ANNUAL REPORT 2012-13

भारतीय खान ब्यूरो
INDIAN BUREAU OF MINES

भारत सरकार
GOVERNMENT OF INDIA
खान मंत्रालय
MINISTRY OF MINES

ANNUAL REPORT
2012-13

" I died as a mineral and became a plant, I died as a plant and rose to animal, I died as animal and I was man. Why should I fear ? When was I less by dying ? "

- Jalalu ' D-Din Rumi,
Sufi poet

भारतीय खान ब्यूरो
INDIAN BUREAU OF MINES
सतत कार्यरत
ON WITH THE JOB

Issued by

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Indian Bureau of Mines
Nagpur

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Foreword by the Controller General

C. S. Gundewar

The Annual General Report of the Indian Bureau of Mines (IBM) 2012-13 highlights the Organisation's objectives and achievements in detail for the period from April 2012 to March 2013.

As a regulator, IBM performs regulatory functions through enforcement of Mineral Conservation and Development Rules, 1988, relevant provisions of the Mines and Minerals (Development and Regulation) Act, 1957, the Mineral Concession Rules, 1960 and Environmental (Protection) Act, 1986 & Rules made thereunder and thus assist the promotion of scientific development of mineral resources of the country, conservation of minerals, protection of environment in mines, other than coal, petroleum and natural gas, atomic mineral and minor minerals.

As a facilitator to the Mining Industry, IBM provides consultancy services in mining, geology, protection of mine environment and mineral beneficiation, and also work as a data bank on mines and minerals. It also advises the Central and State Governments on all aspects of mineral industry, trade and legislation.

IBM has initiated the process to implement the recommendations of the Committee for Review and Restructuring of the Functions and Role of IBM. For implementation of decisions having financial implications, a SFC note with detailed DPR is under consideration of Ministry of Mines and a number of recommendations having no financial implications have already been implemented.

After evaluation of on-going schemes of IBM by National Institute for Smart Government (NISG), Ministry of Mines has conveyed approval for continuance of the present Plan schemes of IBM from XI Five Year Plan to XII Five Year Plan.

The scheme on Mining Tenement System had been taken up by the IBM to develop an online National Mineral Information System for investors by linking Central and State organisations engaged in administration of mineral resources in the country. DPR for the Project "Mining Tenement System" has been approved by the core committee under the chairmanship of Secretary (Mines).

Working Group on Mineral Exploration and Development (other than Coal and Lignite) constituted by Planning Commission for Twelfth Five Year Plan had suggested enhancement in IBM's role for facilitating growth of the mining industry. Accordingly, a new scheme, "Capacity Building of State Governments - Development & Implementation of Ore Accounting Software" has been taken up by IBM to assist State Governments in ensuring adherence to standards and parameters by leveraging technology to entail scientific mining. DPR preparation has been initiated for the Project "Ore Accounting Software".

The Task Force of IBM constituted in 2009-10, to check illegal mining in respect of the States of Andhra Pradesh, Jharkhand, Karnataka and Orissa for iron and manganese ore and Gujarat for bauxite, which are the major States reported for illegal mining, inspected 454 mines from 2009-10 to 2011-12. As a result, mining operations were suspended in 161 mines where mining was not carried out as per the approved mining plan/scheme of mining. After compliance,

suspension was revoked in 114 cases and 15 cases have been recommended for termination to the State Government Department concerned.

The Concept of Mine Closure Plan introduced in 2003 is addressing the issues relating to environment protection, air, water and land protection, management of top soil and overburden reclamation and rehabilitation of lands and control on ground vibration, surface subsidence and restoration of flora. These plans are approved by the Indian Bureau of Mines, and, in case of 29 non-metallic and industrial minerals, the powers have been delegated to the State Governments. So far up to March 2013, Financial Bank Guarantees for a value of ₹ 20343655 20/- have been collected by IBM.

For facilitating environment friendly and conservation oriented mining, IBM is updating basic documents. Updated version of "IBM Manual for Appraisal of Mining Plans" and "IBM Manual for Inspection" are available on IBM website for comments from the stakeholder individuals/organisations before its finalisation.

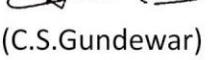
On the Industry front, sluggishness in the economy continues with contraction in industrial output. The high inflationary pressure and high interest rates have affected all the economic sectors of the country, including the mining sector.

The index of mineral production (base 2004-05) for the current financial year 2012-13 is estimated to be 125.46 as compared to 128.45 for the year 2011-12 registering a decrease of 2.33%. The minerals under MCDR 1988 reported negative growth of 9.83% during the current financial year as against previous year owing to decrease in production of apatite & phosphorite, manganese ore, iron ore, chromite, gold, kaolin and magnesite.

The decline is mainly in respect of iron ore (19.50%), manganese ore (3.80%), apatite & phosphorite (6.90%), chromite (19.80%), gold (27.50%), kaolin (9.60%) and magnesite (2.60%). The decline in production is due to suspension of mining activities in Karnataka and Goa, discontinuance of mining for want of environmental clearance, suspension of mining operations as per statutory orders, less demand from international market, development work in certain mines, etc.

With the new legislation under MMDR Bill 2011, roll out of SDF for mining sector, complete switchover to online system of registration and submission of statutory returns, Indian Mining Sector would get a complete facelift in coming years.

In these crucial years, Team IBM will work hard to revive the Indian Mining Industry and to fit in the role of National Technical Regulator.



Nagpur (C.S.Gundewar)
November, 2013 Controller General

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1. HIGHLIGHTS OF 2012- 13

Shri C.S. Gundewar, Controller General, IBM speaking at the Khanij Diwas organised to mark the IBM Foundation Day at IBM headquarters in Nagpur. Shri Y.G. Kale, RCOM & TS, Dr S.R. Wate, Director, NEERI and Shri M. Mukherjee, former CG, IBM are seen.

- As per the Performance Evaluation Report, Total Composite score of IBM for Results Framework Document (RFD) 2012-13 is 77.96%.
- As per the directives of the Planning Commission and Ministry of Finance, for continuation of Schemes from 11th to 12th Plan, the ongoing Schemes are required to be evaluated by an independent, impartial and reputed organisation. Accordingly, IBM's ongoing Schemes were evaluated by the National Institute of Smart Government (NISG) which not only recommended for continuation of present Schemes but also for strengthening of the same.
- Inspected 2,520 Mines (including 1211 inspections for approval of Mining Plans/Schemes of Mining/Mine Closure Plans).
- Released National Mineral Inventory-At a Glance as on 1.04.2010 and finalised National Mineral Inventory – An Overview as on 1.04.2010 in respect of 70 minerals as per United Nations Framework Classification of mineral resources.
- To sensitise the importance of mineral conservation and protection of environment, organised Mines Environment and Mineral Conservation Weeks at 14 Centers.
- Approved 197 Mining Plans, 488 Schemes of Mining and 32 Final Mine Closure Plans.
- Issued 4376 violations in respect of 1780 mines and prosecutions launched against 23 mine owners for non-compliance of provisions of MCDR, 1988. Suspended mining operations under rule 13(2), 45 and 56 of MCDR, 1988 in 1376 mines.
- Updated 100 multi-mineral leasehold maps with forest overlays in respect of Karnataka and Odisha on a scale of 1:50,000.
- Completed 02 mining research oriented consultancy assignments.
- Completed 03 technical consultancy assignments on mining, geology and environment.
- To encourage value addition and mineral conservation completed 59 mineral beneficiation investigations.
- Carried out chemical analysis for 42,771 radicals and 2,509 mineralogical studies.
- Conducted 09 in-plant studies to evaluate performance audit of mineral processing plants and to suggest trouble shooting.
- As an incidental activity, IBM generated a revenue of ₹ 137.30 lakhs.
- Released 26 statistical and allied publications and periodicals on various aspects of mines and minerals.
- As part of the capacity building of human resources, conducted 18 training courses for the industry, State Governments employees, IBM employees etc. including three

programmes exclusively for personnel from the NER States.

- To mark the IBM foundation day, 'Khanij Diwas' was observed on 01st March, 2013 at IBM Headquarters and Zonal and Regional Offices.
- A scheme, "Mining Tenement System" is being implemented by IBM to develop an online National Mineral Information System for investors by linking Central and State organisations engaged in administration of mineral resources in the country. During the year DPR of the Scheme prepared by a consultant have been approved by the Core Committee headed by Secretary (Mines).
- As recommended by the Sub Group III on Infrastructure and Financing of Twelfth Five Year Plan Working Group on Mineral Exploration and Development, IBM has proposed to undertake a new Scheme titled, "Capacity Building of State Governments - Development & Implementation of Ore Accounting Software" in the 12th Five Year Plan.

  The broad objectives of the new Scheme are implementation of Rule 45 by developing uniform ore accounting software with interface to Railways, Ports and Customs. For this purpose, IBM has engaged M/s National Institute of Smart Government (NISG), Hyderabad to prepare Detailed Project Report/Proof of Consent.
- Amended Rule 45 of Mineral Conservation and Development Rules, 1988 stipulates mandatory registration of miners, stockists, traders, exporters, and end-users of minerals, and stringent reporting norms for ensuring end-to-end accounting of the mineral produced. To give fillip to implementation of amended Rule 45, IBM in association with NIC has developed online system of registration and submission of statutory returns. The second phase of the online submission of the returns has been inaugurated by the Controller General, IBM Shri C.S. Gundewar on 1st March 2013 on the occasion of IBM foundation day at IBM Headquarters, Nagpur. The on-line reporting system is linked to on-line registration system.
- As per amended Rule 45 of MCDR 1988, registration numbers have been allotted to 8413 lessees. Similarly, with regard to the status of registration of end-users, traders, stockist and exporters, at the end of March, 2013 total 2339 units of end-users, 3178 number of traders, 1234 number of stockists and 616 number of exporters have been registered.
- The Ministry of Mines accepted the recommendations of the Committee for Review and Restructuring of the Functions and Role of IBM. SFC Note along with phased manner planner to meet the financial implications is under Ministry's consideration. Meanwhile, 11 recommendations bearing no financial implications have been implemented during 2012-13.
- Observed Hindi Fortnight at headquarters and at all Regional Offices and Regional Ore Dressing Laboratories of IBM during 13-14 September 2012.
- Organised Hindi workshop at headquarters, Nagpur, Jabalpur, Chennai, Goa, Udaipur, Bhubaneshwar, Hyderabad and Ajmer regional offices of IBM.
- IBM provided Secretarial assistance to the Study Group for revision of rates of royalty and dead rent on major minerals (other than Coal, Lignite & Sand for stowing) constituted by the Ministry of Mines vide their OM dated 3/3/2011-MVI dated 13.9.2011
- Central Government appointed a Commission of Inquiry consisting of Shri Justice M.B. Shah, Retd. Judge of the Supreme Court of India, vide Notification S.O. 2817 dated. 22 November, 2010 to inquire into the large scale mining of iron ore and manganese ore without lawful authority in several states. IBM is taking corrective measures on the recommendations mentioned in the report.
- Six officers of IBM were on foreign deputation to South Africa, Switzerland, Quebec (Canada) and Mongolia during the year.

2. ROLE AND ORGANISATION OF INDIAN BUREAU OF MINES

The Indian Bureau of Mines (IBM), established in 1948, is a scientific and technical organisation under the Ministry of Mines. It is engaged in the promotion of scientific/ sustainable development of all the mineral resources of the country, conservation of minerals, protection of environment in mines, other than coal, petroleum and natural gas, atomic minerals and minor minerals, and accomplishes it through a gamut of assigned functions, both statutory and non-statutory.

Role

2.2. IBM's functions are pivotal for the development of Indian Mineral Industry.

The Bureau:

- Promotes conservation and systematic & scientific development of mineral resources of the country through inspection of mines, beneficiation plants, and mineral-based industries.
- Approves the mining plans which is a pre-requisite for grant/renewal of mining leases and also approves schemes of mining, mine closure plans, grants recognition to Qualified Persons for preparing mining plans.
- Conducts geological, mining, beneficiation and other related techno-economic field studies and applied research on mining-geological problems.
- Conducts studies on environmental protection and pollution control with regard to the mining and mineral beneficiation operations.
- Implements the Offshore Areas Minerals (Development & Regulation) Act, 2002 and administers the grant of Mineral Concession in offshore areas.
- Prepares mineral maps and the inventory of mineral resources of India.
- Provides technical consultancy services in the field of mining, geology, mineral processing and environment.
- Conducts mineral beneficiation and related technological studies under the departmental programme.
- Disseminates information and data on exploration, prospecting, mines, minerals, mineral-based industries and mineral legislation, and publishes bulletins and monographs.
- Imparts training to the scientific, technical and other cadres of IBM and persons from the mineral industry and other agencies as part of the human resource development programme.
- Acts as Data Bank on Mines and Minerals.
- Advises the Government on matters regarding mineral industry, relating to environmental protection and pollution control, export and import policies, trade, mineral legislation, fiscal incentives and related matters and conducts market surveys of minerals and metals.
- Promotes awareness about conservation, systematic and scientific development of mineral deposits and protection of environment, including restoration, reclamation and rehabilitation of mined out areas through exhibitions and audio-visual media.
- Promotes and monitors community development activities in mining areas.

