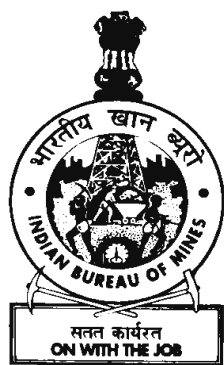


GOLD



Indian Minerals Yearbook 2012

(Part- II : Metals & Alloys)

51st Edition

GOLD

(FINAL RELEASE)

**GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES**

Indira Bhavan, Civil Lines,
NAGPUR – 440 001

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

January, 2014

8 Gold

Gold is a noble metal highly valued by mankind since antiquity as an adornment for cultural status and decorative purposes, as possessions that symbolise wealth and for coinage. It is also owned as an investment. For most consumers, the motivations are intertwined. Gold is a relatively scarce metal in the world and a scarce commodity in India. Properties of gold which make it useful in industry are malleability, ductility, colour, resistance to corrosion, high electrical conductivity, lustre and therapeutic effects of some of its salts. India is a minor producer of gold but has huge demand in the country mainly in jewellery and ornament sector. The domestic demand is mainly met through import of gold.

RESOURCES

As per UNFC system, as on 1.4.2010, the total resources of gold ore in the country were estimated at 493.69 million tonnes. Out of these, 24.12 million tonnes were placed under reserves category and the remaining 469.57 million tonnes under remaining resources category. Total resources of gold (primary), in terms of metal, stood at 659.84 tonnes. Out of these, 110.54 tonnes were placed under reserves category and 549.30 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 (45%) followed by Rajasthan (23%) and Karnataka (22%), West Bengal (3%), and Andhra Pradesh & Madhya Pradesh (2% each). Remaining 3% resources of ore are located in Chhattisgarh, Jharkhand, Kerala, Maharashtra and Tamil Nadu. In terms of metal content, Karnataka remained on top followed by Rajasthan, Bihar, Andhra Pradesh, Jharkhand, etc. (Table-1).

EXPLORATION & DEVELOPMENT

GSI, HGML and DMG, Uttar Pradesh carried out exploration for gold in 2011-12. Gold, along with other minerals continued to be the principal thrust area for exploration by GSI in Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Karnataka, Rajasthan and Uttarakhand.

HGML conducted exploration in its mining lease areas viz, Hutti, Hira-Buddini and Uti Gold Mines in Raichur district in Karnataka. DMG, Uttar Pradesh carried out exploratory work in Lalitpur and Sonbhadra districts. Details of exploration activities undertaken in 2011-12 by various exploration agencies are furnished in Table - 2.

PRODUCTION AND STOCKS

The production of gold ore at 492 thousand tonnes during 2011-12 decreased by 34% as compared to that in the previous year due to nil production of ore reported by Uti Gold Mine of HGML during the year as the open pit mining work is completed on 31/12/2010 up to the ultimate depth. The ore produced from open pit is stocked at Uti Gold Mine site & is transported to Hutti Mining Complex as per requirement of ore. The quantity of ore treated also decreased from 732 thousand tonnes to 558 thousand tonnes as compared to previous year. There were four reporting mines of gold ore in both the years.

The average grade of gold ore produced in India during 2011-12 was 6.26 g/t as against 5.13 g/t in 2010-11 whereas that of gold ore treated was 4.19 g/t in 2011-12 as compared to 3.57 g/t in 2010-11.

Production of primary gold in 2011-12 at 2,192 kg decreased by 9% as compared to that in the previous year.

Karnataka was the leading producer of gold accounting for 99% of the total production. The remaining production was reported from Jharkhand (Tables - 3 to 7).

The average daily employment of labour in 2011-12 was 3,499 as against 3,150 in the previous year.

**Table – 1 : Reserves/Resources of Gold as on 1.04.2010
(By Grades/States)**

(In tonnes)

State/Grade	Reserves				Remaining resources								Total resources (A+B)	
	Proved STD111	Probable		Total A	Feasibility STD221	Pre-feasibility		Measured STD331	Indicated STD332	Interred STD333	Reconnaissance			Total B
		STD121	STD122			STD221	STD222				STD334	STD334		
All India :Total														
Ore (Primary)	16045673	7215335	863529	24124537	1823133	790000	1104647	38101248	70154052	213408962	144188333	469570375	493694912	
Metal (Primary)	71.02	31.77	7.75	110.54	5.54	2.49	4.35	144.47	143.92	188.22	60.31	549.3	659.84	
Ore (Placer)	-	-	-	-	-	-	-	-	2552000	23569000	-	26121000	26121000	
Metal (Placer)	-	-	-	-	-	-	-	-	2.29	3.57	-	5.86	5.86	
By States														
Andhra Pradesh														
Ore (Primary)	-	-	-	-	655133	-	889515	8059000	55000	2616699	-	12275347	12275347	
Metal (Primary)	-	-	-	-	2.45	-	3.57	16.93	0.17	12.6	-	35.72	35.72	
Bihar														
Ore (Primary)	-	-	-	-	-	-	-	-	-	128884860	94000000	222884860	222884860	
Metal (Primary)	-	-	-	-	-	-	-	-	-	21.6	16.0	37.6	37.6	
Chhattisgarh														
Ore (Primary)	-	-	-	-	-	-	-	600000	4241033	-	4841033	4841033	4841033	
Metal (Primary)	-	-	-	-	-	-	-	1.8	3.71	-	5.51	5.51	5.51	
Jharkhand														
Ore (Primary)	38059	-	-	38059	-	-	-	5164277	2949012	-	8113289	8151348	8151348	
Metal (Primary)	0.13	-	-	0.13	-	-	-	3.73	8.87	-	12.6	12.73	12.73	
Karnataka														
Ore (Primary)	16007614	7215335	863529	24086478	1168000	790000	215132	24979968	8204595	12003638	37355000	84716333	108802811	
Metal (Primary)	70.89	31.77	7.75	110.41	3.09	2.49	0.78	120.7	28.67	27.2	43.66	226.59	337.0	

(Contd.)

