2011-12	8391691	222716	2.7
2012-13	9252051	284771	3.1
Gross Value Added (GVA) at Current Prices (Rs. Crore)			
Year	Total GVA	Mining & Quarrying	Percentage
2013-14 (NS)	10380813	295978	2.8
2014-15(NS)	11481794	314177	2.7
2015-16(NS)	12458642	296253	2.4
2016-17(PE)	13669914	301921	2.2

(NS): New series

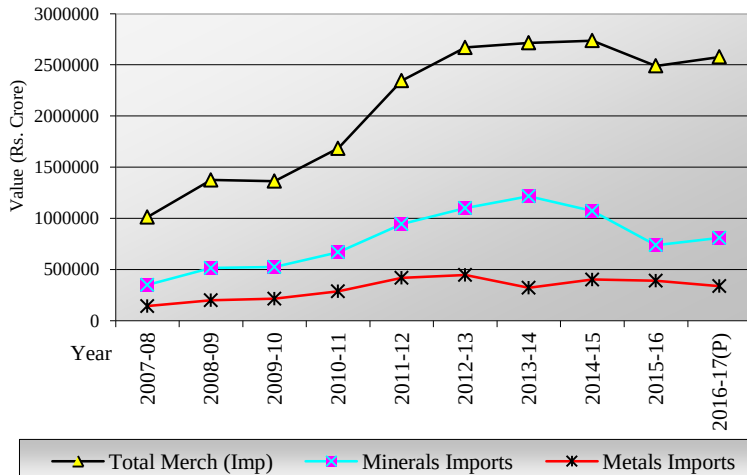
(PE): Provisional estimates

Exports

Total Merchandise : Minerals & Metals



Imports Total Merchandise : Minerals & Metals



Exports Total Merchandise: Minerals & Metals					
(Rs. Crore)					
Year	Total Merchandise	Minerals	% Share	Metals	% Share
2007-08	655864	95022	14	66361	10
2008-09	840755	109296	13	82239	10
2009-10	845534	127831	15	57975	7
2010-11	1136964	174370	15	94052	8
2011-12	1465959	175310	12	102500	7
2012-13	1634318	160101	10	140614	9
2013-14	1905011	194784	10	153156	8
2014-15	1896445	178019	9	167296	9
2015-16	1716384	170946	10	152913	9
2016-17(P)	1849434	200131	11	182186	10

Imports Total Merchandise : Minerals & Metals (Rs. Crore)					
Year	Total Merchandise	Minerals	% Share	Metals	% Share
2007-08	1012312	349507	35	141947	14
2008-09	1374436	514509	37	199489	15
2009-10	1363736	524830	38	214425	16
2010-11	1683467	669010	40	286835	17
2011-12	2345463	944430	40	418310	18
2012-13	2669162	1100800	41	446566	17
2013-14	2715434	1215827	45	321356	12
2014-15	2737087	1071733	39	401259	15
2015-16	2490305	738789	30	390372	16
2016-17(P)	2577675	809445	31	337788	13

Consumption of Explosives, 2016-17 [@] (By Principal Minerals)		
(In tonnes)		
Mineral	Gun Powder	High Explosives
Total:	4.6	1085988
Limestone	4.6	45161
Lead & Zinc Ore	-	35373
Iron Ore	-	19579
Manganese Ore	-	1119
Copper Ore	-	3410
Bauxite	-	2327
Gold	-	577
Chromite	-	370
Magnesite	-	344
Diamond	-	101
Phosphorite	-	101
Wollastonite	-	88
Others	-	48

[@] Excluding fuel, atomic and minor minerals

Consumption of Explosives, 2016-17[@] (By Principal Minerals) (In thousands)						
Mineral	Detonators (Nos.)			Fuses (Meters)		LOX
	Ordinary	Electric	Other	Safety	Cordtex	
Total	2411	4912	160	820	13905	175
Bauxite	103	34	-	195	1538	-
Chromite	17	36	-	5	156	-
Copper Ore	2	484	-	3	875	-
Gold	-	497	-	-	363	-
Iron Ore	225	120	136	25	2421	175
Lead & Zinc Ore	193	807	-	-	1228	-
Manganese Ore	35	1017	++	58	513	-
Apatite	++	-	-	3	-	-
Diamond	++	++	-	++	12	-
Graphite	1	++	1	16	40	-
Kyanite	23	-	-	-	-	-
Limestone	1685	1856	23	450	6402	-
Magnesite	95	33	++	63	256	-
Phosphorite	7	-	-	1	27	-
Wollastonite	25	27	-	-	74	-

@ Excluding fuel, atomic and minor minerals

Afforestation in Metalliferrous Mines during 2016-17 (By Principal Minerals)					
Mineral	Area Covered (ha)	Trees		Survival	
		Planted (Nos.)	Survived (Nos.)	Percentage	('000 trees) per ha
Total	57996	115701508	79112718	68	1.36
Bauxite	3062	8804376	6719872	76	2.19
Chromite	1288	3720497	2594570	70	2.01
Copper	442	1870740	1182512	63	2.67
Dolomite	401	576978	377279	65	0.94
Gold	466	938652	657242	70	1.41
Iron ore	12521	53694651	35248587	66	2.82
Iron & Mn	302	1250820	975719	78	3.23
Lead & Zinc	1619	945440	810766	86	0.50
Limestone	30397	31781557	22642789	71	0.74
Manganese	2613	6912174	4502459	65	1.72
Magnesite	604	542977	364873	67	0.60
Pyrite	7	20750	14715	71	2.14
Others	4274	4641896	3021335	65	0.71

Section – 2

Mineral Production

Production, Value, Employment and Reporting Mines, 2007-08 to 2016-17, (Principal Minerals)	Coal	: 37
	Lignite	: 38
	Petroleum (Crude)	: 39
	Natural gas (Utilised)	: 40
	Bauxite	: 41
	Chromite	: 42
	Copper Ore & Concentrates	: 43
	Gold Ore and Gold	: 44
	Iron Ore	: 45
	Lead & Zinc Ore and Concentrates	: 46
	Manganese Ore	: 47
	Apatite & Phosphorite	: 48
	Diamond	: 49
	Kyanite	: 50
	Limestone	: 51
	Magnesite	: 52
	Sillimanite	: 53

Section-2

Mineral Production

Fuel Minerals

The steady rise in the production of coal continued during the decade under review and reached the level of 663 million tonnes during 2016-17. The production of lignite declined in 2008-09 and 2013-14 and was at 45.2 million tonnes during the decade ending 2016-17. The production of petroleum (crude) was fluctuating during the decade and was at 36 million tonnes in 2016-17 from 34 million tonnes in 2007-08. The output of natural gas (utilised) in 2010-11 at 52219 m.cu.m. attained the highest level of the decade but declined thereafter gradually and reached to 31897 m.cu.m. in 2016-17.

Metallic Minerals

The production of bauxite during the decade was 23 million tonnes in 2007-08, then declined till 2010-11 and increased thereafter gradually upto 2015-16 and again declined to 25 million tonnes showing a decrease of 12% as compared to the previous year. The production of chromite which had decreased 25% in 2014-15 as compared to the year 2013-14 and showed an increase of 28% in 2016-17 at 3.7

million tonnes as compared to previous year 2015-16. The output of copper ore and concentrates had a fluctuating trend during the decade and their respective production in 2016-17 was 3846 thousand tonnes and 135 thousand tonnes showing decrease of about 2% and 11% respectively over the preceding year. During the decade ending 2016-17, the production of iron ore touched the highest level of 219 million tonnes in 2009-10. Then it showed mixed trend and was at 192 million tonnes in 2016-17 with 22% increase over the preceding year. The production of manganese ore showed fluctuating trend during the decade and touched the highest level of 3.1 million tonnes in 2010-11 and was at 2.3 million tonnes in 2016-17 with an increase of about 10.4% as compared to the previous year. The production of lead and zinc ores at 11881 thousand tonnes, lead concentrates at 268 thousand tonnes and that of zinc concentrates at 1484 thousand tonnes in 2016-17 showing an increase of both lead & zinc conc. as compared to the previous year.

Non-Metallic Minerals

During the decade ending 2016-17, the production of apatite & phosphorite touched the highest level of 2.3 million tonnes in 2011-12 and it was 1181 thousand tonnes in 2016-17 showing decrease of 25% over the previous year. The production of diamond showed mixed trend in the initial years of the decade but increased during 2011-12 to 2013-14. It stands at 37 thousand carats in the end of the decade ending in 2016-17.

The output of kyanite at 6 thousand tonnes was highest for the years 2010-11 and 2014-15 during the decade and maintained a fluctuating trend. It was three thousand tonnes for both the years 2015-16 and 2016-17. The production of limestone showed an increasing trend during the decade ending 2016-17 except a marginal decrease in 2013-14. Its production at 313 million tonnes in 2016-17 was 2% higher over the preceding year and was also at highest level of the decade. The production of magnesite showed mixed trend during the decade ending 2016-17 and it was 299 thousand tonnes during 2016-17, showing a decrease of 9% as compared to the previous year.

