

Production of 'By-product' Gold in India

Our interest in the production of gold in States other than Karnataka was aroused ever since Indian Bureau of Mines (IBM) started furnishing figures of production of 'secondary gold' in their Monthly Statistics of Mineral Production from 1985 onwards. Our request to the Bureau for seeking details on this production remains unanswered even to this day after a lapse of more than ten years.

Formerly it was Bihar which showed this production but now Gujarat has also been added with a production of not less than five tonnes in the year 2000-2001! The editorial note published in the January issue (*JGSI*, v.59, 2002, pp.5-8) has elicited the following rejoinder from the Controller General, Indian Bureau of Mines, Nagpur:

1. You have raised a question regarding the source of gold metal in the copper slimes generated in the plants located in Jharkhand. You may be aware that India is a vast country with tens of thousands of micro-economic units engaged in exploration, production, consumption of minerals and metals, and the controlling and monitoring powers are distributed amongst various Central and State Government departments. Even with statutory back up it is next to impossible for any single organization to collect, collate and publish the entire gamut of information within a short span of a few months, and the Indian Bureau of Mines does this for much of the information on non-statutory basis – through repeated contact and persuasion. Indian Bureau of Mines tries to do justice to the task by concentrating on the more important of the units and even though some of the information might simply not be forthcoming from the primary sources. Although majority of our readers in India and abroad are satisfied with the coverage and timeliness of the information published by us, we are not oblivious of the fact that improvement is a continuous process and always there will be some gap or other that will need to be filled up. At any point of time, we try to reflect in our publications the information that are available at that point of time.
2. Your suggestion that instead of 'secondary gold' the term 'by-product gold' would be more appropriate is well taken.
3. You have observed that the information regarding production of copper in Gujarat does not find a place in our Monthly Statistics of Mineral Production. Since the Geological Society of India buys a number of IBM publications (and we always look forward to your invaluable purchase orders), you may already have observed that the focus varies from publication to publication. Since publications like Monthly Statistics of Mineral Production, Statistical Profile, etc., focus on the copper concentrates produced in India (and not imported) obviously Gujarat and Tamil Nadu States would not figure against 'copper concentrates' in these publications. However, the Indian Minerals Yearbook has much more comprehensive coverage and the information of your interest has already been reflected in the Indian Minerals Yearbook 2000 issue (p.343). Incidentally you may be happy to know that we are now about to release the '2001' issue, and as in the past, we will look forward to your valuable orders.

4. Regarding the annual production of 'by-product gold' in Gujarat State we have checked up and found that the figure 5097 kg is in order. For your ready reference the monthly break up and the figures as published in the April 2000 to March 2001 issues of the Monthly Statistics of Mineral Production are given below:

Production of gold in Gujarat State during April 2000 to March 2001

Month	Quantity (in Kg)
April, 2000	1
May, 2000	122
June, 2000	100
July, 2000	357
August, 2000	383
September, 2000	463
October, 2000	607
November, 2000	618
December, 2000	1166
January, 2001	288
February, 2001	416
March, 2001	576
Total	5097

While expressing gratitude for the courtesy extended to us by taking notice of our comments, we have to regretfully point out that none of the points raised by us has been specifically answered.

We had sought information on the source of concentrate yielding gold in anode slimes at the smelter operated by Hindustan Copper at Ghatsila. The information is not forthcoming even after ten years of our originally taking up the matter with the Bureau.

Another point we raised was about the production of by-product gold – as much as five tonnes in the year 2000-2001 in Gujarat, a fact not known to many. The reason for including production of 'by-product gold' in the monthly statistics and not furnishing any information regarding production of the 'main product copper' has not been made clear. The production of as much as five tonnes of gold and thousands of tonnes of copper are important developments which ought to have been highlighted. Even in the Indian Minerals Yearbook 2000 information furnished is patchy and inadequate considering the importance of this development and the necessity of informing the public of vital developments in the mineral and metal sectors.

For example, there is no mention of the substantial smelting capacity for copper created in India in Gujarat and Tamil Nadu in the chapter on 'Indian Mineral Industry and National Economy'.

