

GOLD



Indian Minerals Yearbook 2020

(Part- II :Metals and Alloys)

59th Edition

GOLD
(ADVANCE RELEASE)

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES

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January, 2022

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Gold in its purest form is a bright, slightly reddish yellow, dense, soft malleable and ductile metal. It is one of the least reactive chemical elements and is solid under standard conditions. Gold often occurs in free elemental (native) form, as nuggets or grains, in rocks, in vein and in alluvial deposits. Gold dissolves in alkaline solution of cyanide, which are used in mining and electroplating. It also dissolves in mercury, forming amalgam alloys, but this is not a chemical reaction. Gold is resistant to corrosion and to most acid and has unique properties distinct from other metals.

Gold is a relatively scarce metal in the world and a scarce commodity in India. The domestic demand is mainly met through imports.

RESERVES/RESOURCES

As per NMI data, based on UNFC system, as on 1.4.2015, the total reserves/resources of gold ore in the country have been estimated at 501.84 million tonnes. Out of these, 17.22 million tonnes were placed under Reserves category and the remaining 484.61 million tonnes under Remaining Resources category. The total reserves/resources of gold (primary), in terms of metal stood at 654.74 tonnes. Out of these, 70.09 tonnes were placed under Reserves category and 584.65 tonnes under Remaining Resources category. The resources include placer-type gold ore in Kerala estimated at 26.12 million tonnes containing 5.86 tonnes gold metal.

By States, largest resources in terms of gold ore (primary) are located in Bihar (44%) followed by Rajasthan (25%), Karnataka (21%), West Bengal & Andhra Pradesh (3% each) and Jharkhand (2%). The remaining 2% resources of ore are located in Chhattisgarh, Madhya Pradesh, Kerala, Maharashtra and Tamil Nadu. Although, Bihar is the leading State in India as far as resources of gold ore are concerned. However, the resource estimate are at preliminary stage and falls under Inferred (333) and

Reconnaissance (334) categories. In terms of metal content, Karnataka remained on top followed by Rajasthan, Andhra Pradesh, Bihar, Jharkhand, etc. (Table-1).

EXPLORATION & DEVELOPMENT

The exploration and development details, if any, are covered in the Review on Exploration & Development under "General Reviews".

PRODUCTION

The production of gold ore at 591.25 thousand tonnes during 2019-20 increased slightly by 5% as compared to 565.65 thousand tonnes in the previous year. Similarly, the quantity of ore treated also increased marginally by 8% from 589.50 thousand tonnes during the year 2018-19 to 638.70 thousand tonnes in the year 2019-20. There were five reporting mines of gold ore in 2019-20, as compared to six mines of gold ore during the preceding year.

The average grade of gold ore produced in India during 2019-20 was 3.78 g/t as against 3.41 g/t in 2018-19 whereas, that of gold ore treated was 2.99 g/t in 2019-20 as compared to 2.84 g/t in 2018-19.

Production of primary gold in 2019-20 at 1,724 kg increased by 4% as compared to 1664 kg in the previous year.

Karnataka was the sole producer of primary gold accounting for cent per cent production in 2019-20 (Tables- 2 to 6).

The average daily employment of labour in 2019-20 was 3,092 as against 3,258 in the previous year.

Production of gold by, HINDALCO a subsidiary of (Aditya Birla Group) as extracts from imported copper concentrates has been reported. During the process of copper refining, gold and other precious metals like silver and selenium are also recovered at the plant located in Dahej, district Bharuch, Gujarat.

Table – 1: Reserves/Resources of Gold as on 1.04.2015
(By Grades/States)

(In tonnes)

States/Grades	Reserves				Remaining Resources						Total Resources (A+B)		
	Proved STD111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333		Reconnaissance STD334	Total (B)
		STD121	STD122			STD221	STD222						
All India: Total													
Ore (Primary)	10404349	6401725	422100	17228174	1925669	1303000	1968176	30333248	70136727	233608305	145336333	484611458	501839632
Metal (Primary)	53.41	16.26	0.42	70.09	7.69	3.85	12.1	128.65	143.8	227.44	61.12	584.65	654.74
Ore (Placer)	-	-	-	-	-	-	-	-	2552000	23569000	-	26121000	26121000
Metal (Placer)	-	-	-	-	-	-	-	-	2.29	3.57	-	5.86	5.86
By States													
Andhra Pradesh													
Ore (Primary)	-	3902725	-	3902725	655133	-	889515	291000	55000	6980031	-	8870679	12773404
Metal (Primary)	-	8.49	-	8.49	2.45	-	3.57	1.08	0.17	23.78	-	31.05	39.54
Bihar													
Ore (Primary)	-	-	-	-	-	-	-	-	-	128884860	94000000	222884860	222884860
Metal (Primary)	-	-	-	-	-	-	-	-	-	21.6	16.0	37.6	37.6
Chhattisgarh													
Ore (Primary)	-	-	-	-	-	-	-	-	600000	4241033	-	4841033	4841033
Metal (Primary)	-	-	-	-	-	-	-	-	1.8	3.71	-	5.51	5.51
Jharkhand													
Ore (Primary)	9349	-	-	9349	-	-	-	-	5146952	4203337	767000	10117289	10126638
Metal (Primary)	0.07	-	-	0.07	-	-	-	-	3.61	10.26	0.62	14.49	14.56
Karnataka													
Ore (Primary)	10395000	2499000	4221000	13316100	1270536	1303000	1078661	24979968	8204595	16020324	37673000	90530084	103846184
Metal (Primary)	53.34	7.77	0.42	61.53	5.24	3.85	8.53	120.73	28.67	38.29	43.78	249.09	310.62

