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## STATE'S RÔLE IN THE RECONSTRUCTION OF INDIA'S MINERAL POLICY

THE Geological Societies in India have been organising of late, symposia for formulating a national mineral policy for India. The trend of discussions which have taken place so far discloses a strong feeling for nationalisation and conservation of India's mineral resources for her own needs. If 'nationalisation' were to mean that the Central Government should hold the mineral rights throughout India and own all the mines, several complications are bound to arise. But if it suggests that the rights for minerals as distributed within the territorial jurisdictions of the several Indian States and British Provinces should vest in their respective Governments, the question assumes a simpler aspect. In fact, in most of the Indian States, and even in many of the British Provinces—except perhaps where permanent land settlement prevails, as in Bengal, Bihar and Orissa—the mineral rights vest already in their Governments. Whatever else may be the reason, it is not the lack of State ownership of mineral rights which has been the root cause for the unsatisfactory and tardy growth of India's mining and mineral industries.

So far, most of the Indian States and Provinces have left the prospecting and mining of their minerals to private enterprise. Foreign concerns with adequate mining experience and ability to command the required capital, took advantage of this and got possession of some of the valuable deposits of metalliferous minerals, like the ores of gold, manganese, chrome and copper. Many of these concerns generally conduct their mining with considerable skill and forethought, adopting the latest and the most advanced methods. The country, no doubt, has been largely benefited by their enterprises; but it is questionable whether the return it has got is quite proportionate to the total drain of its mineral wealth. Indian capitalists have fought shy in the past of risking their funds in mining, and the few who have ventured on these lines have generally concentrated their attention on raising only the minerals which can be readily exported without any further treatment or elaborate processing.

Many of the smaller concerns—due to their inadequate provision of funds, want of technical experience, absence of forethought

in planning, need of co-operative efforts, and also from the lack of vigilant State control to prevent and prohibit slipshod works—have been following the most wasteful and unprofitable methods of mining. The unscientific and uneconomical ways in which the coal deposits of the country are being mined and used have been pointed out so often that it is hardly necessary to mention them here. The reprehensible practice of scooping out only the best and the most easily accessible portions of the deposits leaving the rest untouched, would lead to the rapid depletion of most of our economic mineral resources as it has already happened in the case of manganese ores and mica. It should be remembered that mineral deposits, unlike forest or agricultural products, are the irreplaceable assets of the country. They cannot be accelerated in growth, or rejuvenated, by any scientific skill. No human efforts can either create a deposit if it does not exist or replenish that which may become depleted by extraction. Consequently, to get the utmost out of any deposit, scientific development and intelligent mining are absolutely essential and should be insisted on by the State. Large scale, serious efforts have yet to be made to investigate the possibilities of beneficiating the low grade ores of useful minerals, like chrome and manganese, and to use them widely in suitable local industries. An adequate local demand remains to be created for minerals like China clay, quartz, felspar and limestone which are widely distributed in the country and which can serve as raw materials for several useful industries. These common minerals have hardly attracted any attention and are lying almost as if they are unutilisable waste.

The growth of India's mining industries has proceeded so far without any organised plans or policies initiated by the State tending to meet the needs of the country at large. It is time for the State to change its passive policy. It cannot serve the country's interests effectively if it merely functions as the custodian of its mineral wealth or only an organisation for the collection of royalty. It should actively participate in the development of its mineral resources, formulate workable plans, initiate and aid the establishment of suitable mineral industries and guide their growth, and also manage a few—by its own organisations—

to create confidence in the public and raise their interests in mining matters.

It may not be practicable for any Government to manage all the large-scale mining and mineral industries which can be suitably set up in the country. It is not desirable either that it should do so and prevent private enterprise. A concerted and co-operative effort between the State and its public for developing the country's mineral resources may work all the better. Indian capitalists are now coming forward to invest some funds in large-scale mining and mineral industries if they can get reliable technical advice and guidance. As far as possible it should be the duty of the State to furnish such technical advice when sought for, charging—if necessary—a reasonable fee.