Indira Bhavan - IBM HQ, Nagpur

Organisation

2.3 IBM has its headquarters at Nagpur and is presently headed by Shri C.S. Gundewar, Controller General. IBM is organised into six functional divisions, namely:

(i) Mines Control and Conservation of Minerals Division.

Modern Mineral Processing Laboratory & Pilot Plant, Nagpur

(ii) Ore Dressing Division.

(iii) Technical Consultancy, Mining Research and Publication Division.

(iv) Mineral Economics Division.

(v) Mining and Mineral Statistics Division.

(vi) Planning and Co-ordination Division having two sub-divisions:

a) Administration, Establishment matters (including training), Accounts with all other administrative and financial matters and;

b) Planning and Co-ordination.

The existing set-up is shown in the organisation chart (as on 31.3.2013).

Modern Mineral Processing Laboratory and Pilot Plant

2.4 UNDP aided Modern Mineral Processing Pilot Plant and Analytical Laboratory of IBM is located at MIDC Hingna, Nagpur. IBM's Environmental laboratory has the recognition of the Central Government to carry out testing of samples of air, water, soil and other substances specified under the Environmental (Protection) Act, 1986. IBM has been registered by the Department of Scientific & Industrial Research (DSIR) for purpose of availing Customs Duty exemption to carry out R&D work.

Zonal / Regional /Sub Regional Offices

2.5 The Mines Control and Conservation of Minerals Division functions through its Zonal offices viz North, Central and South located at Ajmer, Nagpur and Bengaluru respectively and 12 Regional Offices located at Ajmer, Bengaluru, Bhubaneswar,Chennai, Dehradun, Goa, Hyderabad, Jabalpur, Kolkata, Nagpur, Ranchi and Udaipur and 2 sub-regional offices located at Guwahati and Nellore. The territorial jurisdiction of regional offices is shown in the map.

Regional Ore Dressing Laboratories

2.6 The Bureau has two Regional Ore Dressing Laboratories and Pilot Plants at Ajmer andBangalore to cater to the mineral beneficiation needs of the neighbouring areas. A Clay Testing Laboratory is also functional at Kolkata for catering the needs of North Eastern Region.

Human Resources in IBM

2.7 The Bureau has a total sanctioned strength of 1477 consisting of 420 Gazetted (Group A – 243 & B – 177) and 1057 Non-Gazetted (Group B – 362, Group C (Tech.) - 191 & Group C –504) posts. Sanctioned strength in various streams is as per the table below:

Sl No.	Stream	Sanctioned strength
1	Mining Engineers	145
2	Mining Geologists	115
3	Ore Dressing, Chemical & Metallurgical Engineers	224
4	Mineral Economists	53
5	Statisticians	74
6	Administrative & other Technical Personnel	866
	Total	**1477**

Analytical Laboratory, Nagpur

Committee for Review and Restructuring of the Functions and Role of IBM

In terms of the policy directions given in the National Mineral Policy 2008, the Government had constituted a Committee for review and restructuring of the functions and role of the Indian Bureau of Mines under the Chairpersonship of Joint Secretary (Mining Legislation), Ministry of Mines. The Committee submitted the "Report of the Committee for Review and Restructuring of the Functions and Role of IBM" to the Government on 4th May 2012.

The Committee has made 73 major recommendations for overall restructuring of the IBM, including creation of additional 933 posts and infrastructure development like opening of new offices, new environmental laboratories, training centres etc.

The Ministry has communicated IBM vide letter No.31/72/2009-M.III dated 10th September, 2012 that the recommendations of the Committee have been accepted and directed to start the implementation of recommendations.

SFC note along with DPR and Cabinet Note for implementation of 46 recommendations of the IBM Review and Restructuring report carrying financial implications is under consideration of Ministry.

Out of remaining 26 recommendations having no financial implications, 11 have been implemented and five are under approval of Ministry. List of implemented non financial recommendations is enclosed at **Annexure V.**

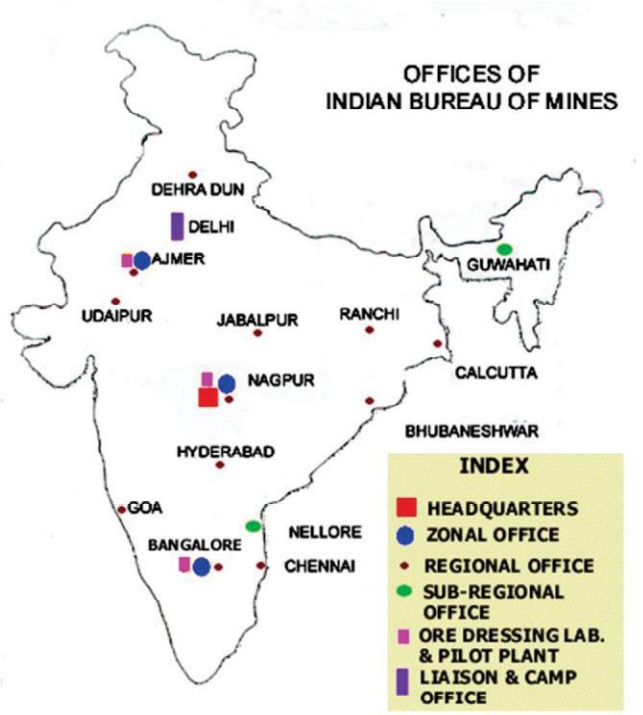
Remaining 10 recommendations not linked with financial component will be implemented in the year 2013-14.

Capacity Building recommended in IBM Review & Restructuring Report

- IBM to evolve as a National Technical Regulator ensuring effective regulation of Indian non- coal mining sector to ensure sustainable mining practices by creation of adequate human resource.
- IBM to evolve as a consultant for creation and improvement of state level regulatory mechanism in order to assist them for effective regulation of mineral sector including prevention of illegal mining activities.
- Improving quality of Mining Plans and Schemes of Mining and grant of recognitions to qualified persons for preparation of Mining Plans by re-orienting and improving the system.
- To create infrastructure, facilities and expertise for regulation of the offshore mineral developmental activities, including systems and standards practices for grant of mineral concessions and exploration and exploitation techniques in offshore areas.
- Digitisation of resource inventory and updation of the same at frequent interval in accordance with the international norms.
- Creation of facilities and expertise to monitor and implement the Sustainable Development Framework (SDF), including closure and post-closure activities and socio-economic issues related to mining industry.
- Development of interactive web- enabled portal and use of full potential of information technology for effective regulation of mineral sector to ensure transparency.
- Development of 'Mining Tenement System' for transparent and effective mineral concession system linking with State Governments, Indian Bureau of Mines and Central Government databases.
- Opening of new Regional offices in mineral-rich states and re-organisation of territorial jurisdiction of existing regional offices as per state boundaries to have greater synergy with the State Governments.
- Strengthening of mineral processing, mineralogical, chemical and environmental laboratories of IBM and creation of facilities

and infrastructure for mineral processing regulation in order to achieve the concept of zero waste mining.

- To evolve IBM as a mineral intelligence and information centre and creation of data bank on mines and minerals rendering strong support and policy related inputs to the Government.
- Capacity building of existing training facilities and creation of additional training infrastructure to work as Centre of Excellence, imparting training to Central, State and industry personnel in applied aspects of mining and mineral processing sector.



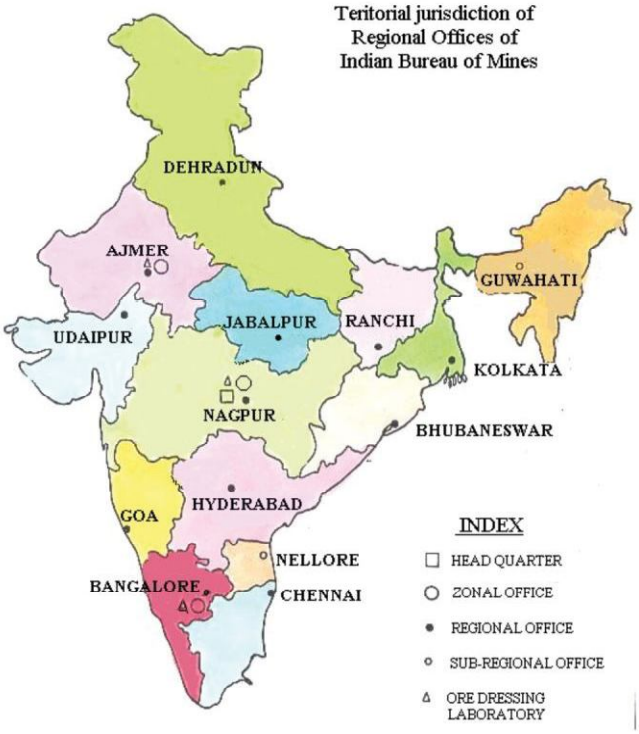
Controller General, IBM took over as Director of JNARDDC

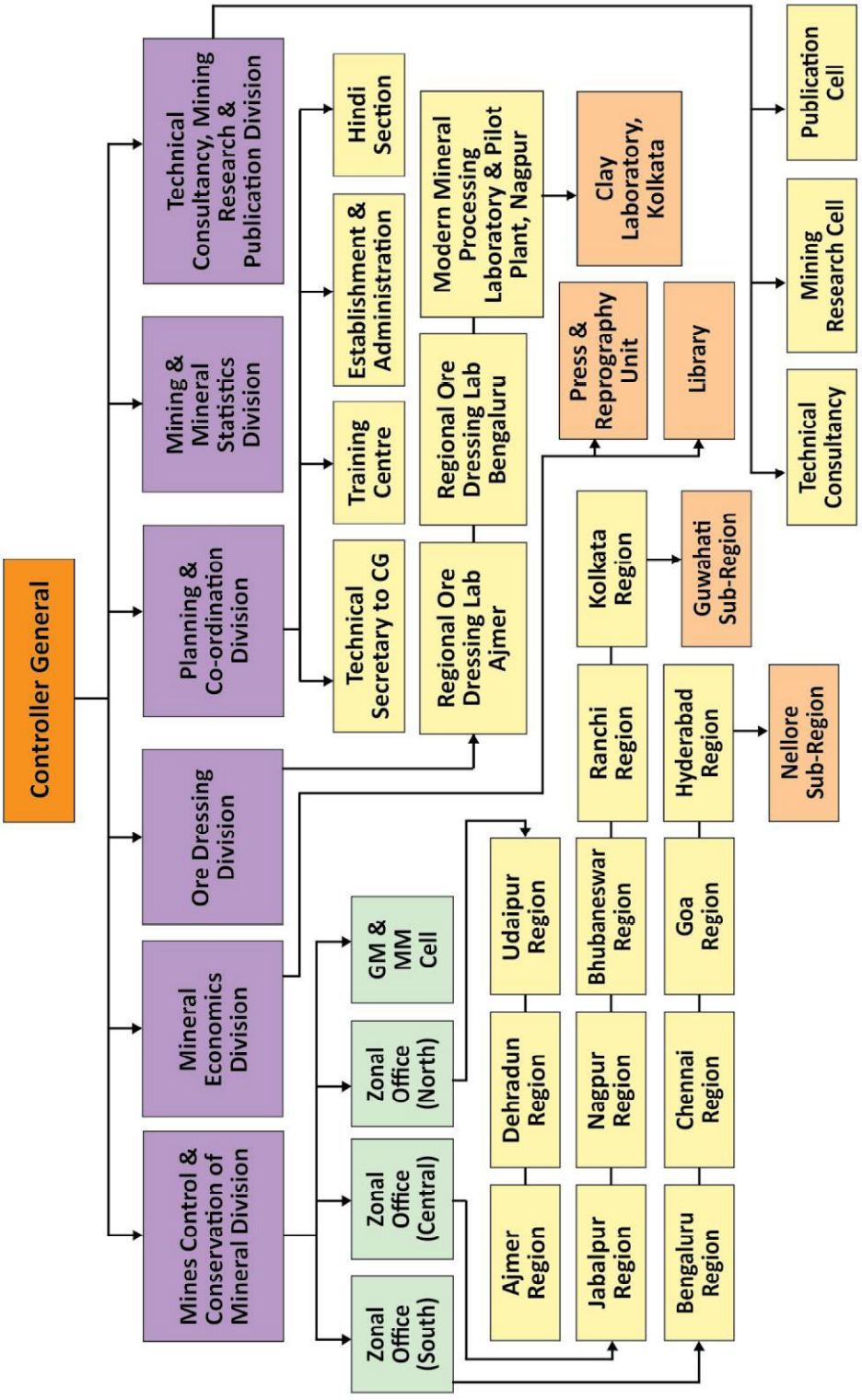
Shri C.S. Gundewar, Controller General, IBM has been assigned the additional charge of the post of Director, Jawaharlal Nehru Aluminum Research Development and Design Centre (JNARDDC), an autonomous body of the Ministry of Mines in Sept 2012. JNARDDC having its headquarters at Nagpur is a "Centre of Excellence" set up in 1989 and fully functional since 1996.

