

CORRESPONDENCE

“HOW MUCH GOLD IS THERE AT HUTTI”

(Some Comments on the Editorial Published in vol. 44(4), pp. 359-365)

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The editorial on the above topic has firstly focussed attention on the large potential of the Hutti belt and by analogy of the other gold mineralised areas of the greenstone belts of Karnataka and secondly on the need to break from the past and to develop more dynamic and positive approaches to gold resource development. The editorial is timely considering the stagnation in the metallic mineral industry in India.

I had the privilege of being associated for a decade and a half with uranium exploration, ore reserve development, exploratory mining and matching of ore reserves with inventories for nuclear power production. The lessons I learnt in this great effort render it possible to view the data presented in the editorial in a more positive and perhaps pragmatic perspective.

The reserves of 614 tonnes estimated on a basis well spelt out includes some proved, indicated and inferred categories but a major part would fall in the category of “potential” reserve, or at best “possible” category. The figure provides an index for the scope for further investment, and if attracting foreign capital is one of our objectives, the data presented would attract investors who are looking for the appropriate scale of investment that Hutti offers. Such investors know that they will have to invest in more detailed prospecting and development efforts but the data presented in the editorial would indeed be a guiding factor for taking necessary decisions.

The figures on actual grade of ore mined and average grades presented are revealing. The average grade mined in the Main mine is 22 g/t as against the estimated grade of all development of 8.32 g/t. These figures for the Village mine are respectively 6.7 g/t and 3.97 g/t. These figures imply very high cut-off grades. In fact the cut-off in the Main mine seems to be even higher than that in the Village mine. This raises the question whether such high cut-offs are realistic keeping in view, on the one hand, the economics of mining and on the other the health and life of the mine. Obviously, if at least a large part of the reserve of 614 tonnes estimated at average grades of 2.74/2.16 g/t is to be produced economically a mining approach very different from what is now practised is needed that will ensure much larger tonnages being mined with much lower cut-offs keeping at the same time the operations cost-effective. Otherwise the reserve of 614 tonnes of gold would be never worked economically and a lot of low grade ore with valuable metal content will be left in the ground, that can never be recovered economically. There seems to be an urgent need to approach the whole question using more modern geostatistical methods, for which all the expertise seems to be available in the country with various organisations. May be, the Hutti Gold Mines Co. Ltd. is already on this task. The editorial and the recent publication on Hutti (Mineral resources of India Series 2, Geological Society of India, 1990) provide a lot of information that underline the need for urgent geostatistical evaluation.

Among many factors that influence mining economics, the very large time taken for exploration, drilling and development and finally exploratory and production mine development is, perhaps, the single negative factor in India. Apart from slowing down the whole process of resource generation and production, it increases the cost by two or three fold, merely due to idle capital invested, not to mention the progressive escalation of costs. In comparison, I furnish below the details of the speed of development of the Olympic Dam deposit, some 650 km NNW of Adelaide. The deposit was discovered in 1975, was taken up for detailed prospecting in 1979 and by 1983 a great deal of information was gathered on an

orebody that lies concealed under some 300 m of cover rocks. A commitment for production was taken in Dec 1985 and the mine started production of 1.5 million tonnes of ore annually by Nov. 1988 from levels 300 m below ground. Such a scale of operation alone can render mineral development competitive in the world market. One approach in achieving this is the suggestion contained in the editorial, namely the formation of a Gold Authority. The authority would succeed if manned by competent men and works in a culture and milieu different from what prevails in our Corporations and Departments. This task is relatively easier when partially developed mines like Hutti are available but a pragmatic approach aiming at speedier drilling, mine development and production has to be the keynote to achieve success. The alternative to this suggestion is to throw open the whole of Hutti and other areas to both Indian and Foreign and/or collaborative efforts. The pros and cons of these two approaches needs to be debated.

As one who has grown with the Mineral Industry and associated with it for some four decades, I would welcome the editorial on Hutti, which, to me is merely symbolic of what our approach to mineral exploration needs to be in many other areas of metallic mineralisation.

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It is unfortunate that an unseemly controversy has been generated over an article authored jointly by Dr. B.P. Radhakrishna and Mr. L.C. Curtis. The authors made an assessment of the potential for gold production in the country taking Hutti as an example because of data available due to past work, projections based on accepted geological indicators and experience. The assessment was arrived with the understanding that the deposit will extend to a depth of 3000 m. as in the world famous Kolar Gold Mines and one lode called the Main reef in Hutti has reached a depth of more than 1000 m.

There can be no controversy with regard to the total reserves of 214.87 lakh MT at 5.86 gram/tonne with a gold content of 126 tonnes. According to expansion programme now under implementation the mine is planned to produce 9 lakh tonnes per annum from the year 1997-98. This planned increase is from its present performance of less than 2 lakh tonnes per annum. Even at 9 lakh tonnes per year production, the life of the mine will be nearly 24 years, producing 79 tonnes of gold valued at Rs. 3555 crores by today's gold price.

As the mine development is extended in depth the reserves get updated increasing the confidence level with further addition to reserves.

This information itself is sufficient to plan for more than 25 years mine life.