(contd)

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Table - 1 (concl'd)

Grades/States	Reserves				Remaining Resources						Total Resources (A+B)	
	Proved		Probable		Feasibility	Pre-feasibility	Measured	Indicated	Inferred	Reconnaissance		Total
	STD111	STD121	STD122	STD122								
Kerala												
Ore (Primary)	-	-	-	-	-	-	462280	96180	-	-	-	558460
Metal (Primary)	-	-	-	-	-	-	0.17	0.03	-	-	-	0.2
Ore (Placer)	-	-	-	-	-	-	-	2552000	23569000	-	-	26121000
Metal (Placer)	-	-	-	-	-	-	-	2.29	3.57	-	-	5.86
Madhya Pradesh												
Ore (Primary)	-	-	-	-	-	-	-	5841000	1947000	-	-	7788000
Metal (Primary)	-	-	-	-	-	-	-	6.18	2.22	-	-	8.4
Maharashtra												
Ore (Primary)	-	-	-	-	-	-	-	-	1517000	-	-	1517000
Metal (Primary)	-	-	-	-	-	-	-	-	3.55	-	-	3.55
Rajasthan												
Ore (Primary)	-	-	-	-	-	-	4600000	50193000	69747720	63000	124603720	124603720
Metal (Primary)	-	-	-	-	-	-	6.67	103.34	123.03	0.07	233.11	233.11
Tamil Nadu												
Ore (Primary)	-	-	-	-	-	-	-	-	67000	-	-	67000
Metal (Primary)	-	-	-	-	-	-	-	-	1	-	-	1
West Bengal												
Ore (Primary)	-	-	-	-	-	-	-	-	-	-	12833333	12833333
Metal (Primary)	-	-	-	-	-	-	-	-	-	-	0.65	0.65

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Figures rounded off.

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Table – 2: Principal Producers of Gold, 2019-20

Name and address of the producer	Location of the mine	
	State	District
The Hutti Gold Mines Co. Ltd, Hutti, Dist. Raichur 584 115 Bengaluru- 560 047, Karnataka.	Karnataka	Raichur
Manmohan Industries (P) Ltd, Shanti Niketan, 286, New Patliputra Colony, Patna - 800 013, Bihar.	Jharkhand	Singhbhum (East)

**Table – 3: Production of Gold Ore 2018-19 and 2019-20
(By States)**

(In tonnes)

State	2018-19		2019-20 (P)	
	Ore Produced	Avg. Grade (g/t)	Ore Produced	Avg. Grade (g/t)
India	565653	3.41	591251	3.78
Jharkhand	2134	1.48	-	-
Karnataka	563519	3.42	591251	3.78

**Table – 4: Gold Ore Treated 2018-19 and 2019-20
(By States)**

(In tonnes)

State	2018-19		2019-20 (P)	
	Ore Treated	Avg. Grade (g/t)	Ore Treated	Avg. Grade (g/t)
India	589499	2.84	638702	2.99
Jharkhand	2134	1.48	-	-
Karnataka	587365	2.85	638702	2.99

**Table – 5: Production of Gold, 2017-18 to 2019-20
(By States)**

(Quantity in kg; Value in ₹'000)

State	2017-18		2018-19		2019-20 (P)	
	Quantity	Value	Quantity	Value	Quantity	Value
India	1650	4770022	1664	5241705	1724	6431034
Primary Gold	1650	4770022	1664	5241705	1724	6431034
Jharkhand	11	31952	3	7897	-	-
Karnataka	1639	4738070	1661	5233808	1724	6431034

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**Table – 6: Production of Primary Gold, 2018-19 and 2019-20
(By Sectors/States/Districts)**

(Quantity in kg; Value in ₹'000)

State/District	No. of mines	2018-19		No. of mines	2019-20 (P)	
		Quantity	Value		Quantity	Value
India	6	1664	5241705	5	1724	6431034
Public Sector	4	1661	5233808	4	1724	6431034
Private Sector	2	3	7897	1	-	-
Primary Gold	6	1664	5241705	5	1724	6431034
Andhra Pradesh	1*	-	-	1*	-	-
Kurnool	1*	-	-	1*	-	-
Jharkhand	1	3	7897	-	-	-
Singhbhum (East)	1	3	7897	-	-	-
Karnataka	4	1661	5233808	4	1724	6431034
Raichur	4	1661	5233808	4	1724	6431034

* Only Labour reported.