It has well-established facilities for the study of Bauxite, Alumina and Aluminium. Its principal preoccupation is with all aspects of Bayer process of alumina manufacture, electrolytic smelting of aluminum, downstream processing, product development and recycling of aluminum.

JNARDDC also offer variety of analytical and testing facilities to other non-ferrous industries, steel industries and small scale industries, mainly in the areas of chemical and mineralogical analysis, powder characterisation, thermal mapping, microstructural studies, mechanical and non-destructive testing, and technical information.

IBM family congratulates Shri C.S.Gundewar, CG, IBM for this additional accomplishment.





Present Organisational Structure of IBM

3. MINES CONTROL AND CONSERVATION OF MINERALS DIVISION

Shri C.S. Gundewar, CG, IBM, Shri Ranjan Sahai, Controller of Mines and other senior officials of IBM at the 10th Mines Environment and Mineral Conservation Week organised at the Ranchi Regional Office of IBM.

The Mines Control and Conservation of Minerals (MCCM) Division is the primary wing of the IBM and is responsible for conservation, systematic and sustainable development of mineral resources of the country and protection of mines' environment through statutory enforcement as well as promotional activities. It is headed by the Chief Controller of Mines at the headquarters. There are 3 Zonal Offices located at Ajmer, Bengaluru and Nagpur and 12 Regional Offices and two Sub-Regional Offices (see para 2.5 and Map). The Zonal Office is headed by a Controller of Mines and Regional Office by a Regional Controller of Mines. The Chief Controller of Mines is assisted by the Chief Mining Geologist. Geological Mapping and Mineral Map Cell is headed by Chief Mining Geologist and is under the overall supervision of Chief Controller of Mines.

3.2 The Division carries out the following activities:

- Inspection of mines for enforcing Mineral Conservation and Development Rules, 1988.
- Approval of Mining Plans/ Schemes of Mining/ Mine Closure Plans under Mineral Concession Rules 1960, and Mineral Conservation and Development Rules, 1988.
- Granting recognition to the scientific and technical persons to work as Recognised Qualified Persons (RQPs) for the preparation of the statutory mining plans.
- Conducting Regional Mining Geological Studies.
- Holding 'Mines Environment and Mineral Conservation Week' at different mining centers.
- Preparation of Mineral Maps along with forest overlays.
- Revision/updating of Mineral Inventory of minerals under private lease holds.
- Administration of Offshore Areas Minerals (Development & Regulation) Act 2002.
- Attending Parliament Questions and Ministry References.

A view of a systematic mining at a Limestone mines belonging to KLK Mines in Tamil Nadu.

Inspection of Mines

3.3 During the year 2012-13, IBM carried out 2,520 inspections of mines (including 1279 inspections for examining mining plans/schemes of mining/ mine closure plans) to administer various statutory provisions of Mineral Conservation and Development Rules, 1988 in following States as listed below:

Sl No.	State	Inspection	
		MCDR + MCDR under RMGS	Mining Plan / Scheme of Mining / Mine Closure Plans
1	Andhra Pradesh	182+21	98
2	Assam	0	5
3	Bihar	3	4
4	Chhattisgarh	14+13	81
5	Goa	22	48
6	Gujarat	46+28	92
7	Haryana	0	0
8	Himachal Pradesh	11	6
9	Jammu& Kashmir	0	0
10	Jharkhand	131+47	73
11	Karnataka	103+50	112
12	Kerala	1	17
13	Madhya Pradesh	41+39	192
14	Maharashtra	28+5	52
15	Manipur	0	0
16	Meghalaya	1+13	7
17	Odisha	137+18	78
18	Punjab	0	0
19	Rajasthan	89+58	166
20	Sikkim	0	0
21	Tamil Nadu	42+30	208
22	Uttarakhand	28+27	22
23	Uttar Pradesh	1	10
24	West Bengal	12	8
Total		**892+ 349**	**1279**

Year-wise details of target and achievement of inspection of mines for enforcement of MCDR 1988 and for approving mining plans during last 5 years are shown below:

Inspection of Mines

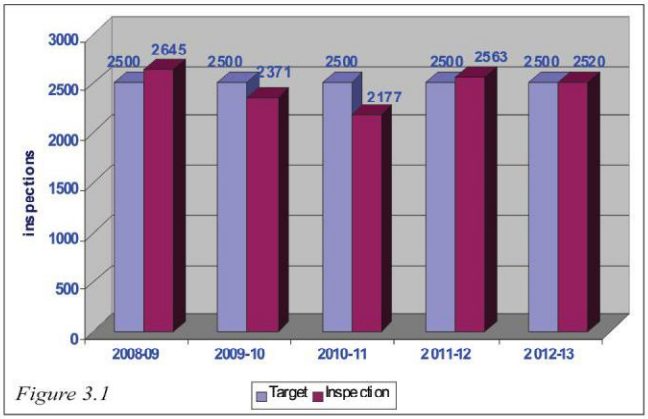


Figure 3.1

Technical Studies

3.4 The Regional Mining Geological Studies (RMGS) have been programmed for the mining geologists of different regional offices under MCCM Division with an object to cover certain cluster of mines / leases in one or two districts of a state to ensure effective follow up action and implementation of the suggestions / violations under MCDR, 1988 and also in order to bring out a comprehensive status report based on the data collected during inspection / study of each mine / leasehold / mineral belt on the aspects of mineral conservation, scientific development, mining environment, community development etc.

The basic aim of the study was to get a comprehensive picture of a mining belt / mineral-bearing region in terms of the mineral deposit, mine development, infrastructure (existing & required), production potentialities as well as future prospects of development of the mining belt namely, techno-economics so as to enable the government/policy makers to chalk out a concrete plan to develop a mining belt or mineral-bearing region.

The study also highlights the present status of community development and further scope of community development in terms of infrastructural facilities, economics, health, education, environment, recreation, etc.

and identifies community development problems and issues in the background of scientific

mining in the area and prioritizing of community development programme as per need of the society within the overall national perspectives.

RMGS STATUS – 2012-13

Sl No.	Zone / Region	Mineral	No. of Mines / Leases covered
1	Central/ Bhubaneswar	Chromite	20
2	Central/ Ranchi	Bauxite	30
3	Central/ Jabalpur	Bauxite	40
4	Central/ Nagpur	Bauxite	15
5	Central/ Kolkata	Limestone	14
6	South/ Chennai	Limestone	30
7	South/ Bengaluru	China Clay Bauxite Sillimanite	24 2 5
8	South/ Goa	Iron Ore	05
9	South/ Hyderabad	Manganese	26
10	North/ Aimer	China clay	57
11	North/ Udaipur	Bauxite	30
12	North/ Dehradun	Soaptone	30

3.5 During the inspections/studies, IBM advised the mine owners on adoption of appropriate technology for prospecting and mining; offered suggestions to ensure systematic mining; and guided for utilisation of low grade minerals and rejects and if not found feasible for the present, were advised to stack them separately for future use. On receipt of stoping notices, mines were inspected in detail to examine the scope for further development, feasibility of improved methods for stoping and other ancillary aspects. Environmental problems during and after cessation of mining activities were taken care of. Suitable advices were given to mine owners so that the environmental pollution due to mining could be properly managed by taking appropriate abatement measures.

Mining Plans

3.6 During 2012-13, a total of 282 mining plans were received of which 33 were withdrawn by the parties. Of the mining plans received during 2012-13 and also those received/under processing prior to this period, 197 were approved and 47 not approved during the year.

From the time of introduction of the mining plan in the year 1988 up to March 2013, a total of 15,781 mining plans were received. Out of these, 12,956 mining plans were approved, 1,624 were not approved, 1,054 were withdrawn by the parties, 26 were pending with the parties for modification and 121 were at different stages of processing at IBM.

The status of disposal of Mining Plans during last 5 years is shown below:

Status of Disposal of Mining Plans

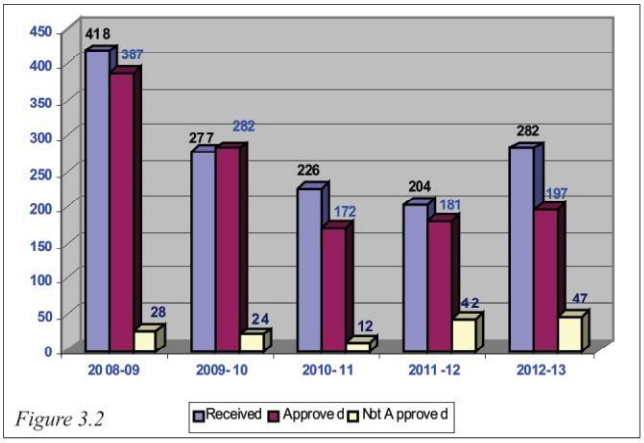


Figure 3.2

Schemes of Mining

3.7 During the year, 1000 Schemes of Mining were received of which 47 were withdrawn by the parties. Of the schemes received during 2012-13 and also those received prior to this period, 488

schemes were approved and 150 were not approved during the year.

Since the introduction of Scheme of Mining up to March 2013, 6,499 Schemes of Mining were received under Rule 12 of MCDR 1988. Out of these, 4,739 Schemes were approved, 830 were not approved, 255 were withdrawn by the parties, 117 were pending with parties for modification, and 558 were at different stages of processing at IBM. The status of disposal of Schemes of Mining during last 5 years shown below:

Status of Disposal of Schemes of Mining

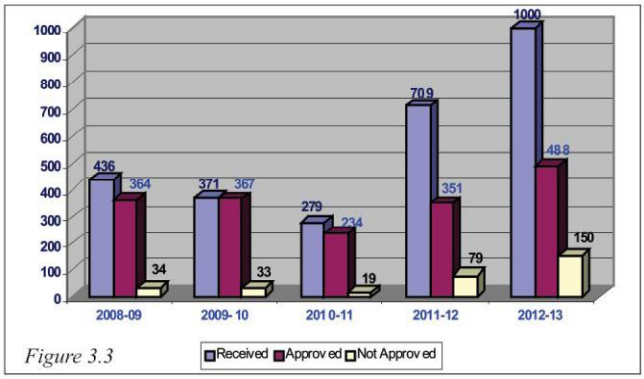


Figure 3.3

Mine Closure Plans

3.8 Mining operations are to be carried out as per the approved mining plan and after extraction of minerals, the mines are required to be reclaimed as per an approved Mine Closure plan. To ensure that the lessee completes the work of mine closure as approved for his mine, he has to submit a valid financial assurance in the form of encashable bank guarantee. So far up to 31st March 2013, Financial Bank Guarantees for a value of ₹ 2034.36 million have been collected and after fulfilling the requirements of the FMCP, certificates under rule 29 A of MCR 1960 have been issued for 106 cases of partial or full surrender of lease.

During the year, 42 Final Mine Closure Plans (FMCPs) were received. Of the plans received during 2012-13 and also those received prior to this period, 32 plans were approved and 09 was not approved during the year.

