CHAPTER - IV

Regulation and Conservation

Indian Bureau of Mines

1. Introduction

1.1 The Indian Bureau of Mines (IBM) is a subordinate organisation under the Department of Mines, Ministry of Mines and Minerals. It is engaged in the promotion, conservation and scientific development of all the mineral resources of the country, other than coal, petroleum and natural gas, atomic minerals and minor minerals.


1.3 It provides Technical Consultancy Services to the mining industry for the geological appraisal of mineral resources, and the preparation of feasibility reports of mining projects, including beneficiation plants. It prepares mineral maps and a countrywide inventory of mineral resources of leasehold and freehold areas. IBM also functions as the Data Bank of Mines and Minerals and publishes statistical periodicals. It also brings out technical publications/monographs on individual mineral commodities and bulletins of topical interest. It advises the Central and State Governments on all aspects of mineral industry, trade and legislation.

1.4 IBM imparts training to technical and non-technical officials of IBM and also persons from the mineral industry and other agencies in India and abroad.

2 Organisational Set-up

2.1 The IBM is organised into four functional divisions, namely, (i) Mines Control and Conservation of Minerals (MCCM) Division, (ii) ore Dressing and Technical Consultancy Division, (iii) Mineral Economics, Statistics, Research and Publication Division, and (iv) Planning and Co-ordination Division having two sub-divisions:

2.1.1 Administration, Establishment matters (including training), accounts with all other administrative and financial matters, and

2.1.2 Planning and Co-ordination.

2.2 IBM has its headquarters at Nagpur and twelve regional offices at Ajmer, Bangalore, Bhubaneswar, Calcutta, Chennai, Dehradun, Hyderabad, Jabalpur, Margao (Goa), Nagpur, Ranchi and Udaipur and two sub-regional offices at Guwahati and Nellore.

2.3 The IBM has well equipped ore dressing laboratories and pilot plants at Nagpur, Ajmer
and Bangalore.

3. Performance Review

3.1 The performance of IBM in respect of its main activities during the period under review is indicated in Annexure-III. During the year 1999-2000 (up to December 1999) 3,306 violations of Mineral Conservation and Development Rules (MCDR) 1988 were pointed out in respect of 1,404 mines and 759 violations were fully rectified. One hundred and thirty-one prosecutions were launched in various courts. Twenty-eight cases were decided in favour of IBM and 36 cases were compounded.

3.2 Cumulative number of mining plans received by the IBM at various Regional Offices since its introduction up to the end of December, 1999 were 9,426. Out of these, 7,317 mining plans were approved, 1,007 rejected, 751 withdrawn by the parties and 170 were pending with the parties for modification with reference to the comments conveyed to them after scrutiny, 143 mining plans were under scrutiny with the IBM at various Regional/Zonal offices and 38 mining plans were pending with the Directorate of Mines Safety for their comments. However, the status of disposal of mining plans during 1999-2000 (up to December, 1999) along with the actual of previous two years is given in Annexure-III separately.

4 Measures for Abatement of Pollution and Environmental Protection

4.1 The IBM continued its activity as a regulator and also as a facilitator for abatement of pollution of environment consequent to mining operations. As a regulator, IBM enforces the provisions of environmental protection under MCDR, 1988 by way of inspection of mines. While approving the mining plans and the schemes of mining, IBM ensures that environment impact assessment studies have been carried out and to that effect environmental management plan has been incorporated for its effective implementation.

4.2 As a facilitator, IBM takes initiatives to organise Mines Environment and Mineral Conservation (MEMC) Weeks every year in important mining centres through its regional offices to promote awareness amongst mine owners for minimising environmental pollution and for restoring mined out areas. During the year 1999-2000 (up to December, 1999), two such programmes were organised under the aegis of Jabalpur and Nagpur Regional Offices.

4.3 After the enforcement of MCDR, 1988, extensive afforestation has been undertaken in the mines for stabilisation of waste dumps, reclaimed area as well as over barren areas covering the periphery of mining areas, roads, plant sites, etc., for maintaining greenery and controlling the pollution. So far, nearly 4.57 crores of trees covering an area of about 21,500 Hectares with an overall survival rate of 71 per cent have been planted.