Gold Bullion

Production of gold bullion in India is reported both in primary and secondary forms and also includes gold recovered from imported copper concentrates. Total production of gold bullion during 2019-20 at 8,364 kg decreased drastically by 34% as compared to 12,614 kg in the previous year (Table -7).

**Table – 7: Production of Gold Bullion
2017-18 to 2019-20**

(Quantity in kg; Value in ₹'000)

Year	Quantity	Value
2017-18	12500	36018065
2018-19	12614	39637604
2019-20 (P)	8364	31218734

Note: Includes gold recovered as by-product from copper concentrates by Hindalco Industries Ltd in Gujarat.

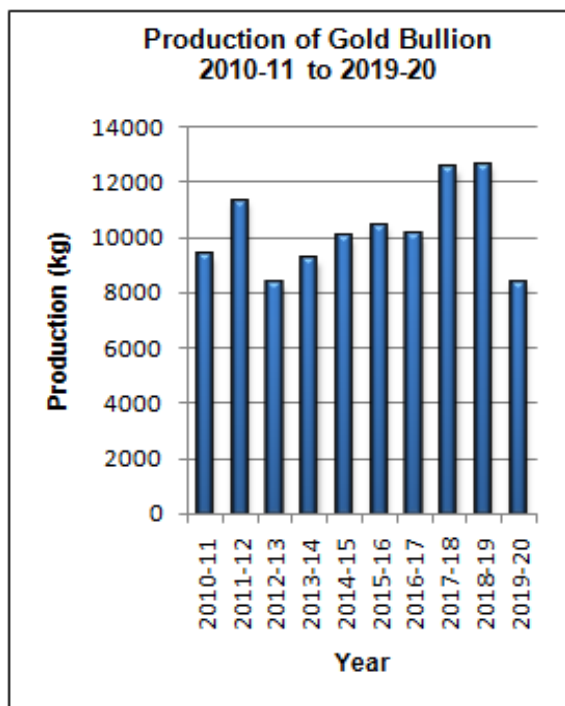
MINING & MILLING

Presently, HGML is the only Public Sector Company producing gold in the country. While in the Private Sector, Manmohan Mineral Industries Pvt. Ltd is engaged in mine production of gold at Kunderkocha in Singhbhum East district, Jharkhand by underground method of mining. Geomysore Services (India) Pvt. Ltd has been granted a mining lease over an area of 597.82 ha for gold mining in

Village Jonnagiri in Kurnool district of Andhra Pradesh. HGML operates mines at Hutti and Hira-Buddini in Raichur district, Karnataka. Sub-level and LDBH stoping methods are adopted in exploitation of gold ore. In the Uti mine, mining was carried out by opencast method till the year 2006 and thereafter by underground method. The ore from this mine is transported to Hutti mine by road for processing at the mills. Underground exploratory mining too is in progress. Several operations at Hira-Buddini old unit, such as, exploratory mine development and deepening and re-equipping of main shaft are in progress. Exploratory mine development using compressed air jackhammer drilling and electrical hoist in the shaft is presently underway. Based on the developmental work and feasibility, the locomotive loaders, wagon drills and other required machinery are likely to be used to increase the ROM.

The new ore processing plant based on modern technology (SAG and Ball Mill) with a capacity of 2,000 TPD has been operational at Hutti underground gold mine since 2010. At the Hutti Mineral Treatment Plant, the r.o.m. of -8" size is crushed. The final product from crushing plant, i.e. -10 mm size is stored in a 1,500 tonnes capacity fine ore bin for subsequent treatment, i.e., grinding. The Milling/Grinding process of gold ore employs two distinct grinding techniques. The first technique involves grinding done in two stages, i.e., primary grinding followed

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by secondary grinding for adequate comminution. The processes involve one primary mill and three tube mills which constitute one stream of grinding in which pebbles and smaller size balls are used as composite grinding media.

There are two such streams and strake tables for collection of coarse gold as concentrate for this circuit. In the second technique, grinding is done by four ball mills of different sizes and each of them is an independent circuit in which large size balls are used as grinding media. In these circuits, Knelson concentrator is used to collect coarse gold as concentrate. In all the milling techniques, cyclones are in closed circuit with the mills so as to get the required sizes (80% passing 75 micron) for the subsequent treatment process.