Table - 1 (Contd.)

Grade/State	Proved				Reserves				Remaining resources						Total resources (A+B)									
	STD111		Total		Probable		Total		Feasibility		Pre-feasibility		Measured			Indicated		Interred		Reconnaissance		Total		
	STD111	STD121	STD122	A	STD121	STD122	STD121	STD122	STD221	STD221	STD222	STD331	STD332	STD333		STD334	B	STD332	STD333	STD333	STD334	B	B	B
Kerala																								
Ore (Primary)	-	-	-	-	-	-	-	-	-	-	-	462280	96180	-	-	-	558460	-	-	-	-	-	558460	558460
Metal (Primary)	-	-	-	-	-	-	-	-	-	-	0.17	0.03	-	-	-	-	0.2	-	-	-	-	-	0.2	0.2
Ore (Placer)	-	-	-	-	-	-	-	-	-	-	-	2552000	23569000	-	-	-	26121000	-	-	-	-	-	26121000	26121000
Metal (Placer)	-	-	-	-	-	-	-	-	-	-	-	2.29	3.57	-	-	-	5.86	-	-	-	-	-	5.86	5.86
Madhya Pradesh																								
Ore (Primary)	-	-	-	-	-	-	-	-	-	-	-	5841000	1947000	-	-	-	7788000	-	-	-	-	-	7788000	7788000
Metal (Primary)	-	-	-	-	-	-	-	-	-	-	-	6.18	2.22	-	-	-	8.4	-	-	-	-	-	8.4	8.4
Maharashtra																								
Ore (Primary)	-	-	-	-	-	-	-	-	-	-	-	-	1517000	-	-	-	1517000	-	-	-	-	-	1517000	1517000
Metal (Primary)	-	-	-	-	-	-	-	-	-	-	-	-	3.55	-	-	-	3.55	-	-	-	-	-	3.55	3.55
Rajasthan																								
Ore (Primary)	-	-	-	-	-	-	-	-	-	-	-	4600000	50193000	59182720	-	-	113975720	-	-	-	-	-	113975720	113975720
Metal (Primary)	-	-	-	-	-	-	-	-	-	-	-	6.67	103.34	107.47	-	-	217.48	-	-	-	-	-	217.48	217.48
Tamil Nadu																								
Ore (Primary)	-	-	-	-	-	-	-	-	-	-	-	-	67000	-	-	-	67000	-	-	-	-	-	67000	67000
Metal (Primary)	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-	1.0	-	-	-	-	-	1.0	1.0
West Bengal																								
Ore (Primary)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12833333	-	-	-	-	-	12833333	12833333
Metal (Primary)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.65	-	-	-	-	-	0.65	0.65

Figures rounded off.

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Table – 2 : Details of Exploration Activities for Gold, 2011-12

Agency/ State/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI							
Andhra Pradesh Cuddapah	Tellakonda block	-	-	4	60	-	Prospecting stage investigation (G-3) was taken up during (F.S.) 2010-12 in Tellakonda block of Veligallu Greenstone belt, for gold on the basis of encouraging results of earlier geochemical studies. The analytical results of drill core samples have indicated feeble to moderate gold values with the weighted average ranging from 0.11 g/t to 1.05 g/t. The highest gold value of 1.05 g/t has been noted.
Mahaboobnagar and Kurnool	West of Remeta-	-	-	-	164	-	Reconnaissance stage investigation (G-4) was taken up during (F.S.) 2010-12 in western arm of the Gadwal Schist Belt for gold and other associated elements in the area west of Remeta. One stream sediment sample analysed gold content of 150 ppb. No significant gold mineralised zone could be delineated.
Bihar Gaya and Nalanda	Bathani area	-	-	-	-	-	Reconnaissance stage investigation (G-4) was taken up during (F.S.) 2010-12 in Bathani area, in Gaya and Nalanda districts to assess gold mineralisation associated with Bathani volcano-sedimentary sequence and Munger - Rajgir metasediments as a follow up of earlier work in Raja Bigha East Block (Bathani area) where anomalous concentration of gold in the range of 40 ppb to 504 ppb in tuff, BIF intercalated tuff and BIF samples and other surface indications for old mining activities were recorded. Large scale mapping in Bathani-Majhauri- Saren exposes plutonic rocks at southwest of Bathani village, whereas the area between Majhauri-Saren-Sitarampur establishes the southwestern continuation of volcano-sedimentary sequence in juxtaposition with Rajgir meta-sedimentary sequence. Detailed mapping around Shankarpur and Rajabigha villages indicated that the area is covered by tuff and phyllitic tuff. Available analytical results near Majhauri show anomalous gold concentration ranging from 120 ppb to 2.25 ppm. Quartz vein associated with tuff at Saren village yielded 1.11 ppm gold concentration. 20 samples from Shankarpur and Rajabigha villages yielded 65 ppb to 250 ppb Au concentration. Taking all these together, a prospective block of 210 m strike length with 80 m width could be established.

(Contd.)

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Table - 2 (Contd.)