Production of Coal, 2007-08 to 2016-17				
Year	No. of* Mines	Quantity (Lakh tonnes)	Value (Rs. Crore)	Labour* Employed (Av. Daily)**
2007-08	559	4571	38465	357467
2008-09	561	4928	45537	356848
2009-10	560	5320	51318	360705
2010-11	559	5327	62021	355721
2011-12	559	5400	70172	352930
2012-13	559	5564	74719	345302
2013-14	536	5658	82535	338896
2014-15	539	6092	89287	343548
2015-16	493	6392	88382	328751
2016-17(P)	476	6628	--	328751

* Excluding Meghalaya

**Data relates to Calendar Year

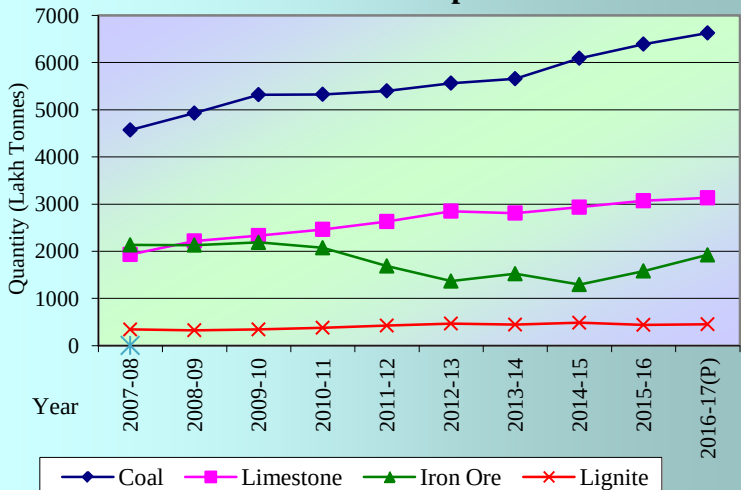
Production of Lignite, 2007-08 to 2016-17				
Year	No. Of Mines	Quantity (Lakh tonnes)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	11	340	2961	14246
2008-09	13	324	3688	12566
2009-10	13	341	3776	13245
2010-11	14	377	4331	14406
2011-12	14	423	5338	13107
2012-13	16	465	5511	13212
2013-14	16	443	5968	13976
2014-15	19	483	8163	12356
2015-16	19	438	7499	11473
2016-17(P)	19	452	--	11473

Production of Petroleum (Crude), 2007-08 to 2016-17		
Year	Quantity (‘000 tonnes)	Value (Rs. Crore)
2007-08	34118	49694
2008-09	33508	53385
2009-10	33690	60789
2010-11	37684	68804
2011-12	38090	69202
2012-13	37862	68817
2013-14	37788	68683
2014-15	37462	--
2015-16	36941	--
2016-17(P)	36008	--

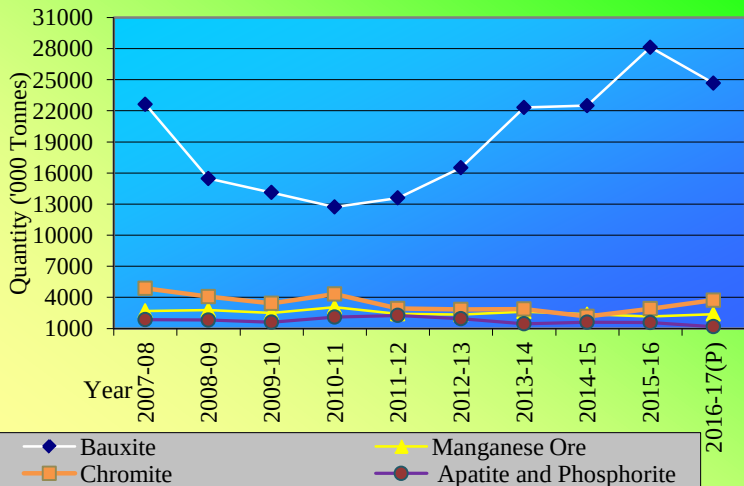
Production of Natural Gas (Utilised), 2007-08 to 2016-17

Year	Quantity (m.cu.m.)	Value (Rs. Crore)
2007-08	32417	11000
2008-09	32845	12107
2009-10	47496	17775
2010-11	52219	33425
2011-12	47559	34211
2012-13	40679	33642
2013-14	35407	29282
2014-15	33659	--
2015-16	32249	--
2016-17(P)	31896	--

Production of Principal Minerals



Production of Principal Minerals



Production of Bauxite, 2007-08 to 2016-17				
Year	No. of Mines	Quantity ('000 tonnes)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	209	22625	568	8971
2008-09	198	15460	470	8546
2009-10	197	14124	489	8178
2010-11	193	12723	512	7851
2011-12	172	13600	613	7684
2012-13	178	16508	796	7410
2013-14	177	22319	1000	6854
2014-15	162	22494	1192	6698
2015-16	190	28124	1544	8652
2016-17(P)	157	24665	1417	6029

Production of Chromite, 2007-08 to 2016-17				
Year	No. of Mines	Quantity ('000 tonnes)	Value (Rs.Crore)	Labour Employed (Av. Daily)
2007-08	20	4873	2142	5982
2008-09	24	4073	2263	6359
2009-10	22	3426	1045	6735
2010-11	21	4326	2596	6862
2011-12	22	2923	2424	6845
2012-13	25	2834	2263	6761
2013-14	26	2878	2376	6277
2014-15	26	2164	1880	6772
2015-16	25	2916	2121	6645
2016-17(P)	25	3728	3644	7066

Production of Copper Ore and Concentrates, 2007-08 to 2016-17					
Year	No. of Mines	Copper Ore Quantity ('000 tonnes)	Copper Concentrates		Labour Employed (Av. Daily)
			Quantity ('000 tonnes)	Value (Rs. Crore)	
2007-08	4	3242	150	347	1835
2008-09	4	3452	138	409	2291
2009-10	4	3271	125	381	2611
2010-11	4	3602	137	473	2712
2011-12	4	3479	130	539	2774
2012-13	5	3636	124	629	2898
2013-14	5	3778	139	668	3324
2014-15	5	3505	108	529	3473
2015-16	5	3908	152	655	3285
2016-17(P)	5	3846	135	640	2820

Production of Gold Ore and Gold, 2007-08 to 2016-17							
Year	No. of Mines	Gold Ore Qty. ('000 tonnes)	Gold				Labour Employed (Av. Daily)
			Primary	Secondary	Total		
			Qty (Kg.)	Qty (Kg.)	Qty (Kg.)	Value (Rs.Crore)	
2007-08	4	681	2969	-	2969	302	3064
2008-09	4	587	2438	-	2438	315	3210
2009-10	4	518	2084	-	2084	343	3210
2010-11	4	742	2399	-	2399	435	3150
2011-12	4	492	2194	-	2194	531	3100
2012-13	4	503	1588	-	1588	517	3204
2013-14	4	420	1564	-	1564	423	3433
2014-15	5	447	1441	-	1441	360	3429
2015-16	5	563	1323	-	1323	321	3426
2016-17(P)	5	582	1594	-	1323	436	3382

Note: No. of Mines and labour employed relates to primary gold

Production of Iron Ore, 2007-08 to 2016-17				
Year	No. of Mines	Quantity (Lakh tonnes)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	314	2133	23379	46056
2008-09	328	2130	28544	42702
2009-10	320	2186	26462	43557
2010-11	336	2072	39614	46147
2011-12	309	1686	38357	46673
2012-13	310	1366	32824	42645
2013-14	322	1522	31649	39127
2014-15	320	1293	27664	39243
2015-16	330	1581	22321	42065
2016-17(P)	296	1921	25139	42049

Production of Lead & Zinc Ore and Concentrates, 2007-08 to 2016-17

Year	No. of Mines	Lead & Zinc Ore Qty. ('000 tonnes)	Lead Concentrates		Zinc Concentrates		Labour Empl-oyed (Av. Daily)
			Qty. ('000 tonnes)	Value (Rs. Crore)	Qty. ('000 tonnes)	Value (Rs. Crore)	
2007-08	7	5783	126	144	1036	939	3991
2008-09	7	6681	134	136	1224	947	4157
2009-10	7	7102	134	177	1280	1306	3859
2010-11	6	7540	148	200	1427	1793	3408
2011-12	6	8042	162	245	1414	1986	3980
2012-13	8	8633	184	330	1493	2395	4665
2013-14	8	9282	194	437	1491	2739	7116
2014-15	8	9363	198	564	1489	3157	7222
2015-16	8	10453	262	789	1474	3494	7018
2016-17(P)	8	11881	268	967	1484	4339	7397

Production of Manganese Ore, 2007-08 to 2016-17

Year	No. of Mines	Quantity (‘000 tonnes)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	130	2697	1206	13226
2008-09	149	2789	1774	13796
2009-10	142	2492	1191	13806
2010-11	149	3056	1468	13682
2011-12	145	2412	1178	14258
2012-13	172	2342	1284	15550
2013-14	163	2626	1518	16659
2014-15	161	2369	1366	15504
2015-16	146	2167	855	12990
2016-17(P)	142	2393	1603	12465

Production of Apatite and Phosphorite, 2007-08 to 2016-17

Year	No. of Mines	Quantity ('000 tonnes)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	8	1856	215	1672
2008-09	9	1810	310	1501
2009-10	9	1611	312	1507
2010-11	9	2101	502	1749
2011-12	7	2263	750	1604
2012-13	7	1942	681	1350
2013-14	7	1455	476	1205
2014-15	7	1608	376	1229
2015-16	7	1572	376	1224
2016-17(P)	7	1181	394	865