The concentrate collected from both the techniques is upgraded on James Table. The upgraded concentrates are roasted, magneted and finally smelted into bullion buttons.

All the cyclone overflow, i.e., finely-ground ore in the form of slurry from the two streams of first technique and 4 streams of second technique join together in a distributor box from which finely-ground ore slurry is fed to High Rate Thickener for thickening purpose. The thickened pulp (60%

solid w/w) thus obtained from thickeners is subjected to cyanidation process in which cyanide accessible gold in slurry makes complexes with cyanide in presence of oxygen and dissolves in solution at high pH. To increase the oxygen potential of slurry, H_2O_2 is added in addition to compressed air. The cyanidation or leaching process is carried out in a series of mechanically agitated agitators of different sizes.

The cyanide leached pulp is then fed to two Carbon-in Pulp (CIP) plants. The CIP plants are of 1,000 tpd size each and are parallel in circuit. The objective of CIP plant is to absorb the dissolved gold in activated carbon from the solution.

The gold-loaded carbon is removed from the CIP plant periodically, subjected to acid and alkaline wash and then eluted in four elution columns with 1.0% NaOH and 0.1% NaCN solution at 95 °C for a period of 60 hours. The solution is then passed through four electrowinning cells in which gold is deposited on steel wool cathodes. The gold loaded steel wool cathodes are manually removed periodically and subsequently subjected to acid digestion, drying and smelting to obtain bullion buttons. The bullion buttons thus obtained from table concentrate and steel wool are cast into bullion bars weighing 4 to 11 kg and then despatched for sales.

In the past, gold was produced by the Central Government undertaking, namely, BGML. BGML earlier mined and processed the ore from Chigargunta reef in Chittoor district, Andhra Pradesh; Mysore Mines of Kolar Gold Fields in Karnataka; and Yeppamana mine in Anantapur district, Andhra Pradesh. All activities of BGML were stopped and BGML was closed w.e.f. 1.3.2001 under Section 25 (O) of the Industrial Disputes Act, 1947 in terms of Ministry of Labour, Government of India's Order dated 29.1.2001.

Gold is sometimes recovered from the pregnant (Simple gold-bearing solution) solutions by adding zinc to form soluble zinc cyanide and precipitate of gold & silver. The pregnant solution can also be passed through activated carbon which absorbs dissolved gold. Gold from either process is cast into bars, bullion and dore (when it contains silver), which must be further refined to remove impurities, such

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as, mercury, arsenic and copper. Some ores cannot be treated by cyanide processing as gold in them is in small inclusions or even by solid solutions in minerals, such as, pyrite. This gold is generally recovered by roasting which converts pyrite into porous iron oxides containing small grains of gold that can be dissolved by cyanide.

DEVELOPMENT

The Deccan Gold Mines Ltd (DGML) is India's first and largest listed gold exploration company with deep roots in the Exploration and Mining sector. DGML's exploration activities are mainly in Karnataka and Andhra Pradesh States. Within the States of Karnataka, Andhra Pradesh and Kerala, DGML has explored several regions spanning 6,574 sq. km. in Dharwar-Shimoga Greenstone belt, Hutti-Maski Greenstone Belt, Mangalur Schist Belt and Ramagiri Schist Belt.

The main prospects for gold at Ganajur and Karajgi have progressed into advanced stages of exploration and existence of high-grade gold-bearing zones in the prospect have been established. DGML has entered into MOU with Government of Karnataka to establish a Gold Mining industry in this project area. As per DGML Annual Report 2019-20, DESPL awaits the issue of grant notification letter from the Commerce & Industries Department, Govt of Karnataka (C&I). The mining method suggested for Ganajur Gold project by Snowden (mining consultancy based in Perth, Australia) is conventional open-pit mining with load, haul and drill blast activities performed by an experienced mining contractor. It is planned that the mining contractor will buy back the waste for use in their civil operations elsewhere, subject to an offtake agreement with DESPL. The Ganajur gold ore comprises layer of oxide ore followed by sulphide ore and will be mined at the rate of 0.3 Mtpa. Snowden has estimated 2.14 million tonnes @ 3.63g/t gold as Proved ore reserves, and 0.37 million tonnes @ 1.98 g/t as Probable reserves for the Ganajur Main Gold Deposit.

Exploration is being conducted in Hutti belt at various prospects, viz, in Hutti Mine north prospect, Hirenagur prospect, southern & northern continuity of Uti mine lodes, Uti Temple prospect, Chincherga prospect, Buttapur prospect and Yatkal prospect. In south Hutti RP block, investigations are going on in

Tuppadhur-Buddini prospect, Maski prospect, Ashoka prospect and Sanbal prospect.