5. Preparation of Mineral Maps
5.1 During the year 1999-2000 (up to December, 1999), preparation/updation of mineral maps of bauxite in Goa, Karnataka, Maharashtra and Tamilnadu and iron ore in Goa, together covering about 18,000 hectare area along with corresponding forest overlays was in progress. Besides, ten index maps of copper, lead and zinc in Andhra Pradesh and Rajasthan were digitised.

6. Mineral Beneficiation

6.1 Mineral beneficiation studies including mineralogical testing and chemical analysis is intimately related to both conservation and development of mineral resources. During the year 1999-2000 (up to December, 1999), 56 ore dressing investigations, 43,518 chemical analyses and 1,869 mineralogical examinations were completed. Besides, 6 in-plant studies were carried out during the period.

7. Inventory of Mineral Resources and Market Survey Report

7.1 Preparatory work for the five-yearly updating of National Mineral Inventory as on 1 April, 2000 was in progress. Besides, a Handbook on "National Mineral Inventory as on 1 April, 1995-An Overview" was released.

7.2 Market Survey study on China clay was completed and the report was under printing. Another Market Survey study on Granite was in progress.

7.3 An annual bulletin on Copper-Lead-Zinc, April, 1998-March, 1999 issue was under printing. Besides, three quarterly reports on End-use metal consumption for Copper-Lead-Zinc for quarters ending March, 1999, June, 1999 and September, 1999 were prepared.

8. Statistical Publications

8.1 IBM disseminates statistical information on mines, minerals, metals and mineral based industries through its various publications. Information on mineral production, stocks, dispatches, employment, inputs in mining, mining machinery and related matters received from the mine owners on statutory basis under the MCDR, 1988 an ancillary statistics on metals production, mineral trade and market prices of mineral: revenue from the mining sector, rent, royalty and cess on minerals, etc., from other agencies is compiled regularly by IBM.


9. Consultancy Service

9.1 IBM provides technical consultancy services on prescribed charges for geological appraisals, survey of the areas, preparation of feasibility study reports, environment impact assessment and environment management plan, selection of suitable mining equipment, evaluation of feasibility report prepared by other consultants, financial institutions, etc. The
assignments completed during the year 1999-2000 (up to December, 1999) include (i) Profitability analysis of four MSMC mines for M/s. MECL, (ii) Preliminary investigation of tin mining lease in Malkangiri district, Orissa for M/s. United Western Bank Ltd., Overseas Branch, Mumbai, (iii) Preliminary geological appraisal of Panchey Khani Copper Mine for M/s. Sikkim Mining Corporation, (iv) Sampling of limestone, raw mix and clinker for M/s. Raymond Ltd., (v) Mining Plan of Badari Limestone Mine for Shri Rajkishore Agrawal, (vi) Annual check measurement of coal stock (1998-99) at various collieries of M/s. Coal India Limited and (vii) Valuation of iron ore stock and mining machinery at Redi Mines of M/s NIMCO for the State Bank of India. Besides, 9 assignments on preparation of mining scheme/preliminary geological appraisal reports were in progress.

10. Technical Publications

10.1 IBM brings out technical publications relating to mines and minerals, mineral based industries, trade, beneficiation, R&D activities, etc. During the year 1999-2000 (up to Dec. 1999), Indian Minerals Year Book (IMYB) 1998 & 1999 combined issue was released. Besides, a publication on Principal Producers of Major Minerals, a digest of Indian Minor Minerals Laws and two issues of half-yearly bulletin on Mineral Information (April-September 1998 and October 1998-March 1999) were released.

10.2 Under the series 'Mineral Facts and Problems' the monographs on Copper and Clay were under printing. Preparation of a monograph on limestone and dolomite was in progress. A hand-book on indigenously manufactured machinery, equipment and explosives for use in mines was released.

10.3 Granite Conservation and Development Rules, 1999 and Circulars issued to Recognised Qualified Persons (from 1 January, 1991 to 30 April, 1999) were released.

11. Mining Research

11.1 Applied Mining Research is carried out on various mining aspects so as to help in systematic development of mines and improvement in productivity in mines through evolution of suitable norms. Industry sponsored assignments on environment and rock mechanics aspects, on charge basis are also undertaken. During the period under review, an assignment on environmental auditing of Kashlog Limestone Mine for M/s. Ambuja Cements Ltd. (HP) was completed and report submitted to the party. Besides, 9 assignment sponsored by the industry on charge basis are in progress.