Since the introduction of FMCPs up to March 2013, 344 plans were received. Out of these, 248 were approved, 38 were not approved, 21 were withdrawn by the parties, 10 were pending with parties for modification, and 27 were at different stages of processing at IBM. Cumulative status of disposal of FMCP is shown below:

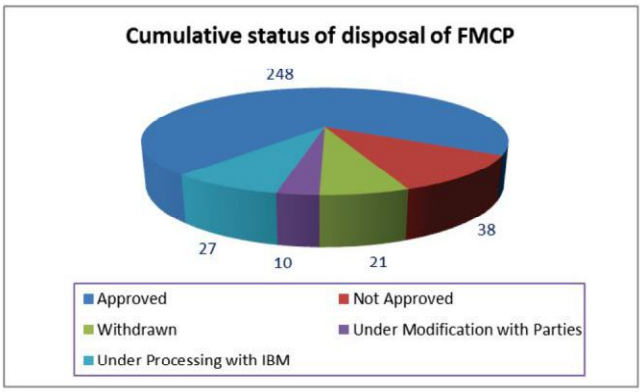


Figure 3.4

Mining Plan Grievances Committee (MPGC)

3.9 The Mining Plan Grievances Committees for the redressal of grievances of entrepreneurs in dealing with IBM for approval of mining plans, constituted in each region comprise representatives of mine owners, RQPs, State Directorates of Geology and Mining, and the Controller of Mines, IBM of the concerned Zone as Chairman. All the MPGCs continued their activities and held one meeting each at 12 Regional Offices during the reporting year.

Grant/Renewal of Recognised Qualified Persons (RQPs)

3.10 Under Rule 22C of Mineral Concession Rules 1960, competent authorities of IBM have been delegated powers to grant/renew recognitions to qualified persons to prepare mining plan. During 2012-13, 47 recognitions were granted, 17 renewed and 03 refused.

A total 2,895 recognitions have been granted so far out of which 1042 were valid, on the IBM's record, as on March 2013.

Meeting with RQPs

3.11 During 2012-13, IBM held meetings with the RQPs at the following places with an objective to provide guidance regarding problems faced by

Sl No.	Region / Venue	Date	No. of RQPs Participated
	CENTRAL ZONE		
1	Ranchi	16.03.2013	26
2	Jabalpur	23.02.2013	06
3	Nagpur	20.03.2013	37
4	Kolkota	11.02.2013	24
5	Bhubaneshwar	02.02.2013	46
	NORTH ZONE		
6	Ajmer	28.06.2012	43
7	Dehradun	16.02.2013	04
8	Udaipur	14.07.2012 27.02.2013	10 22
	SOUTH ZONE		
9	Chennai	10.03.2013	51
10	Hyderabad	07.01.2013	70
11	Goa	18.03.2013	44
12	Bangalore	12.02.2013	29
Total number of RQP's participated in Meetings			**412**

them in preparation of mining plans.

Administration of MCDR, 1988

3.12 While discharging the statutory function of enforcing administration of Mineral Conservation and Development Rules, 1988, during 2012-13, 4376 violations of different rules and sub-rules were pointed out in respect of 1780 mines and were further followed up for their rectification. A summarised account of status of enforcement of MCDR is tabulated below:

Sl No.	Aspect	No.
1.	Violations pointed out for various Rules & Sub-rules.	4376
2.	Mines for which violations pointed out.	1780
3.	No. of Violations rectified	2300
4.	Show cause notices issued	768
	No. of violations rectified after issue of show cause notices	665
5.	Court cases launched	23
6.	a)Cases compounded b)Total fee received	05 ₹ 81,000/-
7.	a)Cases decided in favour of IBM b)Fine imposed	03 ₹ 30,000
8.	No. of mines where, a)Mining operations suspended b)Suspension orders revoked	 1376 217

3.13 Principal violations detected during mine inspections are given below:

Rule No.	Subject	No. of violations pointed out
12(3)	Submission of Scheme of mining	693
13(1)	Mining operations in accordance with mining plan/scheme of mining	833
22(1)	Notice of opening of mine	127
23B(2)	Submission of progressive mine closure plan	139
24	Notice of temporary discontinuance of mining operations	98
45(1)(a)	Submission of returns.	240
Others		2246
Total		**4376**

Disposal of Applications for Grant of Permission under MCDR, 1988

3.14 Details of applications disposed off during 2012-13 for grant of permission under MCDR, 1988 are given below:

Sl No.	Subject	No. of case in which permission	
		Granted	Refused
1	Stoping (Rule 26)	04	Nil
2	Preparation of plans & sections of Mine working (Rule 27)	27	01

Significant Results of Inspections & Studies

Conservation of Minerals:

- During the inspection of Arasmeta Limestone Mines of M/s Lafarge Cement, suggestion was given to drill exploratory boreholes over the waste dump-C (due north of lease area). The company complied with the suggestion and as a result 3.6 million tonnes of limestone reserves were established below the dump.
- During the site inspection of Pendridh Dolomite mines of Shri Govind Agrawal in Bilaspur district of Chhattisgarh, an anomaly was noticed between the size of the pit excavated and the production of dolomite reported from the mine. The same was communicated to the State Government and based on IBM's observation a penalty of ₹15.08 lakh was imposed on the party by the State Government.
- During the inspection of Rajanka Limestone Mine of M/s ACC Ltd in Singhbhum (W) district of Jharkhand, it was noted that there has been generation and separately stacking of limestone mineral rejects of <35% CaO to the tune of 3,69,165 tonne for future use by beneficiation which has not been reflected in the Annual Return for 2011-12. A violation of rule 45(5)(b) of MCDR, 1988 was pointed out to the lessee for incomplete/wrong submission of Annual Return. The lessee has submitted revised annual return intimating the generation of 3,69,165 tonne ofmineral rejects of <35% CaO in the mines during 2011-12 and during 2012-13 up to February, 2013 there is a stack of 8,56,438 tonne of mineral rejects of <35% CaO in the mines. The mineral rejects/sub-grade limestone stacked in mine may be utilised in future by beneficiation.
- Inspection of Bodai-Daldali Bauxite Mine of M/s Balco in Kabirdham district of Chhattisgarh was carried out in connection with Modified Scheme of Mining submitted for approval. As a scrutiny comments, the party was advised to use low grade ore of +40% Al_2O_3 and blending with high grade ore for meeting the plant feed requirement to the tune of +45% Al_2O_3 so that the low grade ore becomes the resource. The party was asked to redefine its mineral resource of 70.86 lakh tonnes. Accordingly, the total quantum of resource was re-assessed as 78.31 lakh tonnes thereby augmenting the resource to the tune of 7.45 lakh tonne. The PMV of Bauxite as per the annual return submitted by the party is ₹ 639.75 per tonne. Thus the value of additional Bauxite established in the area is ₹47.66 crore.
- While scrutinising the modifications to the approved mining plan of Kamrada Chromite Mine of M/s B. C. Mohanty in Odisha, it was observed that during the year 2012-13 over burden (OB) excavation of 5,64,560 m^3 was proposed which was on very much higher side. When pointed out to the party, the same was revised to 4,22,320 m^3 in the final submission thereby reducing the handling by 1,42,240 m^3 for recovering the same quantity of ore, which otherwise would have required the company to spend about ₹42.3 crore extra (@ ₹300/- 0er m^3 of OB) for excavating and disposing off the OB. This is in the interest of systematic and scientific development of the mine as well as environmental protection.

Outcome of RMGS:

Nagpur Regional Office

This study carried out in five bauxite clusters namely Daldali, Barima Kesra, Mainpat Samri Kudag –Tatijharia in 15 leases in the district of Balarampur, Kabirdham, and Sarguja of Chhattisgarh State,covering area of 5199.284 ha out of which about 162.15 ha falls under forest


The Ore Stack Yard at Benti Bagda Limestone mine at JSMDC mine in Jharkand. (right) Systematic mining being carried out in a manganese mine belonging to Sandur Manganese Iron Ores Ltd (SMIORE) in Sandur, Bellary.

land. Due to change in threshold value from earlier 44% to 42% cut-off, reserves got enhanced in Mainpat and Bodaidaldali bauxite mines.

The study recommends that for faster development of the remote Tribal areas, new leases may be allotted to such companies to augment production for their captive use.

All bauxite-bearing areas in the state of Chhattisgarh have been exclusively kept reserved for grant of ML to the public sector undertaking vide notification No. 3851/3506/12 issued on 13.06.1966 from erstwhile undivided Government of Madhya Pradesh. With change in geopolitical scenario, the said notification may be amended to de-reserve some areas and to empower CMDC for allotment to private companies with well-developed infrastructure for their captive use for faster development of the remote Tribal areas.

Ranchi Regional Office

A study was carried out in 30 bauxite leases in the district of Lohardaga and Gumla of Jharkhand State.

Reassessment of reserves with revised threshold value of + 30% Al2O3 and (-) 5% SiO2 has been carried out only in one mine of M/s Hindalco and presently exploration is underway on 50 m x 50 m grid pattern of core drilling in 02 bauxite mines of M/s Hindalco Industries Ltd. 18 mines of Non-Organization Sector have been suspended due to lack of Environmental clearance since June 2012.

Exploration in the forest area is not permitted. Thus, the bauxite deposit in forest land is still unexplored within the area, and hence, reserves are not estimated. Pre-feasibility/ feasibility study is required for estimation of bauxite mineralisation. The glaring issues/problem of bauxite belt in the districts of Lohardaga, Gumla & Latehar is the law and order problem due to intense insurgency activity by several groups resulting in hindrance to the development of the area.

Bhubaneswar Regional Office

Study of 20 Chromite mines/leases have been carried out in the district of Jajpur and Dhenkanal of Odisha State.

Based on the observation during the study, the area has been identified for carrying out exploration in a phased manner. Phase I to decide the ultimate pit limit of Tailangi /IDC, Sukinda/IMFA, Saruabil /ML mines, Sukrangi/OMC, South Kaliapani/OMC and Phase II to determine scope beyond the ultimate pit limit for deciding the underground mining e.g Kaliapani / BAL, Mahagiri /IMFA, Sukinda /IMFA, Kaliapani /JINDAL and Sukinda /TATA.

It is necessary to expedite forest area clearance to all applicants, including Government Agencies as GSI and only large mining companies

The Harith Diwas celebration at Hindalco mine.

can afford the time expense to obtain clearance. To carry out exploration in entire potentially mineralised zone by core drilling it is required to bring the reserves in 111 categories.

From the beneficiation plant-wise data of 11-12 it is observed that wt % recovery varies from 40 to 66.88 and Cr2O3 recovery from 76.29 to 89.1% and the tailing from 9.8 to as high as 16.10% Cr2O3. Therefore, R&D work should be taken up to minimise the tailing losses below threshold value.

Kolkata Regional Office

Study of 14 Limestone Mines /leases in East Khasi Hills & Jayantia Hills of Meghalaya and 16 Iron Ore Mines has been carried out in the district of Singhbhum (W) of Jharkhand State.

The Limestone mines in Meghalaya are scattered in two districts namely, East Khasi Hills & Jayantia Hills. The small leases of Limestone granted in Lumshnong sector may be abandoned as they cannot be worked at depth due to space problem. This is a serious threat to conservation and need attention by Government of Meghalaya before granting small leases In Nangtrai lease area of Lafarge Umiam mining Pvt. Ltd in East Khasi Hills district, limestone formation belongs to Prang limestone unit being the topmost member of shella Formation. Therefore, the area requires exploration at depth from 90 mRl to prove the base of Prang limestone and presence of Umlatodoh limestone below Nurpuh sandstone.

The Komorrah limestone Mining Co. in East Khasi Hills district having an area of 240.55 ha is under operation since pre-independent time with meagre exploration. The area requires detailed exploration in the Northern part to prove the base of Prang limestone and presence of Umlatodoh limestone unit.

The study indicates limestone in the upper part and dolomite in lower part. There is a transitional zone of dolomitic limestone in between. Therefore, the lease area requires detailed drilling at depth to prove the existence of dolomite and estimation of reserve/resources of dolomite.

Jabalpur Regional Office

Study carried out in 40 Bauxite leases in the district of Katni, Rewa, Sidhi and Anuppur.

Exploratory work has not been reported by GSI, MECL & State DMG's in the said areas. The ore body thickness is less than 8 metre and most of the mines/leases are very old workings and ore body

fully exposed in the pit bottom hence no sub-surface exploration has been reported. The mines covered under study are small and 'B' category manual mines and pre-feasibility, feasibility, beneficiation / Metallurgical geotechnical studies are not carried out.

In most of the cases, trial pits have been advanced and developed into working pits and systematic development of the benches has not been done properly. The winning of bauxite is done manually and chemical, metal and abrasive grade is sorted out by manuals means. The lowest alumina containing material/ laterite are also used in cement Industries.

Dehradun Region

Study carried out in 30 soapstone mines in Bageshwar district in Uttarakhand.