Birla Copper Complex of Hindalco Industries Ltd situated at Dahej, district Bharuch, Gujarat has an installed capacity of 15 tpy for gold recovery from imported copper concentrates.

HCL which recovers by-product secondary gold from indigenous copper ores at its ICC plant in Jharkhand has an installed capacity of 698 kg per annum gold recovery plant. This plant, however, did not reported production since 2007-08.

NMDC has secured a Bulyang / 'Ombe gold prospect in Tanzania. The gold prospect has a total area of 38.83 sq.km. Initial studies of NMDC revealed that Bulyang'Ombe I had a prospect for good concentration where gold values have shown a maximum of 7.2 gram per tonne, which is close to the top quality standard of 8 to 10 gram per tonne set by the World Gold Council. The Company is in process of setting up of a pilot-scale processing plant for gold in Tanzania.

NMDC has submitted the proposal for Bhukia Gold block to DMG, Govt. of Rajasthan, for over an area of 24 sq. km in Dist. Banswara. The Company has been allocated 3 Gold blocks, 2 in Karnataka and 1 in Madhya Pradesh.

Legacy Iron Ore Ltd (NMDC holding 92.32% equity stake) based in Perth, Australia is concentrating in exploration of gold in Mount Ceila where good occurrence of gold is observed. Mount Celia gold project has identified two gold occurrences, namely, Kangaroo Bore and Blue Peter deposit. A total of 14,755 m (183 holes) drilling were done in these tenements with a total gold resources of 3.41 million tonnes @ 1.68 g/tonnes. Pit optimisation study conducted by AMC consulting has demonstrated good potential in both these deposits.

In Jharkhand, NMDC has submitted application to DMG, Jharkhand, for proposal to reserve 24.80 sq. km area in Kuchai Tehsil, District - Saraikela - Kaswan, Jharkhand under Section 17A (2A) of MM(D&R) Amendment Act, 2015 for prospecting and mining operation of gold & associated minerals. The matter is being pursued by NMDC with Govt. of Jharkhand for reservation.

NMDC has applied for Peravali-Betapalli Block for gold. NMDC has requested the Government of Andhra Pradesh to reserve the block in favour of NMDC under 17A (2A) of MM (D&R) Amendment Act, 2015 for prospecting & mining.

NMDC has been allotted 3 gold blocks (2 in Karnataka & 1 in Madhya Pradesh) by Ministry of Mines, for G4 level exploration. NMDC has submitted Geological Report of Bukkapatna Gold Block to NMET. Exploration work is under progress in the remaining two blocks.

NMDC has applied for prospecting of various minerals (diamond, gold, PGE, nickel, etc.) in Jabalpur, Katni Block (563 sq. km). Tripartite MoU among GoMP (MRD, through DGM) MPSMCL & NMDC was signed for geological and geophysical exploration for various districts of Madhya Pradesh.

A committee on Transforming India's Gold Market was constituted by NITI Aayog to recommend measures for Transforming the Gold Market Ecosystem in the country. The major recommendations of the committee are structured into five key areas. These are Make in India Gold, finalisation of Gold, Tax and duty structure, Regulatory Infrastructure and Skill Development & Technology Upgradation.

The Recommendations of the Committee are summarised as follows:

Gold Mining

1. Make gold mining viable and attractive to investors by promoting ease of doing business with single window clearances.
2. Government may consider making available the risk capital for long-term capital-intensive mining projects to attract investments.
3. The mining policy should consider availability of suitable exit option. Aspects related to brownfield exploration may also be considered.
4. Improve the quality and availability of digital data, covering geological database (which includes quality and scale of maps and ease of access to informations).
5. A comprehensive taxation policy should be formulated to align India's taxation framework with the strategic needs of the gold mining sector.

POLICY

Foreign Direct Investment (FDI) up to 100% in Mining Sector has been allowed.

In the revised Export-Import Policy, comprised in the Foreign Trade Policy (FTP), 2015-20, gold ores and concentrates are under freely importable category. Under Heading No.7108, the import of non-monetary gold metal also falls under Free category subject to RBI regulations, while import of gold metal in monetary form is restricted.

ENVIRONMENTAL CONCERNS

Gold is recovered from ores by two main methods, both of which affect environment. Earlier, for recovery of gold, amalgamation processes were used in which ore was mixed with mercury that selectively dissolved gold which was then recovered by evaporation. Mercury from these operations was never recovered and remained as pollutant in many old mining areas. The cyanide process is based on the property of precious metals in forming soluble complex ions with cyanide anion. Cyanide does not dissolve quartz, iron oxides and other common gangue minerals and yields a relatively simple gold-bearing solution known as pregnant solution. In some gold mines, gold is dissolved from the ore by crushing and grinding followed by mixing with cyanide solution in large vats.