Production of Diamond, 2007-08 to 2016-17				
Year	No. of Mines	Quantity ('000 carats)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	2	0.6	1	197
2008-09	2	0.5	0.5	154
2009-10	2	17	12	167
2010-11	2	11	11	163
2011-12	2	18	20	167
2012-13	2	32	37	180
2013-14	2	38	61	157
2014-15	2	36	61	176
2015-16	2	36	62	156
2016-17(P)	2	37	64	157

Production of Kyanite, 2007-08 to 2016-17				
Year	No. of Mines	Quantity ('000 tonnes)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	6	5	0.5	149
2008-09	5	5	0.5	125
2009-10	4	5	0.6	115
2010-11	5	6	0.6	127
2011-12	3	4	0.5	56
2012-13	4	1	0.1	55
2013-14	4	4	0.8	64
2014-15	3	6	1.2	57
2015-16	5	3	1.4	98
2016-17(P)	5	3	1.4	65

Production of Limestone, 2007-08 to 2016-17				
Year	No. of Mines	Quantity (Lakh tonnes)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	553	1931	2400	17865
2008-09	601	2216	2922	19446
2009-10	565	2330	3248	21006
2010-11	592	2463	3635	19213
2011-12	686	2629	4086	22328
2012-13	778	2850	4797	22615
2013-14	779	2809	5133	22978
2014-15	785	2933	5800	23801
2015-16	807	3070	6867	23987
2016-17(P)	771	3132	6688	20800

Production of Magnesite, 2007-08 to 2016-17				
Year	No. of Mines	Quantity ('000 tonnes)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	10	253	33	880
2008-09	10	253	36	770
2009-10	8	301	44	899
2010-11	10	236	38	899
2011-12	11	224	35	777
2012-13	15	224	46	964
2013-14	14	197	45	818
2014-15	19	285	75	935
2015-16	20	328	83	1258
2016-17(P)	19	299	74	1229

Production of Sillimanite, 2007-08 to 2016-17				
Year	No. of Mines	Quantity ('000 tonnes)	Value (Rs. Crore)	Labour Employed (Av. Daily)
2007-08	4	41	18	1924
2008-09	4	34	24	2050
2009-10	4	34	26	2066
2010-11	4	49	41	1790
2011-12	4	59	52	1683
2012-13	5	44	35	1767
2013-14	5	67	41	2166
2014-15	4	66	46	1720
2015-16	4	70	51	1759
2016-17(P)	4	68	53	1723

Section–3

Production of Metals & Alloys

Production of	Iron & Steel	: 57
Metals and	Ferro-Alloys	: 58
Alloys,	Alumina and Aluminium	: 59
2007-08 to	Copper	: 60
2016-17	Gold and Silver	: 61
	Lead & Zinc	: 62

Section – 3

Production of Metals & Alloys

Ferrous Metals

The output of finished steel showed a continuous upward trend in production during the decade except in 2008-09 and 2015-16 and was at 109 million tonnes during the decade ending in 2016-17. Similarly, upward trend in production of semi-finished steel was also observed during the decade except in the years 2007-08 and 2008-09 and again a drastic decline of 43% was observed ending 2015-16. It was 38 million tonnes during the year 2016-17.

Ferro-Alloys

Increasing trend in production of ferro-chrome was observed during the decade ending 2016-17 till 2012-13 and maintained the level of 944 thousand tonnes in last five years of the decade. The output of ferro-manganese showed mixed trend in the decade and maintained the level of 518 thousand tonnes for last five years of the decade ending in 2016-17. The production of ferro-silicon also had an increasing trend and was 90 thousand tonnes during year 2016-17.

Non-ferrous Metals

Among the non-ferrous metals, India has achieved self-sufficiency in aluminium and zinc. The production of alumina rose steadily, except in 2009-10 and 2012-13 and reached the highest level of the of decade at 4576 thousand tonnes in

2016-17, registering an increase of 9.7% as compared to that in the previous year. The production of aluminium increased steadily during the decade except in 2013-14, and at 2897 thousand tonnes it reported 23% increase as compared to the previous year.

The production of copper (blister)/anode showed mixed trend in the decade and it was at 15 thousand tonnes during 2016-17. The production of copper (cathode) at 788 thousand tonnes and that of copper (CCWR) at 372 thousand tonnes in 2016-17 registered a decrease of 0.25% and 4.6% respectively in both the metals as compared to the level of previous year.

There was a fluctuating trend in the production of gold (including by product recovery from imported copper cathodes) during the decade and was 10081 kg. in 2016-17, 3% lower than that of the preceding year. The production of silver, a by-product, at 528 tonnes in 2016-17 was 7% higher as compared to the previous year.

The output of lead (primary) showed increasing trend during the decade except in 2010-11 and during 2016-17 the production of lead (primary) at 142 thousand tonnes was 2% lower than the previous year. The output of zinc ingots also maintained a rising trend during the decade except in 2012-13 and 2014-15 and again declined to 672 thousand tonnes during 2016-17, 11.5% lower as compared to the previous year.

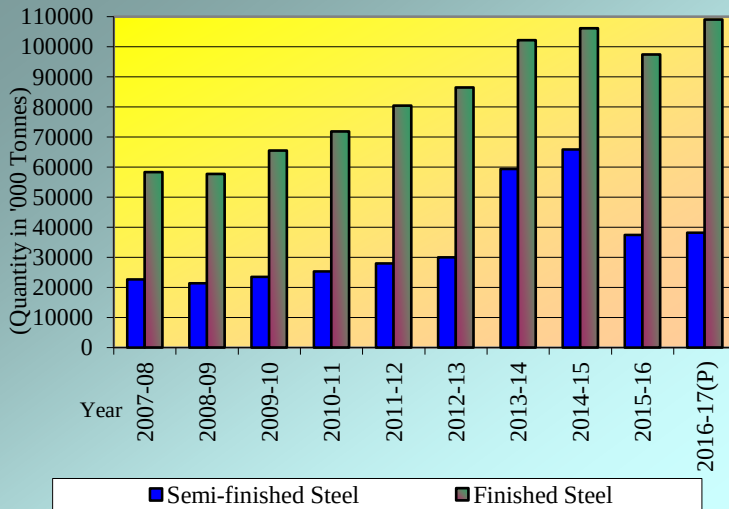
Production of Iron and Steel, 2007-08 to 2016-17 ('000 tonnes)		
Year	Semi-finished Steel [@]	Finished Steel*
2007-08	22685	58263
2008-09	21367	57659
2009-10	23561	65428
2010-11	25273	71775
2011-12	27928	80352
2012-13	29984	86381
2013-14	59379	102090
2014-15	65793	106052
2015-16	37445	97340
2016-17(P)	38236	108950

[@] Including Steel ingots

* Including C.R. Sheets

Source: Joint Plant Committee, Kolkata

Production of Iron & Steel



Production of Principal Ferro-Alloys, 2007-08 to 2016-17 ('000 tonnes)			
Year	Ferro-Chrome	Ferro-Manganese	Ferro-Silicon
2007-08	383	163	69
2008-09	618	332	81
2009-10	922	513	81
2010-11	938	511	81
2011-12	943	517	89
2012-13	944	518	90
2013-14	944	518	90
2014-15	944	518	90
2015-16	944	518	90
2016-17(P)	944	518	90

Source: Joint Plant Committee, Kolkata

Production of Alumina & Aluminium, 2007-08 to 2016-17 ('000 tonnes)		
Year	Alumina	Aluminium
2007-08	3320	1240
2008-09	3620	1347
2009-10	3433	1481
2010-11	3577	1621
2011-12	3931	1654
2012-13	3610	1720
2013-14	3779	1667
2014-15	4024	2027
2015-16	4172	2355
2016-17(P)	4576	2897

Production of Copper, 2007-08 to 2016-17 ('000 tonnes)			
Year	Blister/ Anode	Cathode	CCWR
2007-08	45	501	284
2008-09	29	514	314
2009-10	18	533	312
2010-11	14	512	300
2011-12	19	505	288
2012-13	17	494	285
2013-14	17	644	283
2014-15	16	766	338
2015-16	17	790	390
2016-17(P)	15	788	372

CCWR: Continuous Cast Wire Rod

Production of Gold* and Silver*, 2007-08 to 2016-17 (Kilograms)		
Year	Gold	Silver
2007-08	12104	133635
2008-09	7309	142590
2009-10	11198	183656
2010-11	9360	193376
2011-12	11286	263910
2012-13	8304	434569
2013-14	9209	349774
2014-15	9988	402467
2015-16	10412	491178
2016-17(P)	10081	527874

** Includes production reported from HINDALCO Industries Ltd.*

Production of Lead and Zinc, 2007-08 to 2016-17 ('000 tonnes)		
Year	Lead (Primary)	Zinc Ingots
2007-08	58	457
2008-09	60	579
2009-10	64	614
2010-11	57	740
2011-12	92	784
2012-13	118	704
2013-14	123	767
2014-15	127	733
2015-16	145	759
2016-17(P)	142	672

Section – 4

Foreign Trade

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Section-4

Export

The value of exports of minerals excluding petroleum (crude) from India, showed increasing trend in the decade except in 2012-13, 2014-15 and 2015-16. It was Rs. 200131 crore during 2016-17 which increased by 17% as compared to its value in 2015-16. Diamond accounted for 81% of the total value of exports of minerals during 2016-17 followed by granite and iron ore 5% each, alumina 2%.