Mining leases for soapstone in Uttarakhand State have been granted mostly over a small area ranging from 0.81 hectare to 220.14 hectares on steep hills slopes. Soapstone occurs normally under 0.5 to 3 m-soil cover, 70-90% of ML areas comprise of agriculture fields. Six mines namely, Papon Mine of J.S. Khetwal, Wadura Mine of P.S. Garia, Jharkot Mine of N.S. Corporation, Oliagaon Mine of Amba Mines & Minerals, Rankot Maithra Mine of H.C. Lohani & Khunoli Seunora of Parvatiya Mines carried out exploration by putting trial pits. Mining is done generally up to 15 m depth barring few mines where it has gone up to 18m. Geological evidences are clearly indicative that the soapstone still persists beyond the pits in depth, hence exploration is needed. In Oliagaon mine of M/S Amba Mines & Minerals reserves/ resources have been increased by about 26 per cent.

Ajmer Region:

Study carried out in 57 China clay mining leases in Nagaur district of Rajasthan.

The lease areas are plain terrain, comprise of dry agricultural patta land. The clay bed occur around 15-20 m below surface. It has overlain by Grit & kanker and Ferruginous sand Stone/ silica sand. The thicknesses of overburden vary from mine to mine. Total 76 exploratory Pit/Bore/Shaft have been carried out in the lease holds to know the behaviour of clay occurrences and existence of another clay band below the existing clay bands. The total resources of clay in 57 mining leases have been estimated to be 35.86 million tonnes. It is necessary for all the Lessees to carry out exploration for ore continuity and beneficiation study to improve the value of the siliceous clay which is occurring as overburden. GSI and State DGM may take up the exploration and detailed study in the Nagaur clay basin to establish the continuity of the belt. State DGM may take steps for preparing Geo-referenced Cadastral map showing the survey numbers of the lease hold and may promote value addition of mineral, development of infrastructure etc.

Shri Purohit, RCOM, Ranchi Regional Office speaking at the 10th Mines Environment and Mineral Conservation Week organised at the Ranchi IBM office. (right) Saplings planted in a mined out area in Karnataka.

Bengaluru Region

Study carried out in 24 china clay mining leases in Thiruvanthapuram and Kollam Districts, two Bauxite mining leases and 5 Sillimanite mining leases in Kollam District of Kerala state.

There is an incremental increase of 1,375,000 tonnes reserves and 82,500 tonnes resources of china clay which have been assessed based on addition exploration carried out in 4 mining leases of china clay with exploration expenditure of 1.5 lakhs. There is no exploration in bauxite and sillimanite mines covered under study. It is noted that there is a huge gap in explorations.

State DMG, Kerala has been requested for imposition of condition under Rule 27(3) of MCR, 1960 for implementation of exploration programme in mining lease as per time schedule prescribed by the Ministry of Mines dated 23/12/2010.

China clay, Bauxite and beach heavy minerals wealth of this region are located in densely populated and proposed area of IT related development activities of Govt of Kerala. Therefore, in the interest of conservation of minerals, it is suggested that state Government should allow the mining of china clay and order for backfilling the entire mined out area up to ground level within certain time frame work. Subsequently, the techno-city and life science park could be established as per the state Government programme.

Chennai Region

Study carried out in 30 number of Limestone leaseholds out of which 2 mines (5 G.O.s) of Dalmia Cements (P) Ltd and one of mine M/s Vijaya Cements Ltd are captive and the remaining 24 mines are non-captive.

All the non captive mines are manually operated and the captive mines are mechanised/other than fully mechanised.

There are two cement plants owned by Dalmia cements (P) Ltd. Located at Thirchirapalli and Arylur district. The production capacity of each plants is 2.4 tonnes/annum, respectively. In order to cater the raw material requirements of these plants, the company is operating four captive mines at various locations inTrichy and Ariyalur district out of which two mines (5 G.OS) were covered during the study M/S Vijaya Cements Ltd. is having one mini Cement Plants at Manachanallurataluka, Thirchirapalli district having capacity of 90,000 tonnes per annum.

As the exploration/ feasibility study is not carried out as per the UNFC/ CCOM Circular No 03/2011, the manual mines where exploration not carried out as per the UNFC were advised to submit the programme of exploration as per the norms. After this the reserves/ resource estimated in the mining scheme should be modified and accordingly the lessees were advised to submit modified mining scheme for approval.

State DGM asked to examine adequacy of area for grant of leases, take steps for preparing Geo-referenced Cadastral map and erection of boundary pillars.

Goa Region

Study was carried out in five Iron ore mines of Sindhudurg district of Maharashtra.

All the mines covered under RMGS are fully mechanised category A mines. The present mining method is by open cast method by forming benches and deploying heavy earth moving machineries. The benches are systematically maintained.

The mine owners have been advised to drill some more bore holes to know the depth continuity and lateral extension of the ore body.

Hyderabad Region:

Study carried out of 30 Manganese ore Mines of Vizianagaram and Adilabad districts of Andhra Pradesh.

The Manganese deposits of Vizianagaram district forms part of the plain that border Eastern ghat hill ranges and that of Adilabad occurs in the form of replacement deposit. Mining operations in Vizinagaram district are carried out by other than fully mechanised method of mining and by use of manual labour for extraction of ore body. Due to huge generation of waste in many mines, outside waste dumping have been done. In Adilabad district, the mines have been developed

by manual method of mining. Due to shallow nature of the deposit, simultaneous backfilling of mined out areas are carried out.

The mine-wise entire resources of the study area have been categorised under UNFC and the life of the mines varied from 5 years to 187 based on proposed production.

Geological Survey of India has carried out extensive prospecting work in Manganese deposits of Vizianagaram and Adilabad districts of Andhra Pradesh. In Vizianagaram area, the Manganese deposits have been sub-divided into seven blocks and in Adilabad deposit the exploration activity were confined to one block and there is no augmentation of resources.

In the present study, extensive core drilling have been proposed in Vizianagaram district to know the ultimate depth of mineralisation whereas in case of Adilabad deposit, since the ore body occurs at shallow depth, trial pitting is suggested.

Udaipur Region

Study of 30 Lease hold Areas of Bauxite, in Village, Mewasa & Virpur have been carried out in Jamnagar, Gujarat.

The ore from Jamnagar district was exported in large scale during 2006-07 to 2008-09. The export of bauxite was restricted due to state government policy after 2009 and subsequent sale of bauxite was channelised through GMDCAFAF vide letter no.1-352-CHHDT.

Bauxite deposits of Jamnagar district occur as lenticular pocket concentration within lateritic sheets of relatively smaller extensions up to depth ranging from 2 to 6m and OB up to 1.5m. Bauxite mine sections revealed following 4 different zones. (1) Hard massive zone (2) Nodular or concretionary zone (3) Pisolitic & Oolitic Zone Powdery/Clayey or earthy zone.

During inspection, necessity of more exploration by trial pits and Boreholes were observed because out of 587.7541 hectares only 110.1177 hectares of area have been explored and rest of the area required more exploration as there are no mining activities in these remaining areas of 30 leases.

The study area is more sensitive in respect of forest area, marine national park, marine sanctuary falling within the CRZ boundary.

In situ bauxite is mixed grade. High and low grades in the ratio of 10:90 developed after sizing and sorting during the mining process. In studied area, mining operation are being carried out by manual, semi mechanised means. The production pattern indicates sudden slump from 2007-08 in Gujarat from 11.9 million tonnes to 9 lakh tonnes in 2011-12 and further expected to be lowered during 2012-13 due to the state government policy.

Measures for Abatement of Pollution and Environmental Protection

3.15 While approving the mining plans, schemes of mining and mine closure plans 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, besides reclamation and rehabilitation of mined out areas. IBM also ensures that mining operations are carried out in accordance with the approved mining plan/scheme of mining.

As a result of follow up for implementation of EMP, extensive afforestation has been undertaken in the mines by the mine owners. During the year 2012-13, about 3.65 million saplings have been planted over an area of 922 ha in and around mine areas. Thus, so far, 104.9 million saplings have been planted over an area of about 41,217 ha with a survival rate of 67 percent. Simultaneous reclamation in working mines, and reclamation of abandoned mines are required to be carried out wherever feasible. During the year 2012-13, simultaneous reclamation/ rehabilitation is underway in 353 working mines covering an area of about 1401 ha, taking the cumulative figure up to 1717 ha working mines covering an area of about 14468 ha. So far, 55 abandoned mines covering an area of 823 ha have been reclaimed/ rehabilitated.

Mines Environment and Mineral Conservation Week

3.16 IBM plays a key role in fostering greater awareness and inculcates competition amongst the mine owners by organising Mines Environment

and Mineral Conservation (MEMC) Week in different mining areas in the country towards the protection and restoration of mine environment with thrust on sustainable development.

The MEMC week held under the aegis of different Regional offices of IBM during 2012-13, in which a total of 1017 mines participated, are given below:

REGION	Period	No of Mines participated
	CENTRAL ZONE	
Ranchi	07.01.2013 to 13.01.2013	64
Jabalpur	14.01.2013 to 20.01.2013	88
Nagpur	26.11.2012 to 03.12.2012	60
Kolkota	28.01.2013 to 03.02.2013	38
Kolkata (Guwahati Sub-Region)	18.02.2013 to 24.02.2013	13
Bhubaneshwar	04.01.2013 to 11.01.2013	
	NORTH ZONE	
Ajmer	13.01.2013 to 20.01.2013	118
Dehradun	11.02.2013 to 17.02.2013	59
Udaipur/ Rajasthan	18.02.2013 to 23.02.2013	102
Udaipur / Gujarat	02.01.2012 to 12.01.2012	77
	SOUTH ZONE	
Chennai	04.03.2013 to 09.03.2013	102
Hyderabad	17.12.2012 to 23.12.2012	102
Goa	No celebration due to closure of mines	
Goa (Karnataka)	13.03.2013 to 17.03.2013	50
Bangalore (Karnataka)	07.01.2013 to 12.01.2013	29
Bangalore (Kerala)	04.03.2013 to 09.03.2013	33
TOTAL MINES PARTICIPATED IN MEMC WEEK		**1017**

The celebration of MEMC Weeks continued to receive wide publicity and popularity. It gives immense pleasure to say that a positive response towards mineral conservation and protection of mine environment has been noticed, particularly in mechanised mines. A healthy sign has also been observed amongst small mine owners towards achieving the goal of conserving mineral and protecting the mines environment.

Threshold Values of Minerals- Incremental increase in mineral reserves

3.17 The threshold value defines the limiting content of the valuable constituent in an ore zone above which the excavated material will attract the provisions of rule 16 and 18 of MCDR 1988. Under this provision, the lessee is required to stack and preserve unsaleable sub-grade ore, which are generated during mining. In the interest of systematic development of mineral deposits and conservation of minerals, Controller General, IBM issued directives under Rule 54 of MCDR, 1988 notifying threshold value of minerals vide Notification No. T-45031/ CGBM/2007 (PF) dated 16 October, 2009, for general information and immediate compliance by the mine owners. Subsequently, circulars highlighting the procedure to be followed for exploration within the leaseholds in respect of which the threshold values have been significantly changed i.e. for iron ore, chromite, bauxite, limestone & dolomite, wollastonite and magnesite were also issued for reassessing the reserves/ resources.

Regional offices have been instructed to start with important minerals like Iron ore, Manganese ore etc for updation of reserves/resources based on the revised threshold values. Region-wise Incremental Increase in Reserves & Resources during 2012-13 is as given in Table A on page 20.

Grant of Exploration Licence in Offshore Areas

3.18 Offshore Areas Mineral (Development and Regulation) Act has come into force with effect from 15.01.2010. The Controller General, IBM has been appointed as Administering Authority as well as authorised officer for the purpose of the Offshore Areas Mineral (Development and Regulation) Act, 2002 vide order dated 11.02.2010. Subsequently, the Controller General, vide notification dated 7.06.2010 has notified total 62 blocks (26 mineral bearing Offshore blocks in Bay of Bengal and 36 mineral bearing Offshore blocks in Arabian Sea). In response to the above notification total 377 applications have been received till the last date, i.e. 14.09.2010 stipulated for the purpose. Based on the recommendations of the Screening Committee, Exploration Licences were granted to 16 applicants for 62 mineral bearing blocks in the offshore waters of Bay of Bengal and Arabian Sea on 5th April 2011.