Cyanide is a highly toxic compound and requires special handling. During ore treatment, pH of cyanide solution must be kept at about 11 to prevent cyanide from reacting with hydrogen ion to produce HCN, a deadly gas. Although less toxic substitutes of cyanide are known, it is not yet clear whether such substances will be cost-effective or environment-friendly.

DEMAND & CONSUMPTION

Jewellery accounted for major consumption of gold. The Industrial demand especially in the Electrical Sector for gold is mainly due to excellent thermal and electrical properties. Besides, a significant amount is consumed in dentistry and medicine. Continuing research has discovered new applications for gold as catalyst and in nano-technology. There is increase in demand from Ornamental and Electronic Sectors. Gold is considered a valuable asset, for investments and bank reserves.

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SUBSTITUTES

Platinum and palladium substitute gold to some extent, but their use is influenced by price relationship and by an established consumer preference for gold. Silver can be a substitute, but it offers less resistance to corrosion. Gold-plated palladium and bright tin-nickel can be used in electronics. Titanium and chromium-based alloys can be used in dental work. High prices encourage substitutes, particularly base metal clad with gold in Electronic & Electrical Industry and in jewellery products. No metal or alloy substitute has all the properties of gold, and therefore, the emphasis is only on reduction of gold content rather than substitution.

WORLD REVIEW

The estimated world reserves of gold were about 53,000 tonnes of metal content. The gold reserves are mainly located in Australia, Russia, South Africa, USA, Indonesia, Brazil and Peru. The world reserves of gold are provided in Table-8.

The world mine production of gold was estimated at 3,350 tonnes in 2019 as compared to the 3,470 tonnes in the preceding year. China contributed about 11% to the world's total mine production of gold followed by Australia (10%), Russia (9%), USA (6%), Canada (5%), Ghana & Peru (4% each) and Mexico & Indonesia (3% each) (Table-9).

**Table – 8: World Reserves of Gold
(By Principal Countries)**

(In tonnes of gold content)

Country	Reserves
World: Total (rounded off)	53,000
Argentina	1600
Australia	10000 ^(a)
Brazil	2400
Canada	2200
China	2000
Ghana	1000
Indonesia	2600
Kazakhstan	1000
Mali	800
Mexico	1400
Papua New Guinea	1200
Peru	2700
Russia	7500
South Africa	2700
Sudan	NA
USA	3000
Uzbekistan	1800
Other countries	9200

Source: USGS, Mineral Commodity Summaries, 2021.

(a) For Australia, Joint Ore Reserves Committee-compliant reserves were 4,000 tonnes.

**Table – 9: World Mine Production of Gold
(By Principal Countries)**

(In tonnes)

Country	2017	2018	2019
World:Total (rounded off)	3360	3470	3350
China ^(d)	426	401	380
Australia	292	313	326
Russia	270	280	305
USA	237	226	200
Canada	171	194	183
Ghana	133	149	142
Peru	152	140	128
Mexico	127	141	109
Indonesia	99	112	109
Other countries	1364	1520	1280

Source: BGS, World Mineral Production, 2015-2019.

(d): -Metal production

The top five leading gold-producing countries were China, Australia, Russia, USA and Canada.

PRICES

The prices of gold are covered in the Review on "Prices" under General Review.

To give a generalised view of the development in various countries, countrywise description as sourced from latest available publication of U.S. Geological Survey Minerals Yearbook - 2017 is furnished below:

Argentina

In 2017, gold production was estimated at 63,000 kg, 11 % more than the production in 2016. About one-half of the increase was due to the production increases at Goldcorps Inc.'s Cerro Negro Mine, which produced 14,100 kg of gold up by 25 %. The increase was due to the increased amount of ore mined.

Australia

In 2017, gold production was 3,01,000 kg, up by 5%. Some of the increase was from Kirkland Lake Gold Ltd's Fosterville Mine, which produced 8,210 kg of gold in 2017 about 3,500 kg or 74% more than the amount produced in 2016. Northern Star

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Resources Ltd produced a combined 17,000 kg of gold from three operations in Australia, 15% more than 2016 production. A production increase was also reported by the Tropicana Mine, a joint venture between Anglo Gold Ashanti Ltd (70%) and Independence Group NL (30%), which produced 14,300 kg of gold, 10% more than 2016 production.

Canada

Canada's gold mine output increased slightly in 2017 to 1,64,313 kg. The leading producer in the country was the Canadian Malartic Mine, jointly owned by Agnico Eagle Mines Ltd (50%) and Yamana Gold Inc. (50%); output in 2017 was 19,700 kg of gold, 8% more than 2016 production. The Detour Lake Mine produced 17,800 kg of gold in 2017, 6% more than that which was produced in 2016. Agnico Eagle's La Ronde and Meadowbank Mines produced 10,900 kg (up by 14%) and 11,000 kg of gold (up by 13%), respectively.

