

STATE REVIEWS



# Indian Minerals Yearbook 2017

(Part- I)

56<sup>th</sup> Edition

STATE REVIEWS  
(Kerala)

(FINAL RELEASE)

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## KERALA

### Mineral Resources

Kerala is well-known for its deposits of excellent quality china clay and beach sands containing valuable minerals like ilmenite, rutile, sillimanite, zircon, garnet, leucosene and monazite. The State is the principal producer of limeshell and sillimanite. The State also accounts for 23% china clay and 10% sillimanite of the country's resources. As per AMD of the Department of Atomic Energy, Kerala state accounts for 144.02 million tonnes of ilmenite, 8.74 million tonnes of rutile and 7.96 million tonnes of zircon resources.

Important mineral occurrences in the State are: **bauxite** in Kannur, Kasaragod, Kollam & Thiruvananthapuram districts; **china clay** in Alappuzha, Ernakulam, Kannur, Kasaragod, Kollam, Kottayam, Palakkad, Thiruvananthapuram & Thrissur districts; **limestone** in Alappuzha, Ernakulam, Kannur, Kollam, Kottayam, Kozhikode, Malappuram, Palakkad & Thrissur districts; **quartz/silica sand** in Alappuzha, Kasargod, Thiruvananthapuram & Wayanad districts; **sillimanite** in Kollam and Thiruvananthapuram districts; and **titanium minerals** in Kasaragod, Kollam, Pathanamthitta & Thiruvananthapuram districts.

Other minerals that occur in the State are **fire clay** in Alappuzha, Ernakulam, Kannur & Kollam districts; **garnet** in Kollam & Thiruvananthapuram districts; **gold** in Malappuram & Palakkad districts; **granite** in Palakkad and Thiruvananthapuram

districts; **graphite** in Ernakulam, Idukki, Kollam, Kottayam & Thiruvananthapuram districts; **iron ore (magnetite)** in Kozhikode and Malappuram districts; **kyanite** in Kollam and Thiruvananthapuram districts; **lignite** in Kannur districts; **magnesite** in Palakkad district; and **steatite** in Kannur and Wayanad districts (Tables - 1 and 2).

### Exploration & Development

GSI carried out exploration for Gold and Platinum Group of minerals in Palakkad District during 2016-17. Details of exploration carried out by GSI and other agencies are furnished in Table-3.

### Production

The value of mineral production (excludes atomic mineral) in Kerala at ` 2, 258.25 crore in 2016-17, decreased slightly by about 0.4% as compared to that in the previous year. The important minerals produced in the State in 2016-17 were sulphur, limeshell, sillimanite, & graphite which together accounted for about only 1.49% of the total value of mineral production in the State.

Kerala was the top producer of limeshell by contributing 68% mineral production to the national output & the leading producer of sillimanite by 14%. During the year under review, production of sillimanite increased by 81% & graphite by 2% whereas in respect of limestone production has been declined by 23%, limeshell by 9% as compared to that of the previous year (Table-4).

The value of minor minerals production was estimated at 2,225 crore for the year 2016-17.

The number of reporting mines was 8 in both the years 2015-16 and 2016-17.

**Table -2 : Reserves/Resources of Lignite as on 1.4.2017 : Kerala**

(In million tonnes)

District	Proved	Indicated	Inferred	Total
<b>Total</b>	-	-	<b>9.65</b>	<b>9.65</b>
Kannur	-	-	9.65	9.65