The geological services available in India are very inadequate for such purposes considering the vastness of the country with its mineral deposits widely scattered. The Indian Geological Survey is stationed at Calcutta and its insufficient staff cannot serve the present needs of the whole country. Some of the enterprising Indian States have organised their own geological survey departments; but even these are poorly staffed and ill-equipped for modern methods of intensive investigations relating to mineral prospecting, mining, or ore treatment. Geology, as a private profession, has been hardly remunerative in India, as it has been in the advanced countries in the West; and, consequently, we find very few qualified and competent men practising as consulting geologists and mining engineers. As the first essential for a nation-wide policy to galvanise the rapid growth of India's mining and mineral industries, the State should create at once an adequate, efficient geological service for the country.

A Mineral Survey Department—with an adequate staff of competent geologists—should be organised immediately in each of the provinces, and such of the bigger Indian States as do not have that department, to conduct an intensive mineral survey. These departments should collect, as early as possible, accurate information on the extent and quality of all the economic minerals distributed in their respective territories. They should handle all problems connected with mineral extraction and utilisation, and exercise technical control over the mining and prospecting works of mineral concessionaires, to see that they

open out the deposits on approved systematic lines. They should do all the investigatory work in respect of the important deposits of their useful minerals; and may, with advantage, mine a few on the best approved modern methods to serve as models for the others,—like what Mysore has done in the case of some of her chromite, kaolin, and graphite deposits. Want of space precludes me from going into further details on the functions of these departments; in general they have to act as advisory institutions to their respective Governments as well as to the public on all matters connected with geological and mineral investigations.

These States and Provinces should have each, in addition, a "Mineral Utilisation Board", composed of the heads of the Mineral, Industrial Chemistry, Industrial Engineering and Industries Departments, to investigate ways and means for the local utilisation of minerals and to advise their respective governments as to the industries which they can advantageously set up.

It is very rarely that a single State or Province will have all the advantages it needs for establishing successfully any large-scale mineral industry. The best interests of India require a certain measure of co-operation and concerted planning among her various territorial units, and a free interchange of mineral products between the Provinces and States. To effect this, the Central Government should constitute a "National Mineral Utilisation Board" (apart from the present Utilisation Branch of the Indian Geological Survey) consisting, among others, of the heads of various provincial and State mineral survey departments, as its *ex-officio* members, to deal effectively with all mineral problems affecting the whole of India. This Board should co-ordinate the efforts of the several provincial and State mineral organisations, and discuss and decide the group of mineral industries which each of them can advantageously set up without any hitch or unhealthy competition amongst them. It should have, working under its general direction, several standing advisory committees like the following:—(1) Ceramic and refractory minerals committee, (2) Abrasive minerals committee, (3) Mineral Fuels committee and (4) Metalliferous minerals committee. Each of these should consist of a small body of experts who could deal authoritatively with problems connected

with their sections and advise the National Mineral Board.

The Government of India should set up as early as possible a well-equipped "Central Mineral Research Institute" (on the model of the United States Bureau of Mines) to which any problems arising in the country on the various aspects of ore dressing, ore concentration, metallurgical treatments, etc.,—which the provincial and State organisations for want of adequate facilities cannot investigate—can be handed over for solution and advice. Apart from these few suggested ways there are several others in which the Central and Provincial Governments can aid the active growth of mining and mineral industries in India, which cannot be dealt with here.