12. Training

12.1 IBM imparts training to technical and non-technical officials of IBM and also to persons from mineral industry and other agencies in India and abroad. During the year 1999-2000 (up to December, 1999) 13 training programmes were conducted in which a total of 116 IBM personnel and 105 industry personnel including 32 from North-Eastern States participated.

13 Advising Central and State Governments on Matters Connected with the Mining
and Mineral Industry

13.1 IBM continued to advise the Central and State Governments on matters concerning mines & minerals, export and import policies, mineral consumption and industrial utilisation, recovery of by-products, demand and supply of minerals, renewal of mining leases. Necessary material was also furnished to the Ministry for answering Parliament Questions during its various sessions. Assistance was also rendered to private parties, institutions and foreign organisations on subjects like mineral production and other statistics.

14. IBM-BRGM Projects

14.1 Project on Development of Application Techniques in Relation to Environmental Management of Mines and Waste Recoveries

14.1.1 Under this project, field studies taken up by IBM teams in three mine study sites, namely, in North Goa, Sukinda in Orissa State and Rampura-Agucha lead-zinc mine in Rajasthan were continued during the period under review.

14.1.2 A mobile environmental monitoring laboratory van with on-board sophisticated ambient air analysers, and with supporting air-conditioners and generators acquired at a cost of about Rs. 52 lakhs was deployed in the field studies. In respect of Sukinda and Goa mine study sites, generation of environmental monitoring data for all the four seasons with respect to air and noise, water quality and quantity, soil and sediment, blast vibration study, mine waste and biological sampling were completed and the data generated was formulated into database. The Regional Plans were prepared using land set imageries. Socio-economic studies were also completed for both the areas. Regional Environmental Maps were prepared and the database created was super imposed on these maps for different environmental parameters. Regional Environmental Impact Assessment (REA) including risk analysis was made and draft REA reports were finalised. Slope stability study was in progress for both the areas. For the purpose of recovery of material from the waste, bench scale tests and pilot plant scale tests were conducted on the samples collected from specific mines. Views of BRGM experts on the test results are awaited.

14.1.3 Rampura - Agucha Lead Zinc Mine Site was selected specifically for the recovery of valuable materials from the waste generated. As per the results of the preliminary work done in the area, no further study programme was included under this project.

14.2 Technical Management Information System (TMIS)

14.2.1 Under this project, 80 per cent work relating to database development was completed at BRGM. France and validation of the same by BRGM and IBM was continued. Detailed database design of MCCM activities was prepared by BRGM experts and submitted to IBM. Computer equipment for Central Headquarters, IBM, Nagpur and Bangalore and Hyderabad Regional
14.2.2 An introductory course on computer was organised at IBM, Nagpur for all the 46 members of the TMIS project under expert faculty members of BRGM, France. The training programme, as envisaged under this project, for 44 TMIS members of IBM at BRGM, France was also completed.

15. Conference on Revision of Threshold Values of Mineral Rejects

15.1 IBM organised a conference on revision of threshold values of mineral rejects of Goan iron ores at Goa on 14 October, 1999. Forty Chief Executive level delegates from the industry attended the conference and participated in the technical discussions.

16. R&D Meet in IBM

16.1 R&D meets with the representatives of mining and mineral industry were organised by the Regional offices of IBM at Bangalore, Chennai, Dehradun and Hyderabad. The objective of the meet was to have a close interaction through direct discussion between the representatives of the mineral industry and officers involved in providing consultancy services in IBM.

16.2 Officers from Ore Dressing Division, Technical Consultancy Division and Mining Research Cell of IBM appraised the participants about the facilities and capabilities developed by IBM in the fields of mineral beneficiation, mining research and consultancy services in mining, geology, etc.

17. World Bank Aided Environmental Project

17.1 The Ministry of Environment & Forests, Government of India has taken up a project on 'Environmental Management Capacity Building Technical Assistance' aided by the World Bank. In this, IBM has been recognised as a National Consultant to offer consultancy services in the areas of (i) Environmental Policy, Legislation and Regulation and Institution Framework Review; (ii) Institutional Strengthening; (iii) Training; and (iv) Demonstration Projects.

18 Committees Constituted by Granite Development council

18.1 The Committee constituted by Granite Development Council (GDC) under the Chairmanship of Controller General, IBM for suggesting the desirable degree of mechanisation in granite quarries, submitted its final report based on the deliberations of the meetings and field visits carried out. Controller General, IBM was nominated as Chairman of another Committee constituted for suggesting measures for implementation of the recommendations of the above Committee. This Committee submitted its report to the Chairman, GDC.