Low production in Hutti was due to the then existing conditions and controls regulating sale of gold though full capacity utilisation could have been planned increasing gold production and delivery to Govt. of India. The management is now fully aware of the present changed situation and no time is lost in planning for large scale production. By 1997-98 the mine is planned to produce 9 lakh tonnes of ore and 3285 kg of gold from the present Hutti mine alone. Modern methods of mining and hoistings totally new to Hutti, is being introduced which will soon put Hutti on the gold map of the world.

Further, the Company is vigorously pursuing exploration and mining activity in many other areas. According to projections in their corporate plan the Company will produce additional 1734 kg of gold from the year 1999. This is a big leap forward from the present less than 1000 kg.

The present controversy will not deter any prospective investors as they are totally unrelated to the subject of exploration for gold in the vast schist belts of Karnataka outside the present Hutti mine.

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(3)

I have read with interest the editorial note - "How much gold there is at Hutti" (JGSI, v.44, October, 1994 No.4, pp. 359-365) and also the subsequent correspondence on the subject (v.45, January 1995, No.1, pp. 107-110). Although I appreciate and understand the prime concern of the authors of the editorial note in focussing attention on the resource potential of Hutti Gold Mine Block in particular and Hutti Greenstone belt in general, I cannot agree when they term their assumption on "the possible quantity of gold" (p.303) as reserves of 658 tonnes of gold to a depth of 3 km (p.364). At best, this could be taken as "resources" identified by geological evidence as the ore zone below a depth of 700 m is not measured or sampled in any organised way. This cannot be given even the status of geological reserves either, as the tonnage and grade are not compiled from measurements, samples and geostatistics.

It is certainly not a fallacy (as made out by M. Ziauddin) to state that granite-greenstone are an important source of gold all the world-over. Lode gold deposits which are a characteristic feature of Archaean granitoid-greenstone terrains have accounted for a high percentage of world gold production in the past, and contain a high proportion of known gold resources. It is also correct that a higher percentage of gold has also been produced from other geological formations of different ages.

The significance and importance of locating potential areas/blocks in the granite-greenstone belts in cratonic areas in our Country cannot be underrated.

There are more than 100 reported occurrences in the greenstone belts of Karnataka and Andhra Pradesh and many of the belts have not been prospected or explored and most of them have not been covered by multi-sensor airborne geophysical surveys which are very essential if we have to locate new deposits. Although Dharwar Craton is geologically comparable to Yilgarn Craton, Australia, the gold endowment of the former is lower than that of the latter which may be ascribed to a considerably lower level of exploration. Based on the available data, there is no cause for holding a pessimistic view on the immense potentiality of gold in India.

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The authors of the original note have sent the following reply:

Our innocuous attempt at estimating the resource of gold present in a section of the Hutti Mining Lease block has been blown out of all proportions. Comments and counter comments have been widely publicized in the Press with many errors, and misperceptions amounting to a disservice to the Hutti Gold Mining Company and the Geological Society of India.

Our earlier note published in the October 1994 issue of the Journal was not just guess work but based on the successful results of the last 45 years of operation at Hutti, supported by certain valid permissible assumptions. It is an assessment of the overall extent of gold present in the Hutti Mining Block. The note never made a claim that Karnataka was sitting on a mountain of gold. Assuming a value of only 1 gm/tonne of gold in the unexplored portion of the Hutti Block, the gold contained in all the reefs would amount to 614 tonnes. This amount of gold was potentially available. How much of this gold could be extracted cannot be predicted as many factors are involved, particularly advances in mining and metallurgical practices which enable exploration of increasingly lower grades of ore. Our attempt was only to illustrate the encouraging resource potential in a small section of the Hutti Schist Belt.

Recent advances in sampling techniques which reduce to a large extent the effect of highly irregular distribution of gold have proved that areas and samples formerly labelled as 'barren' in many cases actually carry significant values.

What is now needed is action and not endless debate. We feel justified in focussing attention of Governments, industrialists and the public on the paramount need of developing the known gold occurrences, instead of the dubious act of providing incentives for the import of gold at enormous cost leading the Country to bankruptcy. Resource utilization is what is needed, which is the only way to our salvation.

B.P. RADHAKRISHNA
L.C. CURTIS

(As considerable discussion has taken place on this subject, the correspondence on this topic is closed-Ed.)

Love of Nature

There is pleasure in the pathless wood
There is rapture in the lonely shore
There is society where none intrudes
By the deep sea, and music in its roar
I love not men the less, but Nature more.

Lord Byron

Corrigendum

"Grain growth parameters and mineral zoning: A comparative study from the Humboldt mountains, East Antarctica" published in vol.44(6), 1994, pp.627-635 of the Jour. Geol. Soc. India.

1. In Fig.1. (p.628) scale of the map should be 5000 m instead of 500 m.
2. Table III (p.633), column 3, heading should be \bar{L} instead of \underline{L} . Further, values of \bar{L} for sample no. 58, 55AII, 27 and 86 should be respectively 2.38×10^{-1} , 3.16×10^{-1} , 2.92×10^{-1} and 3.35×10^1 .
3. In the last column unit of J should be no./cm³/s instead of no.cm³/s.