The question of India's future policy in respect of conserving all her mineral resources is a delicate problem which needs handling with care and forethought. Nature's gift of her mineral wealth has not been based on the specific needs of any particular nation. No single country in the world can be regarded as absolutely self-sufficient in respect of all her mineral requirements for war and peace-time purposes. The present-day civilisation needs for its existence several minerals, and new ones are being continually added on to the list of those which may be considered as essential for the further progress of civilisation. Sir Thomas Holland, in his opening address at the Conference on "Mineral Resources and the Atlantic Charter", pointed out the other day (July 1942), that no civilised country can now exist without an adequate and sufficiently varied supply of mineral products and that tariff barriers, while capable of hampering international trade in mineral products, cannot prevent these trades altogether without creating conditions ultimately leading to war. He urges in consequence the formulation of measures to facilitate the international flow of mineral products.

The absolute need and the advantage of having a free interchange of mineral products cannot be gainsaid; but no good will result if the dominant nations were to decide these policies and jointly control the minerals of the former colonies and dependent States, prejudicial to the interests of those or of other weaker countries. Each country should have full scope to decide what its reasonable mineral requirements would be for its own development,

Among her mineral possessions, India can list, in all about a hundred or so of different types, which may serve for various industrial purposes. It would not pay to export, in their raw condition, many of these which may be classed as common minerals. They may be used advantageously in some one or the other of the several local mineral industries to which each would be found best suited. Among the minerals of international importance which would be required in the world's essential industries, India may possess a dozen including her high grade iron ores, bauxite, manganese ores, chromite, mica, monazite, ilmenite and a few others. Excepting iron ores and bauxite, India has been exporting the others, till now, in unrestricted quantities; and it is highly doubtful whether we have these minerals in such super-abundance—far in excess of our requirements—as to continue to share them for long, as common raw materials, with other countries.

India, in its present stage of industrial development, may not be conceded to be

standing in need of a large share of the minerals of international importance; but the country's growing requirements necessitate the setting up—not at some distant future but immediately—of several essential industries which would require them as their raw material. In any consideration for an international mineral policy India cannot stand in isolation, and we do not mean either that she should do so and play the dog in the manger role in respect of her mineral resources. The Government of India, the Provinces, and the States, should endeavour to take an accurate stock of their mineral resources—as suggested above—and decide upon the various mineral industries which each could advantageously set up, so that when the time comes—which may not be far distant—for any considerations of international sharing of resources of essential minerals, India may have her plans ready and show the world her own need for most of the minerals which she possesses and for a few more which she has not got.

B. RAMA RAO.

## THE CURRENT SCIENCE ASSOCIATION

FRIENDS of *Current Science* will learn with great satisfaction that the Journal will henceforward be conducted and issued under the auspices of the "CURRENT SCIENCE ASSOCIATION", a body which has been registered under the Societies' Registration Act 21 of 1860.

During the last ten years of its eventful career, the Journal has steadily earned for itself a prominent place in the field of international science and this happy circumstance is due to the whole-hearted and active support it has received from the several Governments, Universities, Research institutes and the scientific workers in this country. During this period of its infancy, the Journal has had its share of teething troubles which fortunately have now been successfully overcome. The Journal now enters its second phase of development. With a view to ensure an ordered and steady progress, the Journal has been invested with a Constitution consistent with its All-India character.

At the end of 1941, the Editorial Board invited an *ad hoc* Committee to constitute itself and draft a constitution for the

management of the Journal. After framing the Constitution, the *ad hoc* Committee advised the Editorial Board, at a meeting held on January 13, 1942, that immediate steps should be taken to register the "CURRENT SCIENCE ASSOCIATION". This suggestion was brought up for consideration before the Board of Editors at a meeting held on February 5, 1942, when they resolved to adopt the following:—

1. To register the "CURRENT SCIENCE ASSOCIATION" with a membership not exceeding one hundred.
2. To appoint a Working Committee to administer, direct and manage the affairs of the Journal.
3. To transfer all the assets and liabilities of the Journal to the Working Committee of the Association.

The Working Committee has been constituted under the Presidentship of Sir Jnan-chandra Ghosh; the Committee has appointed an Editorial Committee consisting of an Editor, a Secretary and a Treasurer to whom responsibility of the routine running of the Journal has been entrusted.