18.2 The Controller General, IBM was also nominated as a member to the 'Group on Marble Development' constituted by the Ministry, which will work...
under the overall guidance and supervision of the Granite Development Council.

19 Mega event Commemorative Volume

19.1 A commemorative volume of 'Mega Event' organised by the Department of Mines and subordinate offices and public sector undertakings, at Nagpur during 6-8 August 1998, was brought out by IBM. The volume covers the speeches delivered by the Hon'ble Ministers and other dignitaries, the technical papers which could not be included in the earlier Proceedings volumes, citations of special awardees, profiles of speakers, etc.

20 Activities in North-Eastern Region

20.1 The Officers of Sub-Regional office of IBM at Guwahati continued to inspect the mines/areas for enforcing the provisions of MCDR, 1988 and for examining the mining plans in North-Eastern region. They participated in the State Geological Programming Boards and also Central Geological Programming Board Meetings for the development of mineral resources in North-Eastern Region.

20.2 IBM took up two consultancy assignments for preparation of mining schemes in respect of limestone mines of M/s Umrangao Cement Ltd., Guwahati and M/s Assam Mineral Corporation Ltd., Guwahati after giving due concession to the parties.

20.3 An S&T scheme entitled "Characterisation of Clay and Silica Sand Deposits occurring in North-Eastern States and their Techno-economic evaluation for Industrial use" costing Rs. 35 lakhs was approved by the Ministry and the same is being implemented.

20.4 IBM conducted a training programme at Shillong during 10 to 14 May, 1999 on 'Mining and Geology' for the personnel from State Directorates of Geology & Mining, State Undertakings and Private Companies of North-Eastern Region. A total of 32 technical persons participated in the training programme, which was conducted free of cost.

21 Revenue Generation in IBM

21.1 Revenue generated during 1999-2000 (up to December, 1999) from the consultancy work in mining, geology, ore dressing and mining research work, training and through sale of publications, mineral inventory, etc., was Rs. 61.38 lakhs against an annual target of Rs. 70 lakhs.

22 Computerisation

22.1 Under Mineral Resource Intelligence System (MRIS), IBM is maintaining databases on National Mineral Inventory, Mines cum Production, Mining Leases, External Trade, Mineral Consumption and World Mineral Intelligence.
These databases are important information sources for Government and Private agencies on mining and mineral based industries

22.2 Besides Word Processing, computers are being used for preparation of Environment Management Plan, Orebody Modeling and Geo-statistical Analysis, preparation of Mineral Map using ML-GIS package and Library Management. Data Acquisition System is used while conducting Pilot Plant test runs for controlling some of the circuits like pulp density in grinding circuits, pH in flotation circuit, etc., and acquiring real time data from various filed instruments.

22.3 IBM has added E-mail facility to all its offices. Besides, an internet site (http://ibm.nic.in) for IBM has been launched and linked with the Web site of Department of Mines, Ministry of Mines and Minerals.

22.4 All the computer systems, process control equipment, EPBAX, etc., in IBM were made Y2K compliant.

23 IBM Advisory Board

23.1 The tenure of the existing IBM Advisory Board expired on 22 May, 1999 and the Board was reconstituted on 3 November, 1999 for next 2 years. During the year, follow-up action on the decisions taken in the 11th Meeting held on 3 April, 1998 at Nagpur was taken and agenda papers for the 12 meeting of the Board were submitted to the Ministry.

24 Work done concerning women (perspective plan for women)

24.1 Indian Bureau of Mines has not drawn up any specific perspective plan for women, however, out of a total strength of employees, women employees constitute about 11 per cent. Training was imparted to some women employees in the field of technical as well as administrative matters.

24.2 Women employees are also actively participating in various cultural and extra-curricular activities organised by IBM from time to time. The 'Women's Day' was observed during the National Integration Week.


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<th>Class</th>
<th>Total No. of employees in position</th>
<th>No. of SC</th>
<th>No. of ST</th>
<th>No. of Women</th>
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<td>07</td>
<td>06</td>
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26. Redressal of Public Grievances

26.1 At the opening of the year six cases were pending. Twelve more cases were received during the year 1999-2000 (up to December, 1999), and five cases were disposed off and thirteen cases were pending.

<table>
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