Agency/ State/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Jamui	Gosari-Ghutwe block, Sono area	-	-	-	-	-	Reconnaissance stage investigation (G-4) was carried out during 2010-12 in Gosari-Ghutwe of Sono area. So far available results of bedrock samples from east of Gosari area reveal that in schistose amphibolite Au concentration ranges from 60 ppb to 185 ppb (av. 117 ppb) whereas in quartzite - ferruginous quartzite -BMQ Au concentration ranges from 60ppb to 125 ppb (avg 90 ppb). In addition to these, quartz vein and granite gneiss also yielded 60 ppb Au concentration. All these imply that schistose amphibolite is the most favourable host rock for Au concentration. Four of the seven scout boreholes drilled for which analytical results are available but mineralised zones could be identified only in 2 boreholes.
Chhattisgarh Raipur	Sonkhan belt, Palasapali area West of Bhanwarpur	-	-	-	-	-	Reconnaissance stage investigation (G-4) was taken up during 2010-12 in Sonakhan belt in Palasapali area to delineate new prospect block for gold mineralisation. The gold mineralisation in the Bhanwarpur area is associated with silicification of the contact zone of granite with basic volcanics.
Jharkhand East & West Singhbhum	Tilaitanr- Sobhapur area	-	-	-	-	-	Prospecting stage investigation (G-3) for gold, Ni and Cr initiated during 2009-10 was continued during 2010-12 in Tilaitanr - Sobhapur area. Out of 95 bedrock samples for which analytical results are available 7 samples have shown gold values between 100 ppb & 4.45 ppm and yielded Cr values between 500 ppm and 1600 ppm. Out of 65 trench samples, 12 samples have analysed between 100 ppb and more than 1 ppm gold. One trench sample has yielded more than 500 ppm Cr.
Ranchi	Sindauri Ghanshyampur block	-	-	-	-	-	Prospecting stage investigation (G-3) was carried out for gold in Sindauri-Ghanashyampur Block, during 2010-12. Ore microscopic studies indicated the presence of gold with arsenopyrite. Analysis of core samples of BH SEB-7 confirms presence of seven gold mineralisation zones associated with sulphide mineralisation between the depths of 40.45m and 166.00 m. The cumulative width and average grade of these zones are 11.0 m and 1.87 gm/tonne, respectively. The part analytical results of the core samples of BH SEB-8 indicate extension of gold mineralisation further Eastward.

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Table - 2 (Contd.)

Agency/ State/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
West Singhbhum	Rudia Largadih Balidih block	-	-	-	-	-	Prospecting stage investigation (G-3) was carried out for gold in Rudia-Largadih-Balidih block, to assess the gold potentiality of the block. Rudiya-Largadih-Balidih block comprises part of Dalma volcanics and metasedimentaries of Singhbhum Group. In course of the present investigation very encouraging gold value (more than 1 ppm) has been recorded over trenches and channels put across the brecciated quartzite rock. Gold is associated with sulphide mineralization represented by pyrite, chalcopyrite and arsenopyrite. Due to sheared and brecciated nature of the rocks only two boreholes could be completed (NRB-1, NRB-3) and one abandoned (NRB-2). Chemical analysis of the core samples of BH NRB-1 and parts of BH NRB-2 and NRB-3, so far available, establishes a 4 m thick mineralised zone in brecciated quartzite unit between depths 78m and 82m. It contains gold value ranging from 50 ppb to more than 1 ppm.
Karnataka Chitradurga and Tumkur	Adivala- Obalapura and Mavinamadu area	-	-	-	-	-	Reconnaissance stage investigation (G-4) was taken up during 2010-12 in Chitradurga Schist Belt between Adivala-Obalapura and Mavinamadu area to assess the auriferous nature and to locate possible gold mineralisation in the eastern shear of the Chitradurga Schist Belt. Based on the chemical analytical results of bedrock and trench samples and surface indications delineation of mineralised zones in the area was in progress.
Shimoga	Bhairapura and Hosahalli areas	-	-	-	-	-	Reconnaissance stage investigation (G-4) for gold mineralisation in southern part of Shimoga Schist Belt in Bhairapura and Hosahalli has been carried out during 2010-12. The Shimoga Schist Belt is one of the important schist belts in Western Dharwar Craton, where earlier investigation in southern part of the Shimoga Schist Belt led to identification of prospects in Jalagaragundi, Siddarahalli, Honnahatti and Singanamane areas. The major rock types noticed during the LSM mapping are PGC, metabasalt, fuchsite quartzite, quartz-chlorite schist, talc-chlorite schist, quartzite, polymictic conglomerate and basic dykes. Evidences of mineralisation are in the form of silicification, sulphide leaching and dissemination of sulphides within quartz-chlorite schist and talc-chlorite schist in the form of pyrite, pyrrhotite and arsenopyrite. The shear zone in south west of Bhairapura was traced further north.

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Table - 2 (Contd.)

Agency/ State/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Tumkur	Ajjanahalli block - D	-	-	-	-	-	Prospecting stage investigation (G-3) for gold in Ajjanahalli Block-D was taken up. The boreholes were drilled in Ajjanahalli Block - D to intersect the mineralised BIF bands to study the subsurface nature, behaviour, depth persistence and gold content of the auriferous Banded Iron Formation. The borehole ADG-20 intersected mineralised zone VII and VIII in BIF which is highly sheared, with quartz-carbonate veins/veinlets, having plenty of sulphides such as pyrite, pyrrhotite and arsenopyrite and minor chalcopyrite. Boreholes ADG-21, 22 & 23 intersected mineralised Zones III and IV in BIF. The BIF is highly sheared, with quartz-carbonate veins/veinlets, having sulphides such as pyrite, pyrrhotite and arsenopyrite. Correlation of mineralised zones intersected in different boreholes was in progress.
-do-	Ajjanahalli block - E	-	-	-	-	-	Reconnaissance stage investigation in Ajjanahalli Block-E helped in delineating a mineralised zone for a strike length of 900 m within BIF band. A major old working is noticed at the western limb of the band. The old working is confined to the BIF band extending for a length of 25 m along the strike direction with a width of 4 m. The BIF band is sheared, brecciated and limonitised. The wall rock alteration of metabasalt is observed at the contact of BIF. The BIF is sheared, highly limonitised with quartz veins/veinlets. Several quartz veins are noticed in metabasalt.
-do-	Ajjanahalli block - G	-	-	-	-	-	Reconnaissance stage (G-4) investigation was carried out during 2010-12 in Ajjanahalli Block-G for assessment of gold mineralisation. An old working is noticed at one of the BIF band. The wall rock alteration is observed at the contact of BIF with both lithounits. The BIF is sheared, highly limonitised with quartz veins/veinlets. Three new BIF bands were established named as band VIII, IX and X in the western part of the area.
Rajasthan Banswara	Jagpura block, Bhukia gold belt	-	-	-	-	-	Reconnaissance stage investigation (G-4) was carried out during 2010-12 in Jagpura block of Bhukia gold belt to delineate the potential zones for gold and associated basemetal mineralisation in the northern continuity of mineralisation of Bhukia gold prospect. The mean gold grade for all samples is 1.18 g/t while median is 0.8 g/t. Basemetal values are not encouraging. Lead is below 25 ppm. Zinc ranges from 6 to 45 ppm, nickel is between 15-261 ppm, cobalt ranges from 15 to 198 ppm and silver is below 5 ppm.