India imports diamond (uncut) and after cutting & polishing exports the same thus earning substantial foreign exchange by value addition. The share of diamond in the value of exports of minerals increased from 79% to 83% during the period 2012-13 to 2015-16 and then decreased to 81% in 2016-17.

The export of iron ore had fluctuating trends throughout the decade ending 2016-17 and was at 30.7 million tonnes during the decade ending 2016-17.

Granite is one of the leading foreign exchange earners during the decade. The value of its exports at Rs. 9337 crores in 2016-17 registered 1% decrease as compared to 2015-16.

The exports of manganese ore has decreased from 289 thousand tonne in 2009-10 to nominal quantity in 2016-17. The value of exports of manganese ore also declined continuously from 121 crores in 2008-09 to 1 crore in 2016-17.

Other notable mineral items exported from India during 2016-17 were barytes, bauxite, chromite, coal, limestone, marble, titanium ores & conc., emerald (cut & uncut) and some precious & semi-precious stones, zinc ore & concentrates, etc.

Imports

The value of imports of minerals and metals went up steeply from Rs. 491454 crores in 2007-08 to the level of Rs. 1547366 crores in 2012-13 and started declining till 2015-16 and again rose to 1147234 crores in the year 2016-17. During the year 2016-17, the share of petroleum (crude) in the total value of imports of minerals was 59% and that of diamond 16%, coal 12%, natural gas 5% and copper ore & concentrates 2%. The value of import of petroleum (crude) was Rs. 474219 crores in 2016-17 and that of diamond was Rs. 129443 crores.

India imported 191 million tonnes of coal valued at Rs. 100316 crores in 2016-17. The quantity of imports of petroleum (crude) went up steadily from 115 million tonnes in 2007-08 to 215 million tonnes in 2016-17.

The imports of rock phosphate fluctuated during the decade ending 2016-17. The quantity of imports of rock phosphate at 7.51 million tonne decreased by 7% in the year 2016-17 and the value of its imports also decreased by 24% as compared to the year 2015-16.

The imports of sulphur (excluding precipitated, sublimed and colloidal) were at the level at 1.4 million tonnes in 2007-08, fluctuated during the decade and it was 1.35 million tonnes during 2016-17. The value of its imports was Rs. 875 crores in 2016-17.

Alumina, coke, copper ores & concentrates, asbestos, emerald (cut & uncut), precious and semi-precious stones, manganese ore, marble and molybdenum ores & concentrates, limestone etc. were the other important minerals imported into India in 2016-17.

Exports of Chromite, 2007-08 to 2016-17		
Year	Quantity ('000 tonnes)	Value (Rs. Crore)
2007-08	907	1223
2008-09	1899	974
2009-10	689	801
2010-11	173	286
2011-12	225	489
2012-13	196	311
2013-14	195	347
2014-15	25	66
2015-16	72	131
2016-17(P)	231	366

Exports of Granite, 2007-08 to 2016-17		
Year	Quantity ('000 tonnes)	Value (Rs. Crore)
2007-08	3701	4287
2008-09	3959	4815
2009-10	3828	4994
2010-11	4500	5593
2011-12	4605	6382
2012-13	6061	7942
2013-14	6802	9869
2014-15	6563	9832
2015-16	5675	9272
2016-17(P)	6094	9337

Value of Exports of Granite, 2012-13 to 2016-17 (By Principal Countries)					
(Rs. Crore)					
Country	2012-13	2013-14	2014-15	2015-16	2016-17(P)
All Countries	7942	9869	9832	9272	9337
China P Rp	2681	3266	3022	2591	2669
USA	1206	1613	1600	1641	1670
Vietnam Soc Rp	59	112	162	316	401
Germany	312	349	405	357	386
Turkey	346	392	431	343	326
UAE	230	271	315	262	271
UK	262	304	295	280	258
Italy	244	281	312	255	244
Poland	152	205	261	207	230
Saudi Arab	99	139	142	146	171
Other	2351	2937	2887	2874	2711

Exports of Iron Ore, 2007-08 to 2016-17		
Year	Quantity (Lakh tonnes)	Value (Rs. Crore)
2007-08	685	23400
2008-09	689	21725
2009-10	1015	28366
2010-11	469	21416
2011-12	472	22184
2012-13	181	8985
2013-14	163	9481
2014-15	73	3144
2015-16	54	1264
2016-17(P)	307	10293

Value of Exports of Iron Ore, 2012-13 to 2016-17 (By Principal Countries) (Rs. Crore)					
Country	2012-13	2013-14	2014-15	2015-16	2016-17(P)
All Countries	8985	9481	3144	1264	10293
China P Rp	7698	7338	1190	1032	9729
Oman	N.A.	180	4	++	215
Japan	1013	1487	1125	++	155
Italy	14	-	++	-	71
Iran	N.A.	34	483	203	42
Netherland	94	-	++	++	41
Korea Rp	76	307	305	-	29
Nepal	1	1	1	7	6
Kenya	-	-	-	-	3
UAE	8	6	1	10	1
Others	81	128	35	12	1

Exports of Manganese Ore, 2007-08 to 2016-17		
Year	Quantity (’000 tonnes)	Value (Rs. Crore)
2007-08	208	83
2008-09	205	121
2009-10	289	117
2010-11	99	80
2011-12	75	44
2012-13	72	27
2013-14	66	19
2014-15	11	7
2015-16	++	2
2016-17(P)	++	1

Exports of Marble, 2007-08 to 2016-17		
Year	Quantity ('000 tonnes)	Value (Rs. Crore)
2007-08	311	408
2008-09	307	363
2009-10	276	305
2010-11	522	327
2011-12	325	386
2012-13	371	543
2013-14	338	570
2014-15	326	599
2015-16	290	600
2016-17(P)	327	705

Exports of Mica, 2007-08 to 2016-17		
Year	Quantity ('000 tonnes)	Value (Rs. Crore)
2007-08	100	125
2008-09	191	180
2009-10	94	162
2010-11	127	226
2011-12	132	289
2012-13	128	346
2013-14	128	376
2014-15	141	426
2015-16	136	423
2016-17(P)	135	456

Imports of Asbestos, 2007-08 to 2016-17		
Year	Quantity ('000 tonnes)	Value (Rs. Crore)
2007-08	312	590
2008-09	347	874
2009-10	331	939
2010-11	366	1003
2011-12	378	1199
2012-13	460	1900
2013-14	286	1330
2014-15	396	1717
2015-16	356	1487
2016-17(P)	311	1128

Imports of Coal, 2007-08 to 2016-17		
Year	Quantity ('000 tonnes)	Value (Rs. Crore)
2007-08	49792	20739
2008-09	59004	41341
2009-10	73257	39180
2010-11	68918	41549
2011-12	102841	78827
2012-13	145790	86851
2013-14	166861	92335
2014-15	212106	104530
2015-16	204000	86107
2016-17(P)	191014	100316

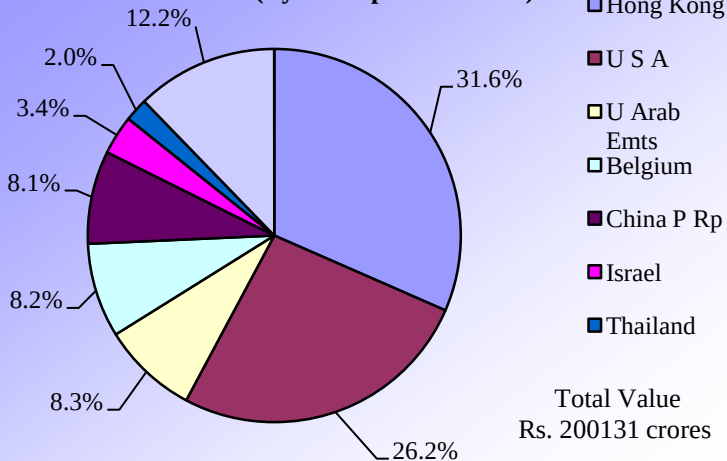
Imports of Petroleum (Crude), 2007-08 to 2016-17		
Year	Quantity (Lakh tonnes)	Value (Rs. Crore)
2007-08	1153	257462
2008-09	1300	346845
2009-10	1536	365901
2010-11	1531	421616
2011-12	1657	643689
2012-13	1855	785602
2013-14	1892	869657
2014-15	1879	709379
2015-16	2023	429400
2016-17(P)	2149	474219

Imports of Rock Phosphate, 2007-08 to 2016-17		
Year	Quantity ('000 tonnes)	Value (Rs. Crore)
2007-08	5018	1853
2008-09	5010	4840
2009-10	5684	3275
2010-11	5194	3211
2011-12	9730	8315
2012-13	8161	7310
2013-14	7161	5518
2014-15	8273	6189
2015-16	8038	6529
2016-17(P)	7511	4951

Imports of Sulphur*, 2007-08 to 2016-17		
Year	Quantity ('000 tonnes)	Value (Rs. Crore)
2007-08	1406	1456
2008-09	1286	2994
2009-10	1534	681
2010-11	1357	1098
2011-12	2038	2283
2012-13	1547	1736
2013-14	1290	1100
2014-15	1626	1745
2015-16	1433	1417
2016-17(P)	1346	875

** Excluding sublimed, ppt and colloidal*

Value of Minerals Export, 2016-17 (By Principal Countries)