China

China continued to be the world's leading gold producer in 2017 despite a 6% decrease in production as compared with that in 2016. In 2017, gold production was 4,26,142 kg. Gold production from gold mines was 3,69,000 kg, and by-product output from other non-ferrous metals mining was 57,000 kg.

According to the China Gold Association, China's gold consumption (which includes bullion consumption) in 2017 was 10,89,000 kg, an increase of 9.41%. Consumption of gold for industrial and other applications was 90,200 kg.

Ghana

In 2017, production was 87,573 kg which was 11% more than in 2016. Ghana's three leading Mines produced at similar levels to those in 2016 - Gold Fields Ltd's Tarkwa Mine produced 17,600 kg Newmont's Akyem Mine produced 14,700 kg and Newmont's Ahafo Mine produced 10,900 kg.

FOREIGN TRADE

Exports

During the year 2019-20, there was nil exports of gold ores & conc. as against one kilogram in the preceding year. Export of gold-clad metals/base metals, NES was negligible during the years i.e 2019-20 & 2018-19. Out of the total exports of gold (Non-monetary & Monetary), the share of Non-

monetary was cent per cent while the share of Monetary was nil. The exports of gold (Non-monetary) increased by more than three fold to 1,730 kg in 2019-20 from 507 kg in 2018-19. The exports in 2019-20 were to Switzerland (66%) followed by South Africa (25%), UAE (9%) and negligible quantities to Hong Kong, UK, Fiji, Indonesia, USA and Republic of Korea (Tables- 10 to 17).

Imports

Imports of gold ores & concentrates increased manifolds to 273 kg during 2019-20 from mere 1kg in the preceding year. On the other hand imports of gold (Non-monetary), powder decreased to negligible levels in 2019-20 from 6 kg in the previous year. USA & Germany were the only countries from which negligible imports were made. Negligible imports of gold-clad metal in the year 2019-20 were reported. Imports of total gold (Monetary and Non-monetary) decreased substantially by 27% to 7,19,905 kg in 2019-20 from 9,82,697 kg in 2018-19. Out of the total imports of gold (Non-monetary & Monetary) the share of Non-monetary was cent per cent (i.e. 99.72%) and the share of monetary was very negligible (i.e 0.28%). The share of Non-monetary: Other Unwrought forms, was at 7,17,924 kg. Imports of gold were mainly from Switzerland (46%), UAE (8%), Peru & USA (6% each), Ghana & South Africa (4% each), Bolivia (3%) and UK & Tanzania (2% each) (Tables-18 to 24).

**Table – 10 : Exports of Gold: Total
(Non-monetary & Monetary)
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	507	1441337	1730	5742697
Switzerland	-	-	1150	3973862
South Africa	++	24	425	1325608
UAE	++	892	155	442323
Hong Kong	-	-	++	664
UK	1	2547	++	72
Fiji	-	-	++	65
Indonesia	-	-	++	65
USA	++	152	++	24
Korea, Rep. of	-	-	++	15
Canada	++	197	-	-
Other countries	506	1437524	-	-

Figures rounded off

GOLD

**Table – 11: Exports of Gold (Non-monetary)
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	507	1441328	1730	5742697
Switzerland	-	-	1150	3973862
South Africa	++	24	425	1325608
UAE	++	892	155	442323
Hong Kong	-	-	++	664
UK	1	2547	++	72
Fiji	-	-	++	65
Indonesia	-	-	++	65
USA	++	152	++	24
Korea, Rep. of	-	-	++	15
Singapore	500	1423180	-	-
Other countries	6	14532	-	-

*Figures rounded off***Table – 12: Exports of Gold, (Non-monetary) : Other
Unwrought Forms
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	505	1436329	1575	5300968
Switzerland	-	-	1150	3973862
South Africa	-	-	425	1325608
UAE	++	892	++	1403
UK	++	22	++	72
USA	++	33	++	24
Singapore	500	1423180	-	-
Guinea	5	12201	-	-

*Figures rounded off***Table – 13 : Exports of Gold - Monetary
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	++	9	-	-
Italy	++	9	-	-

*Figures rounded off***Table – 14: Exports of Gold-clad Metals/
Base Metals, NES
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	++	1084	++	19
Kenya	-	-	++	10
Mauritius	-	-	++	9
Nigeria	++	969	-	-
USA	++	112	-	-
Bangladesh	++	3	-	-

*Figures rounded off***Table – 15 : Exports of Gold Ores & Conc.
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	1	14	-	-
Nigeria	1	14	-	-

*Figures rounded off***Table – 16 : Exports of Gold, Non-Monetary, Powder
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	++	35	-	-
USA	++	35	-	-