(Contd.)

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Table - 2 (Contd.)

Agency/ State/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Banaswara	Gundelapara block	-	-	-	-	-	Prospecting stage Investigation (G-3) was carried out during 2010-12 for gold and copper in Gundelapara NW Block based on favourable geological setup, structure, surface manifestations and encouraging analytical results of earlier works. The cumulative thickness of gold mineralised zones (2 to 7 zones) intersected in each borehole ranges from 2.90 m to 31.45 m and average grade from 1.05 g/t to 2.13 g/t. The main sulphide minerals are pyrrhotite, chalcopyrite, arsenopyrite and pyrite in decreasing order. The host rock is impure marble intercalated with calcsilicate intercalations. The lateral correlation of these intersected mineralised zones was in progress.
Uttarakhand Rudraprayag	Lameri- Ratura area	-	-	-	-	-	<p>Reconnaissance stage investigation (G-4) was taken up during 2010-12 in Garwal Group based on the encouraging results of earlier work and on the proposal from Directorate of Geology and Mining, Uttarakhand in Lameri-Ratura area to delineate and assess the auriferous mineralised zones in the area. In Lameri –Ratura area, 16 nos of old workings have been recorded in dolomite with quartz vein in Lameri (Pithoragarh) Formation.</p> <p>In Lameri-Tilni area cluster of five old workings was observed. Old workings are in the form of shallow pockets (0.5-1 m x 1-2 m size) and one incline (1.2 m x 1.8 m x 5 m) having malachite stained quartz vein. Brownish grey slag was observed as dump near the old working site and one retort piece has also been recorded from the site. The sulphide-mineralised lens having old workings and sulphide disseminations is 200 m x 50 m.</p> <p>In Tilni-Koteshwar area, a cluster of five old workings was identified in dolomite with malachite stained quartz veins having disseminated pyrite and chalcopyrite specks and fracture filling of galena. The mineralised zone has average width of 5 m and extends up to 120 m, discontinuously and gold flake was identified earlier in quartz vein within dolomite under SEM studies. The sulphide mineralised lens extends up to 500 m discontinuously over an average width of 8 m. In Kimotha area, a cluster of four old workings was identified at the contact of quartzite and dolomite. In this area mineralisation was observed in quartz vein within dolomite of Lameri Formation and mineralisation is manifested as malachite stain with few pyrites, chalcopyrite disseminations.</p>

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Table - 2 (Contd.)

Agency/ State/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							<p>In Dharkot area, two old workings were identified at the faulted contact of quartzite and dolomite. The discontinuous extension of the mineralised zone was observed in Ratura area. The control of mineralisation is structural; mineralisation is generally confined to the quartz veins in fractures trending from 320° to 340°. In Lameri-Koteshwar area, fault breccia has been identified at places, in the sympathetic zones. During stream sediment sampling, visible gold grains were recorded from stream sediment in Alaknanda river and its tributary on right bank (Sari area) and from the banks of Mandakini river in Jugtoli-Tarwari area. On the basis of the available chemical results, in Lameri area, two mineralised zones of Zone I: Cu 0.51% x 6 m and Au 0.09 are low and maximum is up to 475 ppb. The stream sediment samples collected from Ratura, Sumerpur area yielded Au 200-300 ppb and one sample has 1.42 ppm Au (Ratura- Dharkot area). Heavy panned residues of samples from the same areas have shown 5 ppm-80 ppm Au.</p>
Uttar Pradesh	Chakoriya	-	-	-	-	-	<p>Reconnaissance stage investigation (G-4stage) was taken up during 2010-12 in Mahakoshal Group for search of gold and associated mineralisation in Chakoriya-Charka area. During the course of large scale mapping east of Chakoriya village, 17 nos. old working over a strike length of 700 m have been located. The old workings are 3 m to 70 m long, 2 m to 3 m wide and 3 m deep. The samples from Chakoriya-Charka and Machohi area have yielded Au values from <20 ppb to <50 ppb and trench samples have yielded <20 ppb to 90 ppb. A discontinuous auriferous mineralised zone has been located in Parsoi area. The surface manifestations of mineralisation are marked by scorodite, (FeAsO₄·2H₂O) which is formed after alteration of arsenopyrite. The mineralised zone extends up to a strike length of about 800 m, intermittently, and width varies from 1.5 to 4 m. 19 grab spot samples, so far, have given more than 1 ppm Au value. The maximum Au value is 16.8 ppm from the scorodite lump in quartz vein from Parsoi mineralised zone. From the available analyses the average grades of the gold mineralised zone (over cut off of 65 ppb) in three trenches are 0.278ppm X 1.5m, 0.357ppm X 1.5m and 1.017ppm X 2m. Two more sulphide mineralised zones have been located in Phaphrakund and Arangi area, running parallel to each other. There is a parting of phyllite of thickness in between these zones. The strike length of the zone is about 500 m. The grab samples have yielded <50ppb to 14.8 g/t Au, with 09 samples having more than 1 ppm Au.</p>

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Table - 2 (Concl.d.)