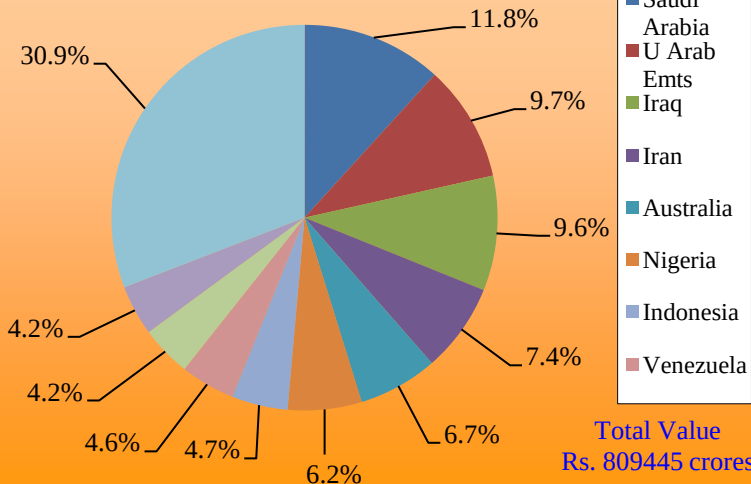


Value of Exports of Minerals, 2016-17(P) (By Principal Countries)		
Country	Value (Rs. Crore)	Percentage Contribution
Total	200131	100
Hong Kong	63165	32
U S A	52532	26
U Arab Emirates	16620	8
Belgium	16343	8
China P Rp	16169	8
Israel	6772	3
Thailand	4026	2
Japan	2388	1
Singapore	2125	1
U K	2096	1
Bangladesh	1532	1
Switzerland	1280	1
Australia	1154	1
Others	13929	7

Value of Exports of Metals, 2016-17(P) (By Principal Countries)		
Country	Value (Rs. Crore)	Percentage Contribution
Total	182186	100
U Arab Emirates	48087	26
U S A	14794	8
Korea Rp	9160	5
China P Rp	8247	4
Italy	7423	4
Malaysia	7017	4
Belgium	5893	3
Nepal	5356	3
Chinese Taipei/Taiwan	4950	3
Vietnam Soc Rep	4062	2
Bangladesh	3896	2
Saudi Arab	3708	2
Germany	3496	2
Indonesia	3253	2
Spain	3190	2
U.K.	3023	2
Singapore	2980	2
Others	43651	24

Value of Imports of Minerals, 2016-17(P) (By Principal Countries)		
Country	Value (Rs. Crore)	Percentage Contribution
Total	809445	100
Saudi Arabia	95149	12
U Arab Emts	78841	10
Iraq	77903	10
Iran	60109	7
Australia	53996	7
Nigeria	50059	6
Indonesia	38091	5
Venezuela	36923	5
Belgium	34338	4
Qatar	34172	4
Hong Kong	25799	3
South Africa	20643	3
Russia	20306	2
Kuwait	19778	2
Others	163338	20

Value of Minerals Import, 2016-17 (By Principal Countries)



Value of Imports of Metals, 2016-17(P) (By Principal Countries)		
Country	Value (Rs. Crore)	Percentage Contribution
Total	337788	100
Switzerland	104195	31
U Arab Emts	30607	9
China P Rp	27597	8
Korea Rp	17451	5
U S A	16360	5
South Africa	14132	4
Ghana	11992	3
Japan	9846	3
Malaysia	7370	2
U K	6345	2
Germany	5948	2
Hong Kong	5780	2
Other	80165	24

Exports, Imports and Net Trade in Minerals and Metals, 2007-08 to 2016-17 (Rs. Crore)						
Year	Minerals and Metals (Including Petroleum)			Minerals (Excluding Petroleum Crude)		
	Exports	Imports	Difference	Exports	Imports	Difference
2007-08	161383	491454	-330071	94913	92045	+2868
2008-09	191536	713998	-522462	109156	167664	-58508
2009-10	185807	739255	-553448	127742	158929	-31187
2010-11	268423	955845	-687422	174370	247394	-73024
2011-12	277809	1362740	-1084931	175237	300742	-125505
2012-13	300715	1547366	-1246651	160101	315198	-155097
2013-14	347940	1537183	-1189243	194784	346169	-151385
2014-15	345315	1472992	-1127677	178019	362353	-184334
2015-16	323859	1129161	-805302	170946	309389	-138443
2016-17(P)	382317	1147234	-764917	200131	335226	-135095

Exports, Imports and Net Trade in Minerals and Metals, 2007-08 to 2016-17 (Rs. Crore)						
Year	Petroleum Crude			Metals		
	Exports	Imports	Difference	Exports	Imports	Difference
2007-08	109	257462	-257353	66361	141947	-75586
2008-09	140	346845	-346705	82239	199489	-117250
2009-10	89	365901	-365812	57975	214425	-156450
2010-11	++	421616	-421616	94052	286835	-192783
2011-12	72	643689	-643617	102500	418310	-315810
2012-13	-	785602	-785602	140614	446566	-305952
2013-14	-	869657	-869657	153156	321356	-168200
2014-15	-	709379	-709379	167296	401259	-233963
2015-16	-	429400	-429400	152913	390372	-237459
2016-17(P)	-	474219	-474219	182186	337788	-155602

**Share of Principal Minerals in the Value of Mineral Exports,
2012-13 to 2016-17**

Exports

Year	Exports of all Minerals (Rs. Crore)	Percentage Share of Principal Minerals						
		Diamond*	Granite	Alumina	Iron Ore	Emerald (Cut & Uncut)	Precious & Semi- Precious Stones (Cut & Uncut)	Others
2012-13	160101	79	5	1	6	2	1	6
2013-14	194784	81	5	1	5	1	1	6
2014-15	178019	83	6	2	2	1	1	5
2015-16	170946	83	5	2	1	1	1	7
2016-17(P)	200131	81	5	2	5	1	1	5

* Includes mostly cut, industrial and powder

**Share of Principal Minerals in the Value of Mineral Imports,
2012-13 to 2016-17**

Imports

Year	Imports of All Minerals (Rs. Crore)	Percentage Share of Principal Minerals						
		Petroleum (Crude)	Diamond*	Coal	Natural Gas	Copper Ore & Conc.	Coke	Others
2012-13	1100800	71	11	8	4	3	1	2
2013-14	1215827	72	11	8	4	3	1	1
2014-15	1071733	66	12	10	5	3	++	4
2015-16	738789	58	15	12	6	4	++	5
2016-17(P)	809445	59	16	12	5	2	1	5

** Includes mostly cut, industrial and powder*

Share of Principal Countries in the Value of Exports of Diamond, 2012-13 to 2016-17									
Exports of Diamond (Mostly Cut)									
Year	Value of Exports (Rs. Crore)	Percentage Share of Principal Importing Countries							
		Hong Kong	USA	Belgium	UAE	Israel	Thailand	Singapore	Others
2012-13	126568	35	22	10	19	5	2	1	6
2013-14	158005	35	23	10	17	5	3	1	6
2014-15	148056	38	27	11	10	5	3	1	5
2015-16	142664	36	30	10	10	5	3	1	5
2016-17(P)	162567	38	30	10	9	4	2	1	6

Share of Principal Countries in the Value of Imports of Diamond, 2012-13 to 2016-17 Imports of Diamond (Mostly Cut)									
Year	Value of Imports (Rs. Crore)	Percentage Share of Principal Exporting Countries							
		Belgium	UAE	Russia	Hong Kong	Botswana	Israel	Canada	Others
2012-13	117568	38	25	3	16	++	6	1	11
2013-14	134117	40	25	3	14	2	5	++	11
2014-15	125035	44	20	4	11	4	5	1	11
2015-16	110378	39	22	7	11	3	6	2	10
2016-17(P)	129443	26	23	12	11	7	6	3	12

**Production, Exports/Imports and Apparent Consumption
as Percentage of Total Availability, 2016-17(P)**

(By Selected Minerals)

Mineral	Total Availability* ('000 tonnes)	Percentage Share of			
		Gross Production	Imports	Exports	Apparent Consumption
Bauxite	26560	93	7	11	89
Sulphur	1960	29	71	32	68
Iron Ore	196688	98	2	16	84
Magnesite	442	68	32	2	98
Limestone	18613555	2	98	23	77
Chromite	3882	96	4	6	94
Manganese Ore	4301	56	44	0	100
Coal	853806	78	22	0	100
Asbestos	302	0	100	0	100
Rock Phosphate	8693	14	86	0	100
Petroleum (crude)	250895	14	86	0	100

** Total Availability = Apparent Consumption + Exports = Production + Imports*

Section – 5

Average Daily Employment in Mines

Average Daily Employment in Mines

Average Daily Employment in Mines (By Groups), 2007-08 to 2016-17	: 95
Average Daily Employment in Metallic Minerals Mines, 2016-17 (By Sectors)	: 96
Average Daily Employment in Non Metallic Minerals Mines, 2016-17 (By Sectors)	: 97
Average Daily Employment in Mines (By Category / Sector), 2016-17	: 98

Section-5

Average Daily Employment in Mines

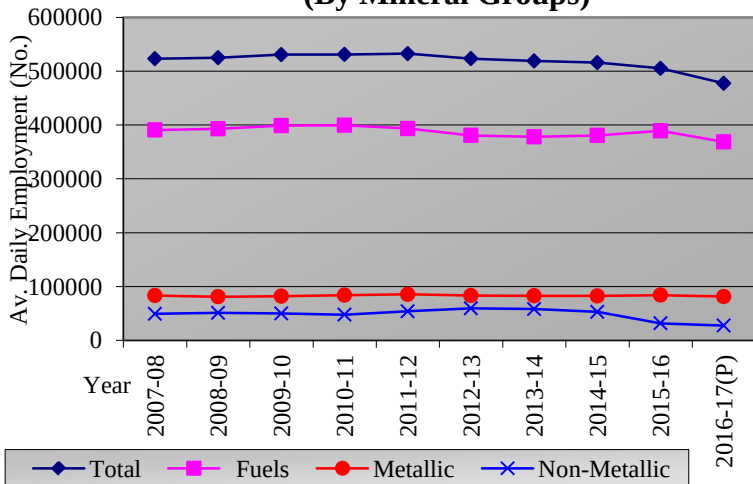
The average daily employment of labour at around 5.23 lakh persons during 2007-08 decreased to 4.77 lakh persons in 2016-17. Among the major group of minerals, fuel accounted for 77% to the total employment during 2016-17, metallic minerals 17% and non-metallic minerals about 6 percent. The average daily employment of labour in 2016-17 was 477399 which was 1.5% lower as compared to the preceding year.