Region-wise Incremental Increase in Reserves & Resources during 2012-13

Sl No.	Region	Mineral	Incremental increase in reserves/resources (in million tonnes)			
			Reserves	Resources	Total Resources	No. of mines
1	Ajmer	Iron Ore	0.03		0.03	2 mines
2	Bengaluru	Iron Ore Limestone	78.21 107.38	201.19 230.95	279.40 338.33	11 mines 1 mine
3	Bhubaneswar	Chromite	15.244	-	15.244	3 mines
4	Chennai	Limestone	16.67	3.47	20.14	5 mines
5	Dehradun	Limestone	52.59	81.14	133.73	1 mine
6	Hyderabad	Limestone & Dolomite	1.7	206.52 0.054	208.22 0.054	4 mines 1 mine
7	Jabalpur	Iron Ore & Bauxite	16.8 -	0.66 0.49	17.46 0.49	8 mines &1PL 4 mines
8	Kolkata	Iron Ore	1.305	8.226	9.531	1 mine
9	Ranchi	Bauxite & Limestone	27.91 14.31	6.49	34.4 14.31	18 mines 3 mines
10	Udaipur	Bauxite	2.64	2.23	4.87	4 mines

Table A

Further progress in executing the Exploration Licence is stalled as the matter is subjudice. All subsequent actions have been therefore kept in abeyance. Meanwhile, process for framing of UNFC Guidelines in Offshore Mining is in progress.

Commencement of offshore exploration will set a new benchmark in the achievement of Indian Mining industry hitherto unheard of and India will join the elite club of select few nations in this pioneering feat. (Fig. 3.5)

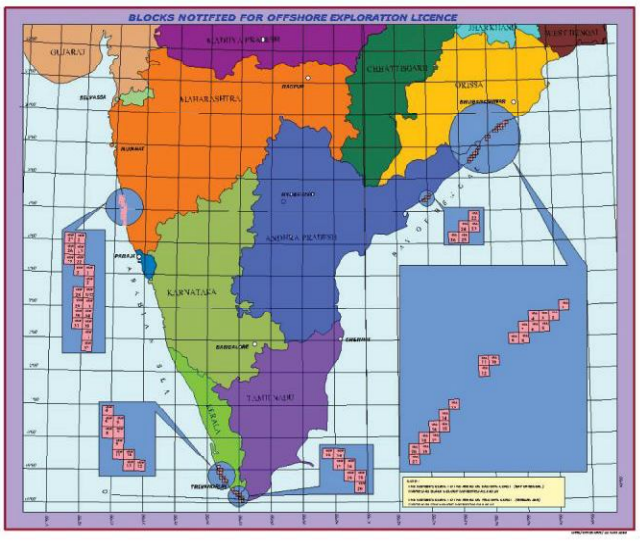


Figure 3.5 : Mineral bearing blocks in Offshore areas

Mineral Concession Approval System (MCAS)

3.19 The web-based Mineral Concession Approval System **is** operational in the Ministry of Mines and is being used to monitor the progress of applications received in the Ministry, recommended by the State Governments in favour of a particular applicant in respect of RP, PL, ML for major minerals specified in the first schedule of MMDR Act, 1957. The system is being extended to capture the post approval activities.

Measures to Curb Illegal Mining

3.20 While the issue of prevention of illegal mining is not covered within the functioning of IBM, it has been associated with state government and its law enforcement agencies to curb the illegal mining activities.

The Ministry of Mines have formulated a three-pronged strategy for prevention of illegal mining viz, constitution of Task Force by the state government at State and District Level having a representative of IBM, framing of rules under Section 23C of the MMDR Act, 1957 and furnishing of quarterly returns on illegal mining for review by the Central Government.

With rigorous follow-up made by IBM with various State Governments, 21 State Governments have constituted Task Force namely, Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttarakhand & West Bengal and 18 states have framed the rules under section 23C of MMDR Act 1957 namely, Andhra Pradesh, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Nagaland, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand & West Bengal so far. The function of the Task force is to review the action taken by member departments for checking the illegal mining activities in their respective jurisdiction. Further, whenever IBM detects illegal mining during the course of routine MCDR inspection, the same is reported to the State Government concerned to take suitable action and report the compliance to IBM.

The Ministry of Mines has directed the state governments to conduct special drive to increase awareness on the issue of illegal mining by organising "Pakhwara' (Fortnight Programme) in liaison with the office of IBM in the state. Accordingly, IBM has initiated the action on the matter and nominated one officer each from the regional offices for the event.

Besides, IBM has nominated Nodal Officers for every zonal/regional office to supervise the work of prevention of illegal mining activities in the respective regions/states mainly for surfacial deposits of major and minor minerals. They will co-ordinate with the state governments for timely submission of quarterly returns on illegal mining; liaisoning with state government for framing of rules under section 23 C of MMDR Act 1957 and constitution of task force; participation in the regular task force meetings, coordination in organising Pakhwara for prevention of illegal mining; attending all the references pertaining to illegal mining and submission of report/comments thereof, referring the cases of illegal mining noticed during MCDR inspections to the state government and action taken by the state government and other related issues.

In compliance of the direction of the Ministry, IBM has constituted Special Task Forces for inspection of mines in endemic areas by taking help of Satellite imageries. The Task Force inspections were conducted during the period from December 2009 to December, 2011 in the States of Andhra Pradesh, Chhattisgarh, Goa, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra and Odisha. In all 454 mines comprising minerals like iron ore, manganese ore, dolomite, limestone, bauxite etc. were inspected by the Task Force.

Mining operations were suspended in 161 mines under rule 13(2) of MCDR, 1988. Suspension orders were subsequently revoked in 114 mines after ensuring rectification of violation(s). In 15 cases (Gujarat-02, Karnataka-08, Madhya Pradesh-01, Maharashtra-01 and Odisha-03) recommendation to terminate the leases under rule 27(1) (u) and 27 (5) of MCR 1960 have been communicated to the concerned State Governments.

During the year 2012-13, 21 state governments have submitted the quarterly returns on illegal mining up to the quarter ending March 2013. An annualised quarterly return on illegal mining for the year 2012-13 is given at **Annexure IX.**

The Ministry of Mines has further directed all the state governments to start the process of registration of end-users, constitution of Special Cell in State Police, use of satellite imagery to track down illegal mining, hologram-marking / bar-coding of transport permit etc. The state governments are also planning to set up special camp at sites and deployment of Boarder Home Guards in the areas where there have been complaints about illegal mining.

Implementation of amended Rule 45 of Mineral Conservation and Development Rules 1988

To handle the problems of illegal mining, the Central Government has taken steps to keep accounts of mineral flow from mine to end. Therefore, the Government of India has notified amendment in Rule 45 of Mineral Conservation and Development Rules, 1988, vide G.S.R. No. 75(E) published in Part-II, Section-3, Sub-Section (i) of the Gazette of India Extraordinary dated, 9th February, 2011, which stipulates mandatory registration of miners, stockists, traders, exporters, and end-users of minerals, and stringent reporting norms for ensuring end-to-end accounting of the mineral produced. In this system, it is mandatory for the miners, traders, exporters, and end-users of the minerals to send a copy of the reports to State Governments too. The State Governments have also been advised to ensure that any automation in the reporting system developed at their level should be compliant with the amended Rule 45 of the MCDR. Accordingly, IBM in association with NIC has developed online registration forms and statutory monthly and annual returns forms. The first phase of online system of submission of statutory returns was inaugurated by Hon'ble Minister of State for Mines (IC) Shri Dinsha Patel on 29.03.2012 at New Delhi.

F1 to F4 and F8 forms i.e. monthly returns forms have been made operational from 23.05.2012 and F5 to F7 made operational from 31.08.2012. H- Series forms i.e. Annual Returns forms have been developed and are hosted online on 26.09.2012 for testing. The same have been made available for online submission by 27.12.2012. Form F-9 and H-9 have been deleted vide notification dated 09.02.2011. Online submission of monthly and annual returns is being monitored. So far 13500 online returns have been received. User name and passwords have been provided to the State Governments for viewing the returns online.

The second phase viz online submission of Annual Returns was inaugurated at the hands of Shri C.S.Gundewar, Controller General, IBM on 1st March 2013 on the occasion of IBM foundation day at IBM Headquarters, Nagpur.

The online reporting system is linked to online registration system. Complete switchover to Online submission of returns would help ensuring effective data collection, increasing the coverage of mines and faster collection and compilation of information and to bring out in time various statistical publications.

The online registration system has already commenced in the IBM and so far up to March, 2013, 8413 lease holders, 3178 traders, 616 exporters, 1234 stockist and 2339 end-users have registered their details.

Broadly, the reporting system is divided into two parts. Part-I covers the general information in addition to the employment details. Part-II of the monthly reporting system deals with the grade-wise production, dispatches, stock and justification for increase/decrease of production and sale price of minerals. The Part-II of reporting system requires the registration number of the consignee and purpose of sale i.e. whether for domestic consumption or export and in case of domestic consumption whether it is made for captive consumption / sale / transfer.

In order to facilitate tracking of mineral from mine to end-use, the reporting system requires indicating the registration number of supplier from whom the mineral is procured. The reporting system will have details of approved mining plan, production proposals to compare the same with the actual production from the mine. All the State Government will be able to access the system to check the data reported in the returns and can initiate action in case of wrong reporting of data, evasion of royalty, etc.

The amended Rule 45 of MCDR, 1988 specifies the penal action against defaulting mine owners and empowers the Central Government to order for suspension of all mining operations and may revoke the order of suspension after ensuring proper compliance, take action to initiate prosecution and recommend for termination of mining lease. The Rule further specifies that in case of defaulters engaged in trading or storage or end-use or export of minerals, the State Government is empowered to order for suspension of trading licence, all transport permits issued, storage licence for stocking minerals and permits of end-use industry, etc.

In future, the system will be linked to Railways and Ports Authorities to check the correctness of the reporting made under the Rule for which a separate project/scheme has been proposed by IBM.

Sustainable Development Framework (SDF) for the Mining Sector in India

3.21 The development of the SDF has followed through on the policy recommendations of the High Level Committee. A participatory approach involving consultation and discussions with different stakeholder groups, support of the concerned departments at the state and central level, feedback and representation from the industry and the civil society groups were the key highlights of the approach adopted for the study.

The SDF is informed by ground realities, conflicts, issues, expectations and perceptions with regard to the mining and the different activities associated with it. Job for implementation of SDF in respect of reporting self-assessment by Mining Lease holders has been entrusted to IBM. Guidelines for reporting of self-assessment by Mining Lease holders have been prepared and sent to Ministry vide letter dated 16.10.2012 for approval and concurrence. Roll-out of SDF is to be done. As a next stage in the process, IBM is conducting pilot studies for implementation of the SDF before finally launching it across the country in all the States.

Parliament Questions and Ministry References

3.22 During the year the MCCM division provided information for 106 Parliament Questions, 29 Ministry references and 39 references on grant of Mining Leases and 18 references on renewal of grants to the Ministry / other Divisions / State Governments.

4. GEOLOGICAL MAPPING AND MINERAL MAP CELL

Shri D.S. Mishra (third from left), Joint Secretary (Mines) at the 5th Joint Working Group meeting between India and Toronto held at Toronto in March, 2013. Shri V. K. Misar, SMG, IBM and other officers from Indian and Toronto side are seen.

GEOLOGICAL MAPPING CELL

Geological Mapping (GM) Cell is engaged in the scrutiny of updated NMI (as on 1.4.2010) for private sector leasehold mineral deposits received from various Regional Offices of IBM and also maintaining RP / PL database.

Achievements

4.2 Administration of RP is covered under Rule 3A to 3E of MCDR 1988. For effective implementation of these rules, 24 violations were issued to the defaulting RP holders during 2012-13. This has helped to regulate and streamline reports/returns/data submission from these RP holders.

During the year, 222 such documents were received from RP holders, which were scrutinised and documented for further follow-up action. Quarterly status report on RPs in India for the quarter ending March, June, September and December 2012 were furnished to Ministry and also hosted on IBM website.

4.3 As on 31 March 2013, out of 396 RPs (including 04 in 2012-13 granted) covering an area of 5,16,042 Sq. Kms, 338 RPs were relinquished/ surrendered/abandoned and of which 17 were granted Pls.

MINERAL MAP CELL

4.4 Mineral Map (MM) Cell prepares multi-mineral leasehold maps (MMLM) depicting distribution & disposition of mining leases of various minerals found in a region, along with other relevant details about infrastructure, physiography, resources, forest cover etc.

It is equipped with AUTO CAD 2004, AUTO CAD MAP 2008, MICRO STATION V8 and GEOMEDIA PROFESSIONAL. Lease details from mining plans and scheme of mining, forest density maps from Forest Survey of India and details of regional geology from published maps of Geological Survey of India are used in preparation of mineral maps.

These maps have been found useful for policy planners and to facilitate development of mineral deposits. Besides, these maps also serve as authentic references for resolving mining and mineral related issues.