Agency/ State/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
HGML Karnataka Raichur	Hutti Gold Mine	1:400	2831	-	4179 m	9883	A total of 9.25 million tonnes of reserves of gold ore with 5.53 g/t Au were estimated.
			under ground mapping in m.		3270m under ground drilling		
	Hira-Buddini Gold Prospects	-	-	-	143.9 m (Explo-ratory mining)	1038	About 0.78 million tonnes reserves of gold ore with 3.99 g/t Au were computed.
	Uti Gold Mine	-	-	-	136.45 m (Explo-ratory mining)	1004	Total mineable reserves are estimated at 2.18 million tonnes of ore with 2.50 g/t to 2.91 g/t Au.
DGM Uttar Pradesh							
Lalitpur	Girar	1:1,000	0.50	1	163	1200	Reserve estimation is under progress.
	Berwar	1:5,000	0.50	-	-	314	Reserve estimation is under progress.
Sonbhadra	Jardi Bagisoti	-	-	4	161.25	184	Reserve estimation is under progress.
	Deva Injani	1:10,000	4.10	-	-	353	Reserve estimation is under progress.

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Table – 3 : Producers of Gold, 2011-12

Name and address of the producer	Location of the mine	
	State	District
The Hutti Gold Mines Co. Ltd, No. 6/13, Guruappa Avenue, Primrose Road Cross, Bengaluru - 560 025, Karnataka.	Karnataka	Raichur
Manmohan Industries (P) Ltd, Shantiniketan, 286, New Patliputra Colony, Patna, Bihar.	Jharkhand	Singhbhum East

**Table – 4 : Production of Gold Ore
2010-11 and 2011-12
(By States)**

(In tonnes)

State	2010-11		2011-12 (P)	
	Ore Produced	Avg. Grade (g/t)	Ore Produced	Avg. Grade (g/t)
India	741522	5.13	492192	6.26
Jharkhand	4618	3.19	7754	1.90
Karnataka	736904	5.14	484438	6.33

**Table – 5 : Gold Ore treated
2010-11 and 2011-12
(By States)**

(In tonnes)

State	2010-11		2011-12 (P)	
	Ore Produced	Avg. Grade (g/t)	Ore Produced	Avg. Grade (g/t)
India	732340	3.57	558130	4.19
Jharkhand	7023	2.45	7180	1.85
Karnataka	725317	3.58	550950	4.22

**Table – 6 : Production of Gold, 2009-10 to 2011-12
(By States)**

(Quantity in kg; value in ₹'000)

State	2009-10		2010-11 (R)		2011-12 (P)	
	Qty	Value	Qty	Value	Qty	Value
India	2084	3425814	2399	4345197	2192	5496037
Primary Gold	2084	3425814	2399	4345197	2192	5496037
Jharkhand	14	21251	14	28137	11	28532
Karnataka	2070	3404563	2385	4317060	2181	5467505

GOLD

**Table – 7 : Production of Gold, 2010-11 and 2011-12
(By Sectors/States/Districts)**

(Quantity in kg; Value in ₹'000)

State/District	No. of mines	2010-11		No. of mines	2011-12 (P)	
		Quantity	Value		Quantity	Value
India	4	2399	4345197	4	2192	5496037
Public sector	3	2385	4317060	3	2181	5467505
Private sector	1	14	28137	1	11	28532
Primary Gold	4	2399	4345197	4	2192	5496037
Jharkhand	1	14	28137	1	11	28532
Singhbhum East	1	14	28137	1	11	28532
Karnataka	3	2385	4317060	3	2181	5467505
Raichur	3	2385	4317060	3	2181	5467505

Gold Bullion

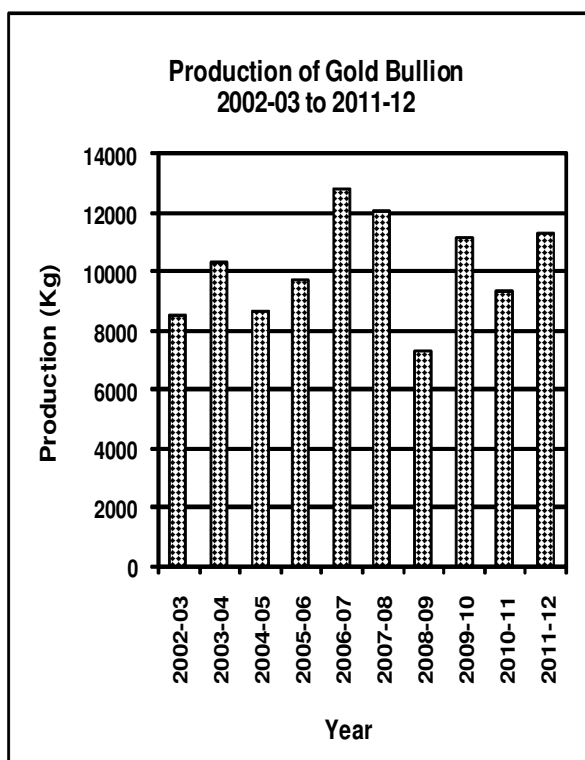
Production of gold bullion in India is reported both in primary and secondary forms. Total production of gold bullion during 2011-12 at 11,284 kg increased by about 21% as compared to 9,360 kg in the previous year.