In the case of fuel minerals, coal and lignite together accounted for 92% of the labour force engaged during 2016-17 in fuel group of minerals. In metallic group of minerals, iron ore accounted for 52% of the total employment, followed by manganese ore 15%, lead & zinc concentrates and chromite 9% each, bauxite 7%, copper concentrates and gold 4% each. The share of limestone in the labour employed in non-metallic minerals was 76% followed by sillimanite (6%), garnet (abrasive) and magnesite (5% each), apatite & phosphorite (3%) while remaining 5% labour were employed in other non-metallic minerals.

In the case of metallic and non-metallic minerals covered under MCDR, 1988 (which excludes fuel, atomic and minor minerals) 995 mines of category 'A'

employed 453 thousand persons while 1025 mines of 'B' category employed about 24 thousand persons in 2016-17. The contribution of category 'A' and category 'B' mines to the total value of MCDR minerals in 2016-17 was 49% and 51% respectively. About 377 thousand persons were engaged in 637 public sector mines and 100 thousand persons were engaged in 1383 private sector mines in 2016-17. The shares of public and the private sectors in the total value of (metallic and non-metallic) minerals production were 16% and 84% respectively.

Average Daily Employment in Mines (By Mineral Groups)



Average Daily Employment in Mines, 2007-08 to 2016-17 (By Groups)				
Year	Total	Fuels*	Metallic Minerals	Non-metallic Minerals
2007-08	523171	390937	83181	49053
2008-09	525024	392988	81119	50917
2009-10	530699	398845	82000	49854
2010-11	531122	399570	83865	47687
2011-12	532552	393384	85361	53807
2012-13	523352	380815	83172	59365
2013-14	518927	378070	82820	58037
2014-15	515955	380719	82375	52861
2015-16	484585	368695	84113	31777
2016-17(P)	477399	368695	81226	27478

* Calendar Year

Source: Fuel - DGMS, Dhanbad

Metallic & Non-metallic - Returns received under MCDR, 1988

Average Daily Employment in Metallic Minerals Mines, 2016-17(P) (By Sectors)			
Mineral	Total	Public	Private
Total	81226	30682	50544
Iron Ore	42048	13405	28643
Manganese Ore	12465	7722	4743
Lead & Zinc Concentrates	7397	-	7397
Chromite	7066	2227	4839
Bauxite	6029	1177	4852
Copper Concentrates	2820	2820	-
Gold	3382	3331	51
Tin Concentrates	19	-	19

Average Daily Employment in Non-Metallic Minerals Mines, 2016-17(P) (By Sectors)			
Mineral	Total	Public	Private
Total	27478	7242	20236
Limestone	20800	2634	18166
Garnet (Abrasive)	1478	1009	469
Sillimanite	1723	1723	-
Apatite & Phosphorite	865	859	6
Magnesite	1229	719	510
Limeshell	484	-	484
Wollastonite	292	-	292
Graphite	125	22	103
Diamond	157	157	-
Vermiculite	76	41	35
Flourite(graded)	45	45	-
Others	204	33	171

Employment in Mines, 2016-17(P)
(Metallic & Non-Metallic Minerals)
(By Category/Sector)

Category/Sector	No. of Mines	Average Daily Employment for the Group	Value of Production ^{\$} (Rs. Crore)
Total	2020	477399	101426
Category A	995	453044	38148
Category B	1025	24355	63278
Public Sector	637	376819	15725
Private Sector	1383	100580	85701

Category 'A'

i) *Mechanised Mines*

ii) *> 150 labours in all*

iii) *> 75 labours in workings below ground*

Category 'B'

: *Other than 'A'*

\$: Excludes the value of all fuel minerals for 2016-17.

Section – 6
Consumption of Minerals

Consumption of Minerals, 2007-08 to 2016-17	Iron & Steel Industry	: 102
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Section-6

Consumption of Minerals

Iron & Steel Industry

Iron ore is the basic raw material required for iron & steel industry. Besides coal, limestone, dolomite and manganese ore are also consumed.

During the year 2016-17, upward trend of mineral consumption in some of above minerals was observed in iron & steel industry. The increase in consumption was noticed in respect of iron ore (11.05%), manganese ore (34.92%), and limestone (14.55%) as compared to previous year.

Cement Industry

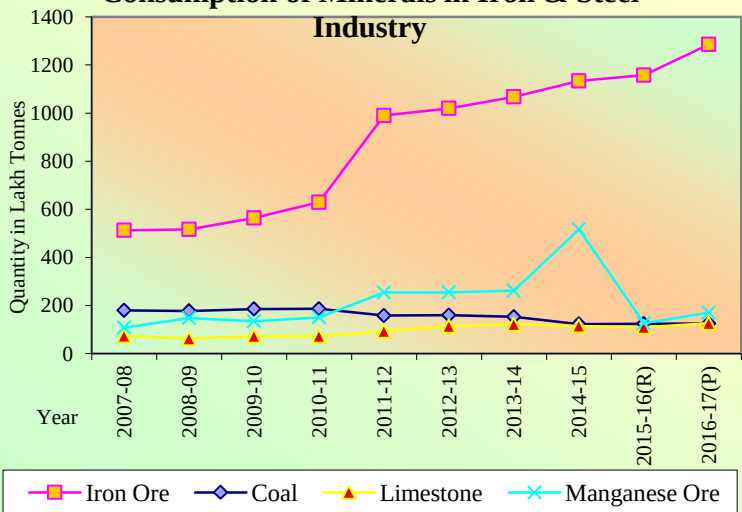
Important mineral consumed in cement industry is limestone. Besides, gypsum, bauxite, iron ore, laterite, ochre and kaolin (china clay) are also consumed in varying amounts.

During the year 2016-17 consumption of bauxite was increased by 4.62% while consumption of iron ore decreased by (39.5%). The consumption of lime stone was 2.23 million tonnes (excluding other calcareous minerals) in 2016-17.

Refractory Industry

During the year 2016-17 decrease in consumption was observed in respect of magnesite (14.49%), bauxite (61.46%), and kyanite & sillimanite (14.81%) as compared to previous year.

Consumption of Minerals in Iron & Steel Industry



Consumption of Minerals in Iron & Steel Industry, 2007-08 to 2016-17 (’000 tonnes)									
Year	Iron Ore ^{*^}	Coal ^{*@}	Lime-stone [*]	Dolomite	Manganese Ore	Ferro-Alloys	Bauxite	Fire clay	Fluorite
2007-08	513.0	179.7	73.2	4580	108	449	1	21	2
2008-09	516.6	177.7	62.3	4790	148	538	1	35	3
2009-10	564.2	185.7	72.5	4360	135	574	1	35	1
2010-11	629.5	186.3	72.5	5290 ^{\$}	151	571	1	29	3
2011-12	990	158	93	5313	254	630	1	11	2
2012-13	1020	160	114	5355	255	416	1	11	2
2013-14	1068	153	122	5544	262	406	1	11	2
2014-15	1134	123	115	5669	517	415	N.A.	N.A.	N.A.
2015-16(R)	1158	124 [#]	110	N.A.	126	N.A.	N.A.	N.A.	N.A.
2016-17(P)	1286	125 [#]	126	N.A.	170	N.A.	N.A.	N.A.	N.A.

Figures rounded off, ^{*} Lakh tonnes. @ Relates to despatches of coal. (R) Revised (P) Provisional
Includes actual reported consumption and/or estimates made wherever required. Paucity of data, hence coverage may not be complete.

[#] **Source:** Coal Directory of India, 2015-16 and Provisional Coal Statistics, 2016-17.