In the Chapter on 'Exploration and Development', the establishment of additional smelter capacity in Gujarat and Tamil Nadu has not even been mentioned, let alone highlighted. There is no mention of copper and gold in the chapters on 'Research and Mineral Development'. Large quantities of copper concentrates are imported but actual figures of cargo handled in the ports of Tuticorin and Kandla are missing.

The statement that "Even with statutory back up *it is next to impossible* for any single

organization to collect, collate and publish the entire gamut of information within a short span of few months" is most unfortunate for an organisation like IBM, with regional branches all over the country. Production of five tonnes of gold and thousands of tonnes of copper valued at hundreds of crores of rupees is not a trivial matter and it is expected that the organisation should get fully posted with all aspects of this major development.

The conservation of mineral resource is an important function of the Controller General. Since the year 1984 gold is being produced in Bihar from smelter tailings. Is it not important to know the gold content in the copper ore and concentrates being produced at different centres and smelted at Ghatsila? The auriferous character of the copper ores at Khetri and Singhbhum belts has been known for more than twenty years but no steps have been taken to establish the resource potential of this new source of gold.

In mineral production of Bihar (p.177) production of gold finds a place but not copper. The same is the case with Gujarat and Tamil Nadu. To that extent State summaries are incomplete.

Controller General has furnished figures of monthly production of gold from Gujarat in support of the figure of 5097 kg as the production in 2000-2001. There are appreciable differences in figures furnished now by the Controller and actual figures published in the Monthly Statistics as can be seen from the comparative figures furnished in the following table. Differences have not been reconciled and corrections furnished in the monthly statistics.

Production of by-product gold as furnished in Monthly Statistics and now indicated in IBM's letter during April 2000 to March 2001

Month	Quantity shown in Monthly Statistics	Quantity now furnished in the letter of IBM
April, 2000	-	1
May, 2000	-	122
June, 2000	-	100
July, 2000	357	357
August, 2000	383	383
September, 2000	463	463
October, 2000	350	607
November, 2000	618	618
December, 2000	1166	1166
January, 2001	288	288
February, 2001	250	416
March, 2001	576	576
Total	4451	5097

We had hoped that State Departments of Mines and Geology and researchers in our National Institutes and Universities would take interest in making an in-depth study and identify the source of gold in the base metal sulphide deposits presently exploited at different centres like Khetri, Malanjkhand, Rakha and Jaduguda. This is a type of relevant research which is urgently needed.

We are concerned to see appreciable quantities of precious metals in short supply being discarded in slag dumps. Mineral conservation dictates positive action being taken in recovering precious metals known to be present in association with copper. Action is also expected to be initiated in ascertaining the gold content of copper ore and concentrates in the different mines presently in operation.

In a similar fashion, we must be losing appreciable quantities of Platinum Group Elements (PGE) in the chromite ores being exported to foreign countries, particularly from Orissa (the Baula-Nausahi belt). With sophisticated instrumental/analytical facilities (like ICP-MS and EPMA) currently available in the country, a concerted effort should be mounted to characterise our mined sulphide/oxide ores with special reference to the mode of occurrence of gold and other precious metals like PGE, etc.

We hope that such an effort is undertaken on priority basis by organisations like IBM with all the laboratory and beneficiation facilities at their disposal, so that precious commodities are not lost forever.

Our sole object in drafting these notes is to focus attention of our readers on an important development, the setting up of coast-based smelters and production of both copper and gold, which are in short supply. Incidental to this development has risen the need to carry out an intensive survey to locate volcanogenic sulphide deposits carrying values of precious metals. The Bureau, the official organisation entrusted with the responsibility of promoting mineral development and conservation should play a more positive role in informing and educating the community to enable them to take an intelligent interest in the mineral resources of our country. The task of collecting information on production and utilization will bear fruit only when information furnished is more complete, is intelligently analysed, summarized and projected for a better appreciation of the developmental aspects of the mineral industry in this country.

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CORRIGENDUM

In the Editorial (JGSI, Vol.59, No.4, p.298), the figure in the table (fourth column bottom line - money at 10% p.a.) should read as 39,500 instead of 16,080. The error is regretted.