Table – 8 : Production of Gold Bullion*
2009-10 to 2011-12

(Quantity in kg; Value in ₹'000)

Year	Quantity	Value
2009-10	11198	17910044
2010-11	9360	17629928
2011-12(P)	11284	28541885

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



MINING & MILLING

Presently, HGML is the only public sector company producing gold in the country. Manmohan Industries Pvt. Ltd in private sector is also engaged in mine production of gold at Kundkocha, in Singhbhum East distt. Jharkhand by underground method of mining. HGML operates mines at Hutti, Uti and Hira-Buddini in Raichur district, Karnataka. The total installed capacity of these mines is 7.02 lakh tpy gold ore. Implementation of mechanisation of mining operations at Hutti mine was in progress. Exploratory developments were taken up in all reefs and cross-cutting in south shaft 3rd and 6th level is underway. Sub-level and LDBH stoping methods are employed to exploit the gold ore. The Uti mine is opencast and the ore from this mine is transported to Hutti mine for processing at the mills. The present capacity of the mine is 25,960 tpy of ore. As per the feasibility studies, opencast mining is viable and will be continued to 90 m vertical depth. Underground exploratory mining too is in progress. Several operations at Hira-Buddini gold unit, such as exploratory mine development and deepening and re-equipping of main shaft are in progress. The present production capacity of the mine is 20,050 tpy. 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 will be used to increase the OMS.

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. In the first technique, grinding is done in two stages, i.e., primary grinding and then secondary grinding for further comminution. One primary mill and three tube mills constitute one stream of grinding in which pebble and smaller size balls are used as composite grinding media.

There are two such streams and strake tables are used to collect 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.

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The gold loaded steel wool cathodes are manually removed periodically, 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. To augment gold production in the country, as per XI Plan document, Chigargunta and Bisanthan mines deserve active consideration for opening and commencement of operations.

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 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

HGML is the 40th member of the World Gold Council and the first one from India.

The Deccan Gold Mines Ltd (DGML), India's first and largest listed gold exploration company, collected rock and stream sediment samples and analysed them. DGML has plans for geophysical studies and drilling prospects at areas located in proximity to existing old mines and also at earlier

explored areas in Hutti belt, Manglur belt, Dharwar-Shimoga belt in Karnataka; Attapadi Project in Kerala; and Ramgiri belt in Andhra Pradesh. 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. Exploration is being conducted in Hutti belt at various prospects, viz, in Hutti Mine north prospect, Hirenagnur prospect, southern and northern continuity of Uti mine lodes, Uti Temple prospect, Chincherga prospect, Buttapur prospect and Yatkal prospect. In south Hutti RP block, the investigations are going on in Tuppadhur- Buddini prospect, Maski prospect, Ashoka prospect and Sanbal prospect.

DGML in Joint Venture with JB Group examined the available data and selected the area for reconnaissance studies. Geological mapping and systematic channel sampling (5.50 samples) revealed the existence of 5 sub - parallel zone of gold mineralisation in Hesdaba prospects and Asaleyta prospects in Dgibouti.

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 report production since 2007-08.

NMDC has secured a gold mining lease in Bulyangombe area in Tanzania.

POLICY

Foreign Direct Investment (FDI) up to 100% in mining sector in respect of gold is eligible for automatic approval.

Gold being a specified mineral, Mineral Concessions, viz, reconnaissance permits (RP), prospecting licences (PL) and mining leases (ML) for gold are granted by the State Governments after prior approval of the Central Government.

In the revised Export-Import Policy, comprised in the Foreign Trade Policy (FTP), 2009-14, gold

ores and concentrates are in 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 of 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, i.e., 85%, followed by electronics 6%, medal and coins 2% and other sectors 7%. The Industrial demand for gold is dominated by Electrical Sector due to its 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. No proper estimation of gold demand in the country could be attempted due to lack of proper consumption data of the end-use industry. However, from overall evaluation, it is seen that India has a traditional and stable market for gold consumption. There is increase in demand from Ornamental and Electronic Sectors besides investments and bank reserves. A huge gap exists between demand and indigenous production which is likely to continue. Apparent consumption of gold in the country during 2010-11 was about 959.40 tonnes as compared to 839.23 tonnes reported in the preceding year.

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 reserves of gold were about 52,000 tonnes of metal. The gold reserves are mainly located in Australia (14%), South Africa (12%), Russia (10%), Chile (7%), Indonesia & the USA (6% each), Brazil (5%) and Peru (4%). The world reserves of gold are given in Table-9.

The world mine production of gold was estimated at 2,600 tonnes in 2011. China contributed about 14% in world's total mine production of gold followed by Australia (10%), the USA (9%), Russia and South Africa (7% each), Peru (6%), Canada (4%) and Ghana (3.5%) (Table-10).

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

(In tonnes of gold content)

Country	Reserves
World: Total (rounded)	52000
Australia	7400
Brazil	2600
Canada	920
Chile	3900
China	1900
Ghana	1600
Indonesia	3000
Mexico	1400
Papua New Guinea	1200
Peru	2000
Russia	5000
South Africa	6000
Uzbekistan	1700
USA	3000
Other countries	10000

Source: Mineral Commodity Summaries, 2013.

**Table – 10 : World Mine Production of Gold
(By Principal Countries)**

(In tonnes of metal content)

Country	2009	2010	2011
World : Total	2490	2590	2600
Argentina	47	63	62
Australia	223	260	258
Brazil	56	58	65
Chile	41	39	45
Canada	97	103	100
China [®]	314	341	361
Colombia	48	54	56
Ghana	91	92	91
Indonesia	140	120	75
Kazhakstan [®]	23	30	37
Papua New Guinea	68	67	62
Philippines	37	41	31
Peru	182	164	164
Mali	42	39	40
Mexico	62	79	89
Russia	205	201	185
South Africa	198	189	180
Tanzania	39	39	40
USA	223	231	234
Uzbekistan	73 ^(e)	73 ^(e)	73 ^(e)
Other countries	281	307	352

*Source: World Mineral Production, 2007-2011.
© Metal production.*

Traditionally, dominant gold producers viz, South Africa, the USA and Canada are losing ground to new producers. Gold output declined in 2011 in Indonesia by 37%, Russia 87% and in South Africa by 5% as against the production of gold in the year 2010. Gold production rose in 2011 mainly in Mexico by 24% and China by 6% compared to the preceding year.