^{\$} The figures for iron & steel and palletisation (iron & steel) added

[^] Iron & Steel Industry including sponge iron

Consumption of Minerals in Cement Industry, 2007-08 to 2016-17 ('000 tonnes)								
Year	Limestone**	Coal* [@]	Gypsum*	Quartz \$	Bauxite	Iron Ore	Kaolin	Fireclay
2007-08	1680	152.7	59.5	293	615	1022	270	247
2008-09	1720	131.2	65.6	298	1144	1074	339	245
2009-10	2030	131.2	69.8	279	1043	1294	642	245
2010-11	2320	141.8	82.1	332	1082	1494	665	286
2011-12	2399	129	86	356	1041	1548	665	276
2012-13	2533	128	92	382	535	1586	695	253
2013-14	2558	116	92	334	561	1455	663	294
2014-15	2790	111	97	879	1039	1186	755	281
2015-16(R)	2898	90 [#]	N.A.	N.A.	1406	1254	N.A.	N.A.
2016-17(P)	2231 [^]	64 [#]	N.A.	N.A.	1471	759	N.A.	N.A.

Figures rounded off, * Lakh tonnes

+ : Limestone and other calcareous material. (R) Revised (P) Provisional

Includes actual reported consumption and/or estimates made wherever required. Paucity of data, hence coverage may not be complete

[@] Relates to despatches of coal. \$: Includes Quartz, Quartzite and Silica Sand

[#] **Source:** Coal Directory of India, 2015-16 and Provisional Coal Statistics, 2016-17.

[^] Excludes other calcareous materials

Consumption of Minerals in Refractory Industry, 2007-08 to 2016-17 (’000 tonnes)								
Year	Dolomite	Fire clay	Magnesite	Quartz & Quartzite	Bauxite & Diaspore	Chromite*	Kyanite & Sillimanite	Kaolin
2007-08	63	182	239	53	304	23	20	28
2008-09	63	182	312	54	318	24	17	28
2009-10	63	163	229	65	128	24	18	33
2010-11	213	171	163	43	118	45	15	34
2011-12	213	182	112	46	280	25	15	35
2012-13	375	181	91	69	313	42	21	33
2013-14	321	176	58	68	295	41	22	34
2014-15	350	172	67	73	301	20	28	51
2015-16(R)	N.A.	N.A.	69	N.A.	288 ^{\$}	9	27	N.A.
2016-17(P)	N.A.	N.A.	59	N.A.	111 ^{\$}	4	23	N.A.

Figures rounded off.

**: Includes consumption in iron & steel industry*

Includes actual reported consumption and/or estimates made wherever required. Paucity of data, hence coverage may not be complete

\$: Excludes diaspore

(R): Revised (P): Provisional

Section – 7

Production of Mineral-Based Products

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Section – 7

Production of Mineral-Based Products

Cement and Asbestos-Cement Products

The output of cement in the country during the decade has increased by about 61% during 2016-17 at 2704 lakh tonnes as compared to 1676 lakh tonnes in 2007-08 and it marginally decreased by 1.3% as compared to previous year.

Ceramic Products

The total production of ceramic products consisting of glazed tiles and insulators showed increasing trend from 1420 thousand tonnes in 2007-08 to a highest level of 2656 thousand tonnes in the year 2015-16 except for the year 2012-13 and 2016-17. The output of glazed tiles at 1365 thousand tonne in 2007-08 recorded an increasing trend till 2011-12 and was at 2584 thousand tonnes during 2015-16. Production of insulators had a fluctuating trend during the decade and was at the level of 68 thousand tonnes during 2016-17.

Fertilisers and Sulphuric Acid

The output of fertilizers witnessed fluctuations during the decade and reported the production of 17.9 million tonnes in 2016-17.

**Production of Cement and Asbestos-Cement Products,
2007-08 to 2016-17[@]**

Year	Cement	Asbestos-Cement Products*
	Production (Lakh tonnes)	Production ('000 tonnes)
2007-08	1676	2448
2008-09	1814	2382
2009-10	2007	2606
2010-11	2097	2468
2011-12	2235	N.A.
2012-13	2406	N.A.
2013-14	2498	N.A.
2014-15	2613	N.A.
2015-16	2739	N.A.
2016-17(P)	2704	N.A.

* Includes the production of asbestos cement sheets and Asbestos cement pressure & building pipes, etc.

Source: Department of Industrial Policy and Promotion

@ Production figures pertain to the units included in the sample/frame for Index of Industrial Production with base year 2004-05/2011-12

Production of Ceramic Products, 2007-08 to 2016-17[@] ('000 tonnes)		
Year	Glazed Tiles	Insulators (H.T. and L.T.)
2007-08	1365	55
2008-09	1381	56
2009-10	1452	61
2010-11	1478	68
2011-12	1573	61
2012-13	1464	56
2013-14	2350	68
2014-15	2501	71
2015-16	2584	72
2016-17(P)	2439	68

Source: Department of Industrial Policy and Promotion

[@] Production figures pertain to the units included in the sample/frame for Index of Industrial Production with base year 2004-05/2011-12

Production of Fertilisers, 2007-08 to 2016-17 ('000 tonnes)		
Year	Phosphatic	Nitrogenous
2007-08	3807	10900
2008-09	3464	10870
2009-10	4321	11900
2010-11	4222	12156
2011-12	4101	12259
2012-13	3541	12194
2013-14	3714	12378
2014-15	4121	12394
2015-16	4394	13416
2016-17	4595	13354

Source: Department of Fertilisers, Ministry of Chemicals and Fertilisers

Production of Sulphuric Acid, 2007-08 to 2016-17[@] ('000 tonnes)	
Year	Production
2007-08	6569
2008-09	6395
2009-10	7444
2010-11	5670
2011-12	5870
2012-13	5730
2013-14	5061
2014-15	5407
2015-16	5805
2016-17(P)	6150

Source: Department of Industrial Policy and Promotion

@ Production figures pertain to the units included in the sample/frame for Index of Industrial Production with base year 2004-05/2011-12

Section – 8

Mining Machinery

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	Motor Graders	: 116
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	Drills/ Blast Holes	: 118
	Crushers	: 119
	Air Compressors	: 120
	Locomotives	: 121
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	Cranes	: 123
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Section – 8

Mining Machinery

During the reporting year, 2016-17, a total number of 585 opencast mechanised mines were covered for compilation for preparation of statement on population of mining machinery as against 747 mines covered during 2015-16. Hence, there is decrease of 27.7% on the coverage of mines during the year.

Like last year, the majority of the mechanised mines covered are of limestone, iron ore, bauxite, gypsum, manganese ore, chromite and others. Conventional methods of Deep-hole blasting with Shovel – Dumper combination are mostly found.

It has been observed that there is an increase in the population of mining machinery like Front-End Loader, Back Hoe, Blast Holes Drills, Dipper Shovel (Mech.), Cranes, Crusher, Dipper Shovel (Hydraulic), Surface Miner and Air Compressor; whereas there is a decrease in the population of mining machinery like Hauler/Dumper, Drills/Blast Holes, Motor Grader, Bull Dozer, and Locomotives, during the reporting year. But in overall, there is a decrease in the mining machinery population to the extent of 9.4 percent.

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Dipper Shovels (Mechanical and Hydraulic)

Capacity (Cu. m)	Total			Mechanical			Hydraulic		
	Total	Public	Private	Total	Public	Private	Total	Public	Private
In Use (Nos.)									
< 1.16	127	25	102	5	3	2	122	22	100
1.16-2.30	94	8	86	1	-	1	93	8	85
2.31-3.45	108	16	92	-	-	-	108	16	92
3.46-4.60	104	17	87	4	4	-	100	13	87
>4.60	145	38	107	12	12	-	133	26	107
Total	578	104	474	22	19	3	556	85	471
In Reserve (Nos.)									
< 1.16	2	2	-	-	-	-	2	2	-
1.16-2.30	1	-	1	-	-	-	1	-	1
2.31-3.45	10	3	7	2	2	-	8	1	7
3.46-4.60	17	5	12	2	2	-	15	3	12
>4.60	13	2	11	-	-	-	13	2	11
Total	43	12	31	4	4	-	39	8	31

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Front End Loaders

Capacity (cu.m.)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 1.16	49	9	40	1	-	1
1.16 – 2.30	278	34	244	9	6	3
2.31 – 3.45	97	9	88	9	-	9
3.46 – 4.60	39	5	34	4	-	4
> 4.60	74	12	62	1	1	-
Total	537	69	468	24	7	17

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Bulldozers/Ripper Dozers

Capacity (h.p.)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 100	32	2	30	3	1	2
100-200	90	22	68	4	-	4
201-300	50	8	42	5	-	5
301-400	120	17	103	4	1	3
> 400	111	66	45	2	-	2
Total	403	115	288	18	2	16

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Motor Graders

Capacity (h.p.)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 100	7	3	4	2	-	2
100-200	36	3	33	1	-	1
201-300	26	17	9	2	1	1
301-400	5	3	2	1	-	1
> 400	5	4	1	-	-	-
Total	79	30	49	6	1	5

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Haulers/Dumpers

Capacity (tonnes)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 10	1592	87	1505	26	13	13
10-20	1481	207	1274	66	16	50
21-30	1248	113	1135	66	1	65
31-40	701	83	618	22	1	21
41-60	569	159	410	36	1	35
61-100	129	71	58	4	-	4
101-150	43	8	35	6	3	3
> 150	17	5	12	7	-	7
Total	5780	733	5047	233	35	198

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Drills/Blast Holes

Capacity in diameter of the hole/bit (m.m.)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 50	159	57	102	17	5	12
50-100	77	22	55	13	9	4
101-150	287	48	239	17	3	14
151-200	53	30	23	-	-	-
> 200	16	15	1	-	-	-
Total	592	172	420	47	17	30