Figures rounded off

GOLD

**Table – 17 : Exports of Gold, Non-monetary, Other Semi-manufactured Forms
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	2	4964	155	441729
UAE	-	-	155	440921
Hong Kong	-	-	++	664
Fiji	-	-	++	65
Indonesia	-	-	++	65
Korea, Rep. of	-	-	++	15
UK	1	2525	-	-
Germany	1	2130	-	-
Canada	++	197	-	-
USA	++	84	-	-
South Africa	++	24	-	-
Other countries	++	3	-	-

*Figures rounded off***Table – 18: Imports of Gold (Non-monetary & Monetary): Total
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	982697	2295364963	719905	1992494951
Switzerland	383301	1061164800	328413	1020172363
UAE	60642	174872159	58665	190761632
Peru	73132	153565873	41221	100648829
South Africa	31725	90579771	29602	96497096
USA	81752	148020020	43173	96487144
Ghana	80289	210166136	31407	91530580
Bolivia	22510	59639279	19667	59778150
UK	20667	59285323	17897	58004968
Tanzania	21147	40023323	17497	40471095
Burkina Faso	24537	56342242	13365	35007113
Other countries	182995	241706036	118998	203135981

Figures rounded off

GOLD

**Table – 19 : Imports of Gold, Non-monetary
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	982697	2295364963	719905	1992494951
Switzerland	383301	1061164800	328413	1020172363
UAE	60642	174872159	58665	190761632
Peru	73132	153565873	41221	100648829
South Africa	31725	90579771	29602	96497096
USA	81752	148020020	43173	96487144
Ghana	80289	210166136	31407	91530580
Bolivia	22510	59639279	19667	59778150
UK	20667	59285323	17897	58004968
Tanzania	21147	40023323	17497	40471095
Burkina Faso	24537	56342242	13365	35007113
Other countries	182995	241706036	118998	203135981

*Figures rounded off***Table – 20 : Imports of Gold, Non-monetary:
Other Semi-manufactured Forms
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	2756	7387109	1981	6047060
USA	1223	3271581	1115	3502953
Indonesia	1	2920	292	847487
Hong Kong	42	103386	137	437041
UAE	46	126472	121	428114
Spain	138	343895	82	283717
Germany	195	326686	160	283667
Singapore	10	30336	48	174168
Italy	75	223853	12	42125
France	2	4547	10	36533
Korea, Rep. of	++	284	3	5744
Other countries	1024	2953150	1	5511

*Figures rounded off***Table – 21 : Imports of Gold, Non-monetary:
Other Unwrought Forms
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	979935	2287960756	717924	1986447420
Switzerland	382301	1058283326	328413	1020172363
UAE	60596	174745688	58544	190333518
Peru	73132	153565873	41221	100648829
South Africa	31725	90579771	29602	96497096
USA	80523	144731398	42058	92984172
Ghana	80289	210166136	31407	91530580
Bolivia	22510	59639279	19667	59778150
UK	20647	59224669	17897	58003626
Tanzania	21147	40023323	17497	40471095
Burkina Faso	24537	56342242	13365	35007113
Other countries	182528	240659051	118253	201020879

Figures rounded off

GOLD

**Table – 22 : Imports of Gold Ores & Conc.
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	1	13	273	736
Peru	-	-	6	713
Australia	-	-	267	23
UK	1	7	-	-
USA	++	5	-	-

Figures rounded off

**Table – 23 : Imports of Gold, Non-monetary,
Powder
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	6	17098	++	471
Germany	-	-	++	451
USA	6	17042	++	20
Italy	++	56	-	-

Figures rounded off

**Table – 24 : Imports of Gold-clad Metal / Base
Metals, NES
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	-	-	++	270
UK	-	-	++	270

Figures rounded off

demand. Therefore, efforts will be required to reduce the gap between production and demand.

The recommendations of the Committee on Transforming India's Gold Market (Constituted by NITI Aayog) contributes for fulfilling the transformational vision for India's gold market seeking to double its contribution in GDP and more than double the exports of gold by 2022, enhance employment opportunities, increase FDI inflow and increase the gold market size, without negatively impacting upon India's Current Account Deficit.

Further, to reduce dependence on gold imports, it is necessary to boost domestic supply which has to happen through the 'Make in India' initiative for mining, recycling & refining and increased monetisation. The policies around gold mining may need to be revisited with regard to the auctioning process, providing for single window clearance for the pending proposals and increasing co-operation between the States and the Centre.

FUTURE OUTLOOK

Historically, purchase of gold was consider to be a safe haven, hedge against economic failures, portfolio diversifier and store of wealth.

India is a traditional and stable market for gold consumption. The present production of gold is insufficient and does not meet the ever increasing