Prices

The gold prices have increased steadily since 2001 from average price of US \$ 271 per troy ounce to around US \$ 973 per troy ounce during 2009. The average price of gold in 2010 became US \$ 1,226.66 per troy ounce and in 2011 reached a new all time high (average) of US \$ 1,896.50 per troy ounce. The average price of gold during 2011 was US \$ 1,573.16 per troy ounce, an increase of 28% over 2010 average price. Gold price soared to an all time high in 2011 on strong demand as precious metals are considered a safe investment in times of economic turmoil and rising inflation.

Argentina

In 2011, gold production was 2% less than that in 2010, mainly because lower production at Barrick's Veladero Mine because of lower ore grades owing to the shift away from high-grade areas as dictated by the mine plan.

Australia

In 2011, gold production decreased slightly compared with that in 2010. Despite some increase in gold production from a number of new mines, production declined at several mines. Six mines started or restarted production. These mines included Deutsche Rohstoff AG's (Heidelberg, Germany) Georgetown Mine; FMR Investments Pty. Ltd.'s (South Perth) Eloise Mine; Hillgrove Resources Ltd.'s (Sydney) Kanmantoo Mine; KBLMining Ltd.'s (Sydney) Mineral Hill Mine; Castlemaine Goldfields Ltd.'s (Mount Clear, Victoria) Ballarat Mine; and St Barbara Ltd.'s (Melbourne) King of the Hills Mine.

Burkina Faso

In 2011, gold production increased by 39% as compared to the previous year. The increase was attributed to the production of IAMGOLD's 90%-

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owned by Essakane Mine and Avocet Mining plc's (London) Inata Mine.

Chile

The production gains were attributed to several mines that were brought online and increased production from some established mines. The most notable was the startup of the Esperanza copper-gold mine, produced 90,100 tonnes of copper and 4,890 kg of gold.

China

China's gold production increased by 5% in 2011 as against 2010. Increase was from the primary gold mines, which accounted for 84% of China's gold production and where 8% gold production was as a by-product. In 2011, the top 10 gold enterprises produced about 51% of China's gold, which was about 9,000 kg more than 2010. Most notable contribution was made by three companies, Shandong Gold Group Co., Ltd, Yunnan Gold Mining Group Co., Ltd, and Zhaojin Mining Industry Co. Ltd.

Ethiopia

Sharp increases in gold prices led to additional small-scale and artisanal mining operations in Ethiopia. In 2011, production was estimated to have reached 11,000 kg, up 85% from 2010 production. Almost all of the mine production came from artisanal, placer, and small scale-mining.

Indonesia

Some of the leading gold producers were copper mines that produced by-product gold. Freeport McMoRan's Grasberg Mine and Newmont-operated Batu Hijau Mine produced about 44,900 kg and 9,890 kg gold respectively.

Kazakhstan

In 2011, gold production was 22% more than the production in 2010. The main reason for the increase was the continued ramp up of Kazzinc JCS's Vasilkovskoje Mine, which started production in the second quarter of 2010 and was a satellite mine of the Altyntau Kokshetau Mine.

Mexico

In 2011, Mexican gold production increased 24% from 2010. Goldcorp operated three mines namely El Sauzal, Los Filos, and Penasquito. El Sauzal decreased production by 34% owing to lower ore grades and Los Filos Mine produced

19% more because of higher tonnage mined and the higher ore grade.

Russia

In 2011, Russian gold production was 8% more than 2010 production. Much of the growth in production was from new startups or the ramp up of mines that started in 2010. The leading gold producer in Russia was Polyus Gold, which saw 8% increase compared with 2010 from five mines and several alluvial deposits production. Some of the increase was attributed to continued ramp up of the Blagodatnoye Mine in the Krasnoyarsk Region. In 2011. The increase was attributed to the improved mining practices, higher grades, and the addition of a third resin-in-pulp processing plant at Pioneer.

South Africa

South Africa's gold production was decreased 5% from that in 2010 owing to decreased ore grades and high mining costs due to increased labour costs, higher electricity costs, and higher costs associated with deep-level shafts. Also, power supply issues, worker's strike in the third quarter of 2011, and temporary closure of shafts owing to mine accidents continued to affect the industry. In 2011, three companies operated mines that accounted for almost 80% of South African gold production. The safety related work stoppages reduced output at Beatrix Mine and Kloof Driefontein Complex and lower ore grades limited production at the South Deep Mine.

FOREIGN TRADE

Exports

The export of gold ores and concentrates was 82,031 kg in 2011-12. The entire exports were made to Belgium. The exports of gold (non-monetary & monetary) increased to 169.12 tonnes in 2011-12 from 34.59 tonnes in the previous year. The exports in 2011-12 were mainly to Belgium, Republic of Korea and UAE in terms of volume and value (Tables - 11 to 17).

Imports

Imports of monetary and non-monetary gold increased to 1078.35 tonnes valued at ₹ 269900.70 crore in 2011-12 as compared to 969.74 tonnes valued at 184728.75 crore in 2010-11. The share of non-monetary: other unwrought forms was 98% in the total value of gold imported. Imports of gold were mainly from Switzerland (52%), followed by UAE (18%), South Africa (12%), and Australia (6%) in terms of volume. (Tables-18 to 22).