*Source: Coal Directory of India, 2016-17.*

## STATE REVIEWS

Table -1: Reserves/Resources of Minerals as on 1.4.2015: Kerala

Mineral	Unit	Reserves				Remaining Resources					Total resources (A+B)			
		Proved STD 111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332		Inferred STD333	Reconnaissance STD334	Total (B)
			STD121	STD122			STD221	STD222						
Bauxite	'000 tonnes	-	-	-	29	-	24	2037	9284	2722	-	14096	14096	
China clay#	'000 tonnes	7097	200	725	4573	463	4112	43930	20439	571644	20200	665360	673383	
Fireclay#	'000 tonnes	-	-	-	-	-	-	8200	51	9929	-	18181	18181	
Garnet	tonne	-	-	45797	-	-	-	100874	-	52190	-	153064	198861	
Gold	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ore	-	-	-	-	-	-	-	462280	96180	-	-	558460	558460	
(Primary)	tonne	-	-	-	-	-	-	-	-	-	-	-	-	
Metal	-	-	-	-	-	-	-	0.17	0.03	-	-	0.2	0.2	
(Primary)	tonne	-	-	-	-	-	-	-	-	-	-	-	-	
Ore	-	-	-	-	-	-	-	-	2552000	23569000	-	26121000	26121000	
(Placer)	tonne	-	-	-	-	-	-	-	-	-	-	-	-	
Metal	-	-	-	-	-	-	-	-	2.29	3.57	-	5.86	5.86	
(Placer)	tonne	-	-	-	-	-	-	-	-	-	-	-	-	
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	
(Dimension Stone)#	'000 cum	140	-	-	-	-	-	-	99	2570	-	2669	2808	
Graphite	tonne	-	-	16518	-	8376	-	-	1088550	322606	-	1419532	1436050	
Iron Ore	-	-	-	-	-	-	-	-	59912	23523	-	83435	83435	
(Magnetite)	'000 tonnes	-	-	-	-	-	-	-	-	10000	-	202360	202360	
Kyanite	tonne	-	-	-	-	-	-	192360	-	-	-	-	-	
Laterite#	'000 tonnes	-	-	1156	953	-	-	-	-	-	16717	17670	18826	
Limestone	'000 tonnes	11472	-	11472	123106	77	-	21161	2888	35228	-	182459	193931	
Magnesite	'000 tonnes	-	-	-	-	-	-	2	-	38	-	40	40	
Quartz-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silica Sand#	'000 tonnes	221	33	136	179	1985	3588	14611	30241	77489	-	128092	128481	
Sillimanite	tonne	-	-	-	1015625	120000	-	2479816	160300	3369200	-	7144941	7144941	
Talc/steatite/ soapstone#	'000 tonnes	-	-	-	-	-	-	-	-	14390	-	14390	14390	

Figures rounded off.

# Declared as Minor Minerals vide Gazette Notification dated 10.02.2015.

## Minor Mineral before Gazette Notification dated 10.02.2015.

## STATE REVIEWS

Table -3 : Details of Exploration Activities in Kerala, 2016-17

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
<b>GSI</b> Gold Malappuram	Omanur area	-	-	-	-	-	G4 stage reconnaissance survey for gold was taken up in this area. Surface indication of mineralisation in the form of limonitisation box work, shades of reddish yellow and yellowish tint were noticed. Old workings are observed within BIF in the vicinity of surface indication of mineralisation. The analytical data shows that the gold values are in the range from 0.05 to 0.22 ppm.
Palakkad	Around Puzhikkunnu, Chullipara and Anamuli area	1:12500	100	-	-	-	G4 stage reconnaissance survey for gold was taken up in this area by large scale geological mapping. Two zones were identified on the basis of sulphide mineralisation in sheared hornblende gneiss and in quartz veins: i) East of Anamuli area, sulphide mineralisation was noticed in a 28 m wide zone for a length of 750 m Panning of stream sediment samples from this area has yielded two small specks of gold. ii) West of Kanhirapuzha in the quarry section near Pottasseri, number of quartz veins are present in hornblende gneiss and quartz veins are 15-35 cm in wide and 30 to 50 m in length. Sulphide mineralisation is seen within quartz veins and in the gneiss hosting the quartz veins in 750 m long and 180 m wide zone. The sulphides are mainly pyrite, chalcopyrite, bornite, malachite and covelite Galena and beryl is also found within quartz vein and pegmatite. Trenching was carried out in Munnekar, Kalledikode, Pottasseri areas and only one sample from Pottasseri has yielded Au value of 0.08 ppm. Out of 37 groove samples, 26 samples have yielded Au values ranging from 0.06-1.23 ppm, Ag value from 2.4-59.12 ppm and the Cu values ranges from 40-105640 ppm. Analytical result of the samples shows that Pottasseri is a potential area for further exploration for gold.
-	-	-	-	-	-	-	-

(Contd.)

## STATE REVIEWS

Table- 3 (concl.d.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Wayanad	Around Anjukunnu, Panamaram area	-	-	-	-	-	G4 stage reconnaissance survey for gold was taken up around Anjukunnu, Panamaram area. Three old workings have been noticed. Four meta-pyroxenite bodies have been mapped and among them the major one (sulphide bearing) is exposed 400 m east of Anjukunnu for a strike length of 250 m with a width of 30-50 m. The analytical data does not show any encouraging values of gold mineralisation in the area. However, the total PGE content in the amphibolite exposed near Ullisseri is 229 ppb which is higher than any PGE value so far reported from the area.