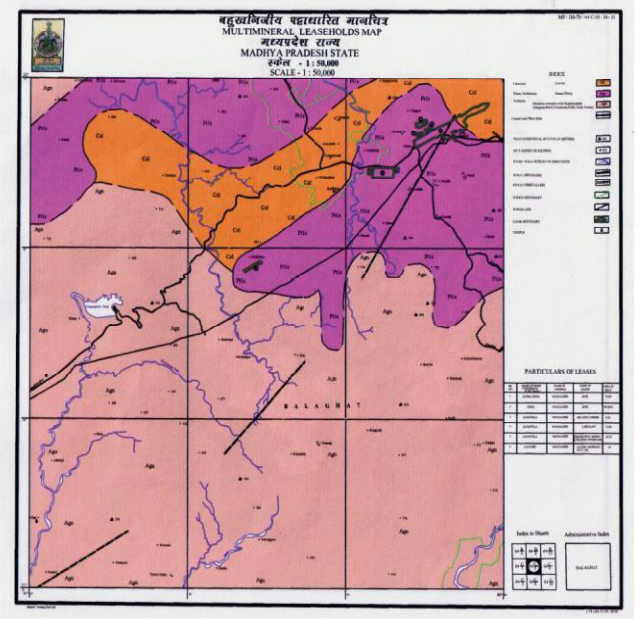
The various maps prepared by MM Cell are:

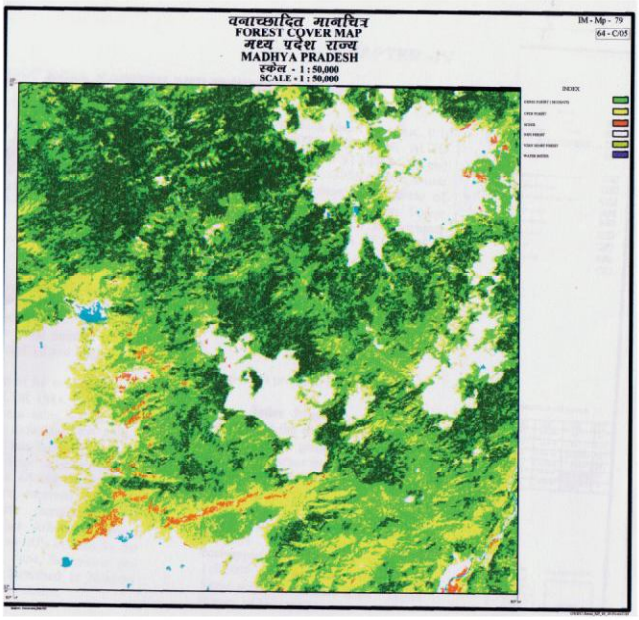
(i) index Map: The index map incorporates the distribution of mining leases, regional geology, physiography and infrastructure available in the area. These maps are prepared on 1:50,000 scale.

(ii) Forest Overlays: The forest overlays are prepared for the corresponding index maps on 1:50,000 scale and they incorporate forest cover as obtained from Forest Survey of India (FSI).

Achievements

4.5 During the year 2012-13 100 multi-mineral leasehold maps on a scale of 1:50,000 with corresponding forest overlays in respect of Karnataka and Odisha States were updated.





5. ORE DRESSING DIVISION

Shri C.S. Gundewar, Controller General, IBM being presented the Life Time Achievement Award by Shri B.K. Mohanty, chief guest of MineTech'12, organised by the Indian Mining and Engineering Journal at Bhubaneshwar.

The Ore Dressing Division undertakes test work on beneficiation of low grade ores and minerals to develop suitable process flow sheet on bench-laboratory scale and pilot plant scale. It has a Modern Mineral Processing Laboratory and Pilot Plant at Nagpur and two Regional Ore Dressing Laboratories at Ajmer and Bengaluru. Ore Dressing Division is headed by Director (Ore Dressing). The Modern Mineral Processing Laboratory and Pilot Plant at Nagpur is headed by Chief Ore Dressing Officer. The Regional Ore Dressing Laboratory and Pilot Plants at Ajmer and Bengaluru are headed by Superintending Officer (Ore Dressing). This Division has a strong R&D base for mineral beneficiation and these studies are carried out on various low grades of ores/minerals, waste/rejects viz ferrous, non-ferrous, sulphide minerals and industrial minerals except atomic minerals on charge basis as well as on promotional basis, as a part of the conservation studies being carried out by the MCCM Division.

5.2 The Modern Mineral Processing Laboratory and Pilot Plant at Nagpur is well equipped with most sophisticated equipment and is regarded as "Centre of Excellence" in the field of Mineral Beneficiation. This is a core centre to cater to the needs of the country for beneficiation test work. The pilot plant has flexible capacity ranging from 0.5 to 2.0 tonnes/hour for conforming the process evolved in the laboratory as well as to generate additional data before commercial application and also to produce adequate quantity of concentrate, if needed, for end-use testing.

5.3 The Analytical Laboratory located in the premises of Modern Mineral Processing Pilot Plant, houses the Chemical Laboratory, the Mineralogical Laboratory and the Environmental Laboratory. The Environmental Laboratory is a recognised laboratory by the Central Pollution Board of Ministry of Environment & Forests (MoEF), Government of India.

5.4 The Bureau has region-wise facilities in mineral testing and beneficiation with regional ore dressing laboratory and pilot plants at Ajmer and Bengaluru which are also well equipped with sophisticated equipment. A 'Clay Laboratory' has also been established at Kolkata to cater to the needs of the north-eastern region exclusively.

5.5 The most important function of this Division is to conduct R&D work with an objective of developing a suitable process flow sheet for beneficiation of low grade ores and minerals for

commercial application; chemical analysis by conventional as well as instrumental methods; mineralogical studies and physical characterisation of ores and minerals and ore dressing products; preparation of pre-feasibility reports; in-plant studies and plant audit; environmental studies of mine waste effluents; trouble shooting jobs at site for commercial plants; and providing consultancy services in fields of mineral processing. This Division also imparts training to the scientists of mining industry in the specialised fields of ore dressing.

Performance

5.6 During the year 2012-13, 59 ore dressing investigations, chemical analysis in respect of 42,771 radicals, 2,509 mineralogical examinations and 09 in-plant study were carried out. Out of these achievements, 14% of the Ore Dressing investigations were on promotional basis and the remaining were on charge basis. A revenue of ₹ 92,75,269/- was generated during the year. Laboratory-wise break-up of work carried out and revenue generated is given in ***Table 1.***

Sl No.	Item	Target / Achievements during 2012-13							
		Ajmer		Bengaluru		Nagpur		Total	
		T	A	T	A	T	A	T	A
1	Ore Dressing investigations	15	(21)	15	(17)	30	(21)	60	(59)
2	Chemical Analysis	6,000	5,956	6,000	8,675	28,000	28,140	40,000	42,771
3	Mineralogical Examinations	500	562	500	608	1,300	1,339	2,300	2,509
4	In-plant Study	-	-	-	-	-	09	-	09
5	Revenue Generated (₹ Lakhs)	-	35.120	-	34.793	-	31.324	-	92.752

Table 1

In case of promotional work, IBM conducts test work on the samples mainly collected during inspection of mines and R&D support provided towards fulfilling regulatory functions of IBM for systematic and scientific mining, which are prime importance from conservation and environmental aspects. The charge basis samples are received from the public and private sector mines and also from exploratory agencies such as GSI, MECL etc. **Annexure II** furnishes the list of laboratory and pilot scale investigations completed during the year 2012-13. Mineral-wise break up is given in Table 2.

5.7 TRAINING PROGRAMMES

1. Training Programme on "Training to Develop Promotional Scheme for Beneficiation and Agglomeration of low grade ore":

A training programme on "Training to develop promotion scheme for beneficiation and agglomeration of low grade ore" was conducted at Modern Mineral Processing Laboratory and Pilot Plant, IBM, MIDC, Hingna Road, Nagpur on 5th and 6th March, 2013. The training was organised by Training Centre, IBM, Nagpur. Shri C.S. Gundewar, Controller General, IBM, the Chief Guest, inaugurated the programme. Shri Mohan Ram, Chief Ore Dressing Officer, presided over the function. Shri Arun Prasad, Regional Controller of Mines & Director (Training) was also present on this occasion.

Sl No.	Mineral	Charge Basis	Non-Charge Basis	Total
1.	Barites	01(1.0)	-	01 (1.0)
2.	Bauxite	01(1.0)	-	01 (1.0)
3.	Copper	09	-	09 (3.75)
		(3.75)		
4.	Clay/China clay	14 (3.50)	04 (1.0)	18 (4.50)
5.	Cobalt	01(1.0)	-	01 (1.0)
6.	Chalk	-	04 (4.0)	04 (4.0)
7.	Graphite	01(1.0)	-	01 (1.0)
8.	Heavy Mineral Sand	01(1.0)	-	01 (1.0)
9.	Iron Ore	40 (27.25)	02 (0.50)	42 (27.75)
10.	Lead-Zinc	03 (1.50)	-	03 (1.50)
11	Limestone	03(3.0)	01 (1.0)	04 (4.0)
12.	Manganese	03 (2.25)	-	03 (2.25)
13.	Poly Metallic ore	01(1.0)	-	01 (1.0)
14	Rock Phosphate	03 (1.50)	03 (3.0)	06 (4.00)
15	Vermiculite	01 (0.25)	-	01 (0.25)
16	Misc-elleneous	04 (1.0)	-	04 (1.0)
	TOTAL	86 (50.0)	14 (9.50)	100 (59.00)

Table 2

Forty nine participants from various industries like, Tata Steel Ltd; Steel Authority of India, NALCO, ACC Ltd, Usha Martin Ltd, Kiriburu Iron Ore Mine, Guali Iron Ore Mines, Rungta Mines Ltd, etc. attended the above said training programme.

Six lectures on various topics like Facilities and Capabilities in Ore Dressing Division in the field of Mineral Beneficiation; Development of Process Flow sheet for upgradation of low grade ore and minerals at Laboratory and pilot plant scale; Mineral characterisation and its application in beneficiation; Agglomeration – Its need and significance; Beneficiation of industrial minerals, beneficiation of ferrous minerals, etc. were delivered by eminent faculties from IBM, like, Shri Mohan Ram, CODO; Shri M.S. Rao, ODO; Dr.(Mrs.) S.M. Lal, ODO; Shri A.K. Sengupta, DODO from Ore Dressing Division; Shri A.T. Sutaone, Ex.SOOD, IBM.

Visit to Ore Dressing Laboratory and Pilot Plant, Mineralogical Laboratory and Chemical Laboratory was also undertaken by Shri V.V.R. Murthy, ARO; Shri L.B. Toal, DODO and Shri M.A.K. Naidu, Senior Chemist and Dr. K.M. Patki, Chemist.

Evaluation report from all the participants was collected. Almost all the participants appreciated the material given and lectures delivered by the faculty members. Participants have appreciated the presentation given by the faculty members. Some of the participants wanted longer duration of training period. Some of the participants indicated the training programme was useful.

A valedictory function was conducted on 6th March, 2013. Shri Mohan Ram, SOOD was the Chief Guest of the function and addressed the gathering. Shri Arun Prasad, Regional Controller of Mines & Director (Training) gave his presidential address.

Some participants expressed their views on this occasion. They appreciated the training programme. Certificate for participation were distributed by Shri Mohan Ram, CODO and Shri Arun Prasad, RCOM & Director(Training). Suggestions given by the participants were summarised, which was beneficial for the future programme.

Lastly, Vote of Thanks was proposed by Shri M.R. Kaware, AME. During the tenure of training Shri K.K. Waghmare, STA(Mining) from Training Centre also co-ordinated for this programme. Mrs. Veena Shambharkar, DODO was the Course Director and Shri G.S. Maraskole, ARO was the Course Co-ordinator.

2. Training Programme on "Induction Training Programme in Chemical Analysis for New Entrants':

"Induction training programme in Chemical

Analysis for new entrants" was conducted from 11th to 16th March, 2013 at Modern Mineral Processing Laboratory and Pilot Plant, IBM, MIDC, Hingna Road, Nagpur. Shri C.S. Gundewar, Controller General, IBM, the Chief Guest, inaugurated the training programme. Shri Arun Prasad, Regional Controller of Mines & Director (Training) was guest of honour and the function was presided over by Shri Mohan Ram, Chief Ore Dressing Officer.

During this period, lectures on sampling techniques, introduction to XRD, DTA, AAS, ICPA, XRF Techniques; Functions of IBM, Administrative Responsibilities of Government Servant; Introduction to environmental analysis were arranged.Visits to mineralogical laboratory, ore dressing laboratory and pilot plant; AAS, ICPA, XRF and environmental laboratories were arranged.