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**Table – 11 : Exports of Gold Ores & Conc.
(By Countries)**

Country	2010-11		2011-12	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	-	-	82031	5285189
Belgium	-	-	82031	5285189

**Table – 12 : Exports of Gold
(Non-Monetary & Monetary) Total
(By Countries)**

Country	2010-11		2011-12	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	34595	4275543	169126	19799367
UAE	17661	3935915	4277	11770637
Belgium	42	30891	131807	7437483
Korea, Rep. of	-	-	33000	547456
USA	22	8435	5	24173
Singapore	1517	15815	23	4089
Botswana	1	56	1	780
UK	1	40	5	580
Hong Kong	6017	40965	1	561
Germany	-	-	1	41
Unspecified	-	-	6	13567
Other countries	9334	243426	-	-

**Table – 13 : Exports of Gold (Non-monetary)
(By Countries)**

Country	2010-11		2011-12	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	34595	4275544	169120	19750783
UAE	17661	3935915	4276	11735392
Belgium	42	30891	131807	7437483
Korea, Rep. of	-	-	33000	547456
USA	22	8435	5	24173
Singapore	1517	15815	23	4089
Botswana	1	56	1	780
UK	1	40	5	580
Hong Kong	6017	40965	1	561
Germany	-	-	1	41
Unspecified	-	-	1	228
Other countries	9334	243427	-	-

**Table – 14 : Exports of Gold, Non-Monetary
Other Semi-manufactured forms
(By Countries)**

Country	2010-11		2011-12	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	87	120292	28	29014
USA	18	66	5	24173
Singapore	-	-	22	4060
Botswana	1	56	1	780
Other countries	68	120170	++	1

**Table – 15 : Exports of Gold Non-Monetary,
Powder
(By Countries)**

Country	2010-11		2011-12	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	16	161	-	-
UAE	16	161	-	-

**Table – 16 : Exports of Gold Monetary
(By Countries)**

Country	2010-11		2011-12	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	-	-	6	48584
UAE	-	-	1	35244
Unspecified	-	-	5	13340
Other countries	-	-	-	-

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Table – 17 : Exports of Gold-Clad Metals/Base Metals, NES (By Countries)

Country	2010-11		2011-12	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	1	862	++	1423
USA	++	734	++	1195
Japan	-	-	++	213
Germany	-	-	++	15
Other countries	1	128	-	-

Table – 18 : Imports of Gold (Non-Monetary & Monetary): Total (By Countries)

Country	2010-11		2011-12	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	969738	1847287524	1078354	2699007054
Switzerland	537650	1025704859	556892	1396205159
UAE	179052	341088079	189444	474853138
South Africa	104280	197279154	124240	310726337
Australia	73495	137466109	62146	156311799
USA	25898	48621504	27753	67185012
China	3330	6649743	26060	64300682
Germany	4246	8167267	11702	29443548
Hong Kong	9594	18352774	11018	27859154
UK	8757	17462221	11357	27260165
Korea, Rep. of	524	1036152	6764	17150173
Other countries	22912	34097162	50978	127711887

Table – 19 : Imports of Gold, Non-Monetary: Other Semi-manufactured forms (By Countries)

Country	2010-11		2011-12	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	51961	102954219	49905	116688900
Switzerland	40881	80681059	23050	52662937
UAE	4592	9086272	7318	17673227
South Africa	8	14594	6610	15763760
UK	300	592961	3160	6714904
Australia	1323	2990277	2400	5798470
USA	1392	2787929	2474	5697095
Hong Kong	65	126984	1466	3812339
China	705	1369453	1314	3311478
Malaysia	-	-	532	1134514
Germany	1496	2904087	357	930721
Other countries	1199	2400603	1224	3189455

Table – 20 : Imports of Gold, Non-Monetary: Other Unwrought Forms (By Countries)

Country	2010-11		2011-12	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	917775	1744333207	1028449	2582318154
Switzerland	496769	945023800	533842	1343542221
UAE	174460	332001806	182126	457179911
South Africa	104272	197264560	117630	294962577
Australia	72172	134475832	59746	150513329
USA	24505	45833521	25279	61487917
China	2625	5280290	24746	60989204
Germany	2749	5263136	11345	28512827
Hong Kong	9529	18225789	9552	24046815
UK	8457	16869260	8197	20545261
Korea, Rep. of	523	1033814	6721	17044371
Other countries	21714	43061399	49265	123493721

Table – 21 : Imports of Gold, Non-Monetary, Powder (By Countries)

Country	2010-11		2011-12	
	Qty (kg)	Value (₹'000)	Qty (kg)	Value (₹'000)
All Countries	2	99	-	-
USA	1	54	-	-
Germany	1	45	-	-
Other countries	-	-	-	-

Table – 22 : Imports of Gold-Clad Metals/Base Metals, NES (By Countries)

Country	2010-11		2011-12	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	++	522	++	1939
Italy	-	-	++	1293
USA	++	55	++	646
Other countries	++	467	-	-

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FUTURE OUTLOOK

India is a traditional and stable market for gold consumption. The present and future production of gold will not be sufficient to meet the ever increasing demand. Therefore, efforts will be required to reduce the gap between production and demand. The projected imports at the growth rate of 11% during 2012-17 are 9,305 tonnes at an average of 1,861 tonnes per year, as per the report of the Working Group for 12th Five Year Plan,

Planning Commission of India. During the 12th Plan period, gold production is projected at 28 tonnes from mines and 16 tonnes as by-product, totalling 44 tonnes by 2015-16 considering the expansion of existing producers and new mines in private sector viz, MSPL, Geomysore, Deccan Gold, etc.

As per the World Gold Council estimation, gold consumption in India during 2011 was 1,167 tonnes.