Indian Minerals Yearbook 2020

(Part- I)

59th Edition

STATE REVIEWS
(Sikkim)

(ADVANCE RELEASE)

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SIKKIM

Mineral Resources

The important mineral resources of the State are **copper-lead-zinc** and **silver,** reported in Bhotang, Rangpo and Dikchu in East Sikkim districts. Occurrences of other minerals reported in the State include **dolomite, quartzite** and **talc/steatite/soapstone** in West Sikkim district; **limestone** in North Sikkim district and **marble** in East Sikkim & North Sikkim districts (Table -1). The reserves/resources of coal and the coalfield located in Sikkim are reflected in Table - 2.

Exploration & Development

The details of exploration work was conducted by GSI during the year 2019-20 for the base metal (i.e. Lead, Copper, Zinc) are furniushed in table-3.

Production

No mineral production (except minor minerals) was reported in 2019-20. The value of minor mineral's production was estimated at ₹ 188 lakh for the year 2019-20.

Mineral-based Industry

SMC, a joint venture of Government of Sikkim and Government of India was established for the purpose of development of Bhotang polymetallic ore deposit at Rangpo. Sikkim's Mines & Geology Department had set up a pilot dimension rock cutting unit and pilot lime making unit to ascertain the feasibility of setting up of commercial lime plant and dimension rock cutting plant in the State. A ferroalloys plant, namely, Akshay Ispat & Ferro Alloys Ltd with an installed capacity of 6,000 tpy is located at Mamring, South Sikkim district. The present status of these industries is not available.

Table – 2 : Reserves/Resources of Coal as on 1.4.2020 : Sikkim

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total/Rangit Valley	-	58	43	101

Source: *Coal Directory of India, 2019-20*

Table –3 : Details of Exploration Activities in Sikkim, 2019-20

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI							
Base Metal							
Lead Copper Zinc							
South- east of Jugdum	Arubote Area	1:2000	1.1	-	-	82	Preliminary exploration (G3) has been carried out in this area by detailed mapping of 1.1 sq km out of the total 1.5 sq km. was carried out on 1:2000 scale. Three amphibolite sills have been demarcated which are concordant to the phyllites. The chemical analysis results showed the average amount of Cu in soil as about 55 ppm (32 nos.). The amount of Cu varied from 90 ppm to 600 ppm in BRS samples (48 nos.). Two samples of quartz veins within amphibolite body, having width of 30 cm each showed enormously high value of Cu, i.e., 0.15% and 0.23%. Only one channel sample of interbanded phyllite-slate-quartzite having width of 50 cm showed enormously high value of Cu, i.e., 4,350 ppm while rest of the channel samples showed marginal value varying from 10 ppm to 645 ppm (25 nos.).
East and South district	Mangkha - Mangalbare	-	-	-	-	-	The lithology exposed in the area belongs to Gorubathan Formation of Daling Group which includes chlorite-sericite schist and phyllites which are conformably interbanded with quartzites. Ultramafic bodies in the form of lenticular sills having thickness of 5-10 m were observed in Mangle and Khamdong area. The BRS samples indicated maximum value of 45 ppm and minimum value of 1 ppm for Cu whereas Zn values showed a maximum of 101 ppm and a minimum of 22 ppm. Pb values showed a maximum of 125 ppm and a minimum of 7 ppm. The mineralisation around the study area was seen hosted mainly in quartz veins and occasionally in phyllites. The sulphide materialisation in this area can be traced only from surface manifestations like malachite stains and specks. The sulphide mineralisation occurred along the foliation plane and within the quartz veins associated with the host rock.

Table – 1: Reserves/Resources of Minerals as on 1-04-2015 : Sikkim

Mineral	Unit	Reserves				Remaining Resources								Total resources (A+B)
		Proved STD 111	Probable		Total (A)	Feasibility	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	
			STD121	STD122		STD211	STD221	STD222						
Copper														
Ore	'000 tonnes	-	-	-	-	-	445	63	300	-	150	-	958	958
Metal	'000 tonnes	-	-	-	-	-	7.86	0.91	8.47	-	4.23	-	21.47	21.47
Dolomite#	'000 tonnes	-	-	-	-	-	-	-	-	-	2756	-	2756	2756
Lead-Zinc					-								-	-
Ore	'000 tonnes	-	-	-	-	-	436	64	300	-	150	-	950	950
Lead metal	'000 tonnes	-	-	-	-	-	6.9	1.68	-	-	-	-	8.58	8.58
Zinc metal	'000 tonnes	-	-	-	-	-	12.88	3.14	3	-	1.05	-	20.07	20.07
Limestone	'000 tonnes	-	-	-	-	-	-	-	-	-	2380	-	2380	2380
Marble##	'000 tonnes	-	-	-	-	-	-	-	-	-	2382	-	2382	2382
Quartzite#	'000 tonnes	-	-	-	-	-	-	-	-	675	16444	-	17119	17119
Silver														
Ore	tonnes	-	-	-	-	-	435843	63780	300000	-	150000	-	949623	949623
Metal	tonnes	-	-	-	-	-	15.25	0.04	27.6	-	13.8	-	56.69	56.69
Talc/steatite/ soapstone#	'000 tonnes	-	-	-	-	-	-	60	-	-	-	-	60	60

Figures rounded off

 # Declared as Minor Minerals vide Gazette Notification dated 10.02.2015

Minor Minerals before Gazette Notification dated 10.02.2015