Eleven participants from Nagpur, Ajmer and Bengaluru laboratories participated in the training programme. The participants were awarded certificates during the valedictory function of training programme. During the training lectures on ore dressing, sampling, instrumentation (XRD, DTA, AAS, ICPA, XRF) followed by demonstration in respective laboratories and pilot plant, environmental laboratory were arranged. This was the first induction training programme arranged. Smt. S.T. Shami, Chemist was the Course Director of the Training Programme.

On 16th March, 2013 Valedictory function was conducted. Shri Mohan Ram, Chief Ore Dressing Officer was Chief Guest , who awarded the certificates to participants. Representatives from all laboratories expressed their views and suggestions about course. Vote of thanks was given by Shri B.S. Moroney, Suptdg, Chemist.

3. Training Programme on "Induction Training Programme in Ore Dressing for New entrants':

A Training Programme on 'Induction Training in Ore Dressing for New Entrants' was held between 18th and 23rd March, 2013 at Modern Mineral Processing Laboratory and Pilot Plant, IBM, MIDC, Hingna Road, Nagpur.

The new entrants from MMPL and PP, Hingna , Nagpur, RODL, Ajmer and RODL, Bengaluru attended the training programme. The training programme was inaugurated by Shri C.S. Gundewar, Controller General, IBM as the Chief Guest. The function was presided over by Shri Mohan Ram, Chief Ore Dressing Officer. Shri Arun Prasad, Regional Controller of Mines & Director (Training) was also present on this occasion. All the speakers emphasised on the need and usefulness of this programme. The inaugural function concluded with a formal vote of thanks.

A comprehensive course module was prepared by Dr. (Mrs.) S.M. Lal, Ore Dressing Officer. After the inaugural function nearly 14 lectures were delivered by various faculties. They covered all the areas of mineral beneficiation. Apart from mineral beneficiation topics, lectures were also delivered on 'Functions, Facilities and Capabilities of O.D. Division', 'Functions of IBM', 'An Introduction to Chemical Analysis in view of beneficiation' and 'Administrative Matters, Duties and Responsibilities of Government Servant'. A visit to Indira Bhavan was also conducted to make the participants aware of the other divisions of IBM.

The valedictory function was held on 23 March, 2013. Shri Mohan Ram, Chief Ore Dressing Officer was the Chief Guest and Shri Arun Prasad, Regional Controller of Mines & Director (Training) presided over the function. Certificates were distributed by Shri Mohan Ram on the day.

All the new entrants have expressed satisfaction over the entire training programme as per the evaluation sheets given to them and views expressed by the participants on the day. Shri M.G. Raut, DODO was the Course Director of the Training Programme.

Salient Results

5.8 Salient results of the important investigations are as follows:

BARITE

A low grade Barite sample was received from M/S GIMPEX A P Barite Beneficiation Pvt. Ltd, Chennai for pilot plant scale beneficiation studies at RODL, Bengaluru. The objective of the study being to generate technical data required for scale-up and design of commercial plant, as the company is planning to set-up the barite processing plant at Korlakunta near Mangampet,

Cuddapah Distt. Andhra Pradesh.

The as received sample assayed 75.72 $BaSO_4$, 12.79 % SiO_2, 3.22% Al_2O_3, 1.8% Fe(T), 0.60% CaO, 0.54% MgO, 0.74% S (Py) and 1.28 % LOI. The sample contained approximately 75-80% barite, 7-10 % cherty quartz, 7-10 % clayey shale, 2-3% pyrite and traces of carbonates, feldspar, goethite and magnetite.

By adopting the selective speciality froth collector Armoflote-17 for flotation, a Barite concentrate assaying 92.19 % $BaSO_4$, 4.59% SiO_2, with barite recovery 75.6 % (wt% yield 62) and specific gravity 4.22 could be obtained. The concentrate obtained meets the specifications of the party required for drill mud grade. Also a super grade barite concentrate assaying 97.06% $BaSO_4$ (wt%- 48.0) could be obtained after regrinding of the drill mud barite concentrate and subjecting it to flotation.

Some of the highlights / advantages of the process developed after in depth study in laboratory and pilot plant are as follows:

- Denver grindability studies indicate that sample belongs to 'soft' category. The work-index determination value of the sample was found to be 6.08 kw-hr / short tonne. Therefore, wear and tear on processing machinery is less and the energy requirement for size reduction is less.
- Unlike coarse concentrates in gravity process, it produces required size concentrates.
- Armoflote -17 is a specialty collector with consistence in quality and selective for siliceous and pyritic gangue together.
- A super grade concentrate assaying over 97% $BaSO_4$ can be obtained in the extended circuit after regrinding the oil-well grade concentrate with two stages of flotation.
- There is no effect on process results with the use of mine water.
- There is an overall saving of 15% in flotation reagents consumption after recirculation of process water in the flotation circuit.

Several other useful data for scale-up of commercial plant, like angle of repose, bulk densities, specific gravities, size analysis of all products, percentage of solids by weight of all streams, reagent quantity, point of addition at different stages, water requirement at different stages, have been determined and presented in the report at appropriate places.

COPPER – LEAD – ZINC

Generation of Bulk Cu-Pb-Zn concentrate from exploratory sample of Tikhi Project, Udaipur, Rajasthan for MECL, Nagpur:

A Copper-Lead-Zinc sample from Tikhi Project, Udaipur, Rajasthan was sent by M/s Mineral Exploration Ltd, Nagpur at RODL, Ajmer with an objective to obtain a bulk concentrate of copper lead zinc and an individual concentrate of copper, lead and zinc.

The as received sample assayed 0.1% Cu, 3.6% Pb, 0.8% Zn, 3.68% Fe(T), 32.6% SiO_2 and 56.35% acid insoluble with 47 ppm Ag, 0.19 ppm Au, 15 ppm Co, 25 ppm Ni. A bulk cleaner concentrate assaying 1.98% Cu with 84.7% Cu recovery, 54.47% Pb with 78.1% Pb recovery and 9.42% Zn with 69.76% Zn recovery could be obtained after two cleanings.

Further, Semi bulk flotation of Cu-Pb minerals, three stage cleaning followed by differential flotation of Cu mineral from Pb mineral and Zn mineral flotation and two stage cleaning yielded (i) a copper concentrate assaying 18.49% Cu, 10.15% Pb, 1.53% Zn and 22.24% Fe(T) with 87.8% Cu recovery(wt% yield of Cu concentrate:0.7) (ii) a lead concentrate assaying 67.88% Pb, 0.29% Cu, 0.37% Zn and 1.42% Fe(T) with 79.4% Pb recovery (wt% yield of Pb concentrate:4.05) and (iii) a zinc concentrate assaying 45.57% Zn, 0.21% Cu, 0.54% Pb and 20.89% Fe(T) with 76.1% Zn recovery (wt% yield of Zn concentrate 1.35). The investigation confirms that despite the low tenor of copper and zinc, the sample is amenable for beneficiation to obtain bulk copper lead zinc concentrate as well as individual copper, lead and zinc concentrate by flotation. The concentrate obtained meets the requirements of local smelter. A continuous pilot scale study is recommended to confirm and generate conceptual data.

GRAPHITE

Pilot Scale spiral classification of a Mill Feed Graphite sample from Sivaganga, Tamil Nadu for

M/s Tamil Nadu Minerals Limited, Sivaganga:

Graphite sample from M/s TAMIN, Sivganga was sent at RODL, Ajmer for Pilot scale scrubbing and spiral classification of mill Feed Graphite sample with an objective to evolve the flow sheet for separation of -0.6mm material from rod mill feed, so as to increase the throughput of rod mill from existing 7 tph throughput and maintaining 93% of -0.6mm MOG, 40% solids pulp density, for flotation circuit.

The as received sample when subjected to dry size analysis, wet size analysis and scrubbing followed by wet size analysis over 0.6mm screen indicated that 33%, 37.5% and 65% material finer than 0.6mm screen was present.

Scrubbing and dispersed pulping is key to efficacy of separation of -0.6mm material from mill feed for both wet screening/spiral classification.

Though the sample under investigation appears to be marginally finer than reported by TAMIN, implementation of screening followed by wet screening 1mm/low weir straight spiral classification may increase the throughput to 10.5 tph, provided subsequent circuit has enough spare capacity and work index of ore does not drastically increase.

HEAVY MINERAL SAND

Recovery of Rutile Mineral from Heavy Mineral Sand Sample for M/s Zibal Exim, Hyderabad, AP:

A Heavy mineral sand sample from South Africa was sent by M/s ZIBAL EXIM, Hyderabad, AP, India at Modern Mineral Processing Laboratory and Pilot Plant, Nagpur with an objective to recover mineral assaying over 90% TiO_2.

The as received sample assayed 59.76% TiO_2, 15.72% SiO_2, 5.91% Fe(T), 0.34% FeO, 4.85% Al_2O_3, 5.21% ZrO_2, 0.229% CaO, 0.560% MgO, 0.064% P_2O_5, 0.284% MnO, 0.316% Cr_2O_3, 0.149% Nb_2O_5 and 2.72% LOI . The sample is close size ranged sand with very little fines below 75 micron and is coated with organic matter and has specific gravity of 3.8.

A composite concentrate of conductor and middling fraction assaying 81.19 % TiO2, 4.97% SiO2, 0.58% Fe(T), 3.69% Al_2O_3, 6.72% ZrO_2 and 0.87% LOI with TiO_2 distribution of 39.5% (wt% yield 29.4) could be obtained.

The sample is amenable to beneficiation to produce stipulated grade rutile concentrate with limited recovery. However, an iron rich titanium concentrate of pseudo rutile concentrate can be obtained as magnetic fraction that can find its use as marketable grade titanium ore.

IRON ORE

Bench scale beneficiation studies on a sub-grade Iron ore sample from S.R.M.E. Mines, Ramgad, Sandur Taluk, Bellary District, Karnataka State for M/s V.T. Industrial Corporation Limited, Bengaluru.

A sub-grade iron ore sample assaying 58.42% Fe (T), 1.08% FeO, 3.70% SiO_2, 5.88% Al_2O_3, 0.08% P_2O_5, 0.10% S(T) and 5.88% LOI was sent by M/s V.T. Industrial Corporation Limited, Bengaluru at Regional Ore Dressing laboratory, Bengaluru with an objective to evolve a process flow sheet for production of pellet grade concentrate assaying Fe > 64%, SiO_2 < 4%, Al_2O_3 < 4% , LOI < 4% and evolve other parameters i.e. Sp. Gr. & Bulk density.

The sample contains mainly fines & minor amount of brown to black coloured hard and compact lumps up to 100 mm size. The bulk density of as received sample was 2.2 $t.m^3$ and the specific gravity was found to be 4.0.

After stage grinding the sample to minus 65 mesh and subjecting it to desliming, Gravity and Magnetic separation a concentrate assaying 64.09% Fe, 2.46% SiO_2, 2.98% Al_2O_3 and 2.92 % LOI with 62.0% Fe recovery (Wt.% yield 57.2) could be achieved.

The concentrate obtained meets the specifications stipulated by the party.

Upgradation of low grade Banded Iron Ore – Quartz sample for use in Pellet making:

A low grade iron ore sample from Dhutanurkaval village, C.R. Patna Taluka, Hassan, Karnataka was sent at RODL, IBM Bengaluru with an objective to evolve a process flow sheet for

production of Pellet grade concentrate containing Fe > 63%, SiO2 + Al2O3 < 6% and LOI < 2% and for determination of work index.

The as received sample assayed 35.11% Fe (T), 2.08% FeO, 47.12% SiO_2, 0.77% Al_2O_3, 0.39% CaO, 0.18% MgO, traces of P_2O_5 and 0.89% LOI.

The sample when subjected to stage grinding in rod mill to minus 65 mesh, tabling followed by wet low intensity magnetic separation (WLIMS) yielded the magnetic concentrate assaying 65.37% Fe, 4.10% SiO_2, 0.15% Al_2O_3, & traces of S&P and 0.20% LOI with 82.3% Fe recovery (wt% yield 43.6%).

The concentrates obtained meets the specification stipulated by the party for use as pellet grade concentrate. The Bond's Ball Mill Work Index of the sample was found to be 6.56 Kwh/short tonne.

LEAD-ZINC

Upgradation of Lead-Zinc sample from Abakaliki Project, Abbuja, Ebonyi state, Nigeria for M/s Royal Salt Limited.

M/s Royal Salt Limited sent a lead-zinc sample from Abakaliki Project, Abbuja, Ebonyi State, Nigeria