**Table-4: Mineral Production in Kerala, 2014-15 to 2016-17  
(Excluding Atomic Minerals)**

(Value in `000)

Mineral	Unit	2014-15			2015-16			2016-17 (P)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
<b>All Minerals</b>		<b>53</b>		<b>27578875</b>	<b>8</b>		<b>22680870</b>	<b>8</b>	-	<b>22582460</b>
Clay (others)#	t	2	141843	17346	-	-	-	-	-	-
Graphite (r.o.m.)	t	1	250	2000	1	650	5200	1	660	5280
Kaolin#	t	22	561565	131480	-	-	-	-	-	-
Sillimanite	t	2	7690	69201	2	5121	49585	2	9260	86929
Laterite#	t	3	148357	61894	-	-	-	-	-	-
Limestone	'000t	1	511	271081	1	487	353323	1	376	217852
Limeshell	t	5	16123	36867	4	9132	27355	4	8340	26992
Silica Sand#	t	17	38628	81245	-	-	-	-	-	-
Sulphur	t	-	35414	-	-	32169	-	-	33288	-
Minor Minerals@		-	-	26907761	-	-	22245407	-	-	22245407

*Note: The number of mines excludes minor minerals.*

*@ Figures for earlier years have been repeated as estimates, wherever necessary, because of non-receipt of data.*

*# Declared as Minor Minerals vide Gazette Notification dated 10.02.2015.*

## STATE REVIEWS

**Mineral-based Industry**

The present status of each mineral-based industry is not readily available. However, the important mineral-based industries in organised sector in the State are given in Table - 5.

**Table – 5 : Principal Mineral-based Industries in Kerala**

Industry/Plant	Capacity ('000 tpy)
<b>Abrasives</b>	
Carborandum Universal Ltd, Ernakulam.	NA
Carborandum Universal Ltd, Thrissur.	NA
Carborandum Universal Ltd, Pathanamthitta.	NA
<b>Asbestos Products</b>	
Hyderabad Industries Ltd (formerly Malabar Building Products Ltd) Mulagunnathukavu, Distt. Thrissur.	84
<b>Cement</b>	
Malabar Cements, Walayar, Distt. Palakkad.	660
Malabar Cement, Cherthala, Distt. Alappuzha (G).	200
The Travancore Cements Ltd, Nattakom, Distt. Kottayam.	81
<b>Ceramic</b>	
Kerala Ceramics Ltd, Kundara, Distt. Kollam.	23
Tata Ceramics, Kozhikode.	NA
FACR-RCF Building Product Ltd (FRBL) Kochi.	NA
<b>Chemical</b>	
Tecil chemicals and Hydro Power Ltd, Chingavanam, Distt. Kottayam.	30 (calcium carbide) 2 (acetylene black) 7.5 (ferro silicon)

(Contd.)

Table – 5 (concltd.)

Industry/Plant	Capacity ('000 tpy)
<b>Synthetic Rutile</b>	
CMRL, Edayar, Distt. Ernakulam.	45
KMML, Chavara, Distt. Kollam.	50
<b>TiO<sub>2</sub> Pigment</b>	
TTPL, Kochuveli, Distt. Thiruvananthapuram.	17
KMML, Chavara, Distt. Kollam.	40
<b>Fertilizer</b>	
FACT Ltd, Udyogmandal, Distt. Ernakulam.	148.5 (Complex) 225 (AS)
FACT Ltd, Ambalamedu (Cochin II), Distt. Ernakulam.	485 (NP/NPKs)
<b>Ferro-alloys</b>	
INDSIL Electrosmelts Ltd, Pallatheri, Distt. Palakkad.	14
The Silcal Metallurgic Ltd, Wayalur.	3.6
<b>Foundry</b>	
HMT Machine Tools Ltd, Bengaluru.	NA
<b>Glass</b>	
Excel Glass Ltd, Pathirapally, Distt. Alappuzha.	72
<b>Lead-Zinc</b>	
BZL Zinc Ltd, Binanipuram. (Edayar Zinc Ltd)	38 (Zn ingot) 0.08 (Cd ingot) 50 (H <sub>2</sub> SO <sub>4</sub> )
<b>Petroleum Refinery</b>	
BPCL, Kochi.	9500

*G; Grinding Unit*

*Note: Data for Fertilizer Industries is taken from Indian Fertilizer Scenario, 2015/FAI Statistics, 2015-16.*