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Crushers

Capacity (tonnes/hour)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 10	13	1	12	-	-	-
10-50	16	4	12	2	1	1
51-100	40	1	39	4	-	4
101-300	178	19	159	6	-	6
301-500	39	5	34	-	-	-
> 500	116	45	71	2	-	2
Total	402	75	327	14	1	13

Mining Machinery in Metalliferrous Opencast Mechanised Mines in India, 2016-17									
Air Compressors (Diesel & Electric)									
Capacity (cu.m./min.)	Total			Diesel			Electric		
	Total	Public	Private	Total	Public	Private	Total	Public	Private
In Use (Nos.)									
< 5	102	14	88	64	6	58	38	8	30
5.0 – 10	73	8	65	60	5	55	13	3	10
10.1 – 15	204	39	165	188	39	149	16	-	16
15.1 – 50	42	2	40	37	2	35	5	-	5
50.1 – 100	36	7	29	33	5	28	3	2	1
> 100	128	-	128	124	-	124	4	-	4
Total	585	70	515	506	57	449	79	13	66
In Reserve (Nos.)									
< 5	9	3	6	4	3	1	5	-	5
5.0 – 10	6	2	4	3	-	3	3	2	1
10.1 – 15	20	4	16	20	4	16	-	-	-
15.1 – 50	4	-	4	4	-	4	-	-	-
50.1 – 100	-	-	-	-	-	-	-	-	-
> 100	3	-	3	3	-	3	-	-	-
Total	42	9	33	34	7	27	8	2	6

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Locomotives

Pay load capacity (tonnes)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 50	4	4	-	2	2	-
50-100	1	-	1	-	-	-
101-150	-	-	-	-	-	-
151-200	-	-	-	-	-	-
> 200	18	18	-	-	-	-
Total	23	22	1	2	2	-

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Back Hoes

Capacity (cu.m.)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 1.16	379	47	332	14	2	12
1.16 – 2.30	346	39	307	32	2	30
2.31 – 3.45	151	14	137	7	-	7
3.46 – 4.60	35	3	32	4	-	4
> 4.60	39	15	24	2	-	2
Total	950	118	832	59	4	55

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Cranes

Lifting capacity (tonnes/hour)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 10	46	24	22	2	-	2
10-20	53	27	26	1	1	-
21-50	24	15	9	1	-	1
51-75	6	2	4	-	-	-
> 75	-	-	-	-	-	-
Total	129	68	61	4	1	3

**Mining Machinery in Metalliferrous Opencast
Mechanised Mines in India, 2016-17**

Surface Miners

Capacity (tonnes/hour)	In Use (Nos.)			In Reserve (Nos.)		
	Total	Public	Private	Total	Public	Private
< 150	17	-	17	-	-	-
150-200	7	-	7	-	-	-
201-250	5	1	4	-	-	-
251-300	7	-	7	1	-	1
> 300	7	1	6	3	-	3
Total	43	2	41	4	-	4

Appendix - I

Decennial Growth in Production of Important Minerals

Mineral	Unit	1956	1966	1976	1986	1996-97	2006-07	2016-17 (p)
Fuels								
Coal	'000 t	40037	67974	100876	162647	286080	430832	662792
Lignite	'000 t	25	2568	3895	8921	22540	31285	45230
Natural Gas (Utilised)	m.cu. m.	-	373	1503	6628	21325	31747	31896
Petroleum (Crude)	'000 t	396	4647	8659	31157	32900	33988	36008
Metallic Minerals								
Bauxite	'000 t	101	750	1449	2662	6076	15733	24665
Chromite	'000 t	54	78	402	630	1456	5296	3728
Copper Concentrates	'000 t					202	150	135
Copper Ore	'000 t	392	484	2395	4462	3896	3274	3846
Gold	Kg.	6508	3736	3152	1931	2892	2488	1594
Gold Ore	'000 t					476	513	582
Iron Ore	'000 t	7521	26733	43741	51169	68161	187696	192081
Lead Concentrates	'000 t	4	5	16	44	60	107	268
Zinc Concentrates	'000 t	7	9	45	90	277	947	1484
Lead & Zinc Ore	'000 t					2264	5140	11881
Manganese Ore	'000 t	1998	1710	1835	1284	1871	2116	2393
Silver	kg.	3253	1220	3183	35266	39717	53271	460811

(Contd.)

Decennial Growth in Production of Important Minerals (Concl'd.)

Mineral	Unit	1956	1966	1976	1986	1996-97	2006-07	2016-17 (p)
<i>Non-Metallic Minerals</i>								
Apatite & Phosphorite	'000 t	9	16	39	11	1350	2003	1181
Diamond	th. carats	1	2	20	16	32	2	37
Kyanite	'000 t	20	64	47	32	7	8	3
Sillimanite	'000 t	5	10	15	15	9	26	68
Limestone	'000 t	8385	19831	29987	53597	102723	196695	313196
Magnesite	'000 t	93	232	330	460	378	239	299

Appendix – II

Decennial Mineral Production

Mineral	Unit	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 (p)
Fuels											
Coal	'000 t	457082	492757	532042	532694	539950	556400	565765	609179	639230	662792
Lignite	'000 t	33980	32421	34071	37733	42332	46500	44271	48270	43842	45230
Natural Gas(Ut.)	m. cu. m.	32417	32845	47496	52219	47559	40679	35407	33659	32249	30896
Petroleum(Crude)	'000 t	34118	33508	33690	37684	38090	37862	37788	37462	36941	36008
Metallic Minerals											
Bauxite	t	22624960	15460202	14124093	12722820	13599566	16507960	22319148	22493671	28123789	24664632
Chromite	t	4872684	4073479	3425580	4325699	2923435	2833895	2878320	2164163	2915584	3727777
Copper Ore	t	3242371	3452406	3271169	3601984	3479189	3635751	3777772	3505348	3907823	3846427
Copper Conc.	t	150187	137514	124577	136856	130456	123654	139307	107604	151837	134788
Gold Ore	t	681243	587215	517520	741522	491562	502831	420429	447278	562956	582280
Gold	kg	2969	2438	2084	2399	2194	1588	1564	1441	1323	1594
Iron Ore	'000 t	213250	212960	218553	207157	168582	136618	152183	129321	158108	192081
Lead & Zinc Ore	t	5783099	6680698	7101872	7539999	8041881	8633411	9281807	9362659	10453038	11881236
Lead Conc.	t	125755	133768	133921	147625	161854	184486	194426	197668	261857	268051
Zinc Conc.	t	1035828	1224077	1279880	1427231	1414009	1492781	1490662	1489374	1473811	1484245
Manganese Ore	t	2696980	2789025	2491950	3056385	2411871	2342169	2626291	2369481	2166947	2393182
Silver	kg	80697	105284	138780	148303	207144	374046	349774	327647	426443	460811
Tin Conc.	kg	63218	59778	59016	60643	48765	47774	34862	24685	13541	12120

Decennial Mineral Production (Contd.)

Mineral	Unit	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 (p)
Non-Metallic Minerals											
Apatite	t	6691	6415	5992	3846	3053	572	1300	930	110	-
Phosphorite	t	1849188	1803954	1605489	2097490	2259726	1941158	1453580	1607215	1571863	1181307
Asbestos	t	269	315	243	268	276	389	172	-	-	-
Diamond	crt	586	536	16891	11222	18490	31988	37517	36107	36044	36516
Fluorite (Graded)	t	3970	3176	105232	59954	5010	3092	2487	2946	2333	1175
Fluorite (Conc.)	t	3794	6814	-	-	-	-	-	-	-	-
Flint Stone	t	-	-	-	-	708	633	459	244	253	26
Garnet (Abrasive)	t	1275919	1151241	1580617	2126337	1717904	768248	483559	91394	82001	85411
Garnet (Gem)	kg	-	-	-	-	-	-	-	-	-	-
Graphite (R.O.M.)	t	170813	117767	124625	115697	153339	134735	146390	116712	135528	122437
Iolite	kg	-	-	758	4	-	-	-	-	-	-
Kyanite	t	5102	4620	5495	5954	4064	1048	3679	6255	2901	3254
Sillimanite	t	40537	33702	33687	48784	59206	43736	67265	66273	69942	68137
Limestone	'000 t	193089	221573	232950	246336	262882	285030	280863	293273	307001	313196
Limeshell	t	128250	97856	62215	30410	33225	24044	18750	16353	10353	12343

Decennial Mineral Production (Concl'd.)

Mineral	Unit	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 (p)
Magnesite	t	252849	252880	301070	235762	224104	224315	196940	285009	327663	299167
Marl	t	4155925	4167452	5908226	4399379	4140577	4337009	3254486	2179488	2389707	2203701
Perlite	t	-	-	-	-	-	-	-	-	-	-
Moulding Sand	t	-	-	-	-	30	3118	29963	6383	26042	27686
Salt (Rock)	t	1216	2011	1836	1200	-	-	-	-	-	-
Selenite	t	3864	15224	14598	6736	13047	7577	531	207	3103	4327
Siliceous Earth	t	-	-	-	-	-	-	-	-	47386	69379
Sulphur	t	227311	269572	263124	236998	381146	449004	390325	464672	473322	560827
Vermiculite	t	8910	12647	11662	19234	10194	7947	11851	19336	23279	6543
Wollastonite	t	118666	111581	132385	183381	184445	145667	192712	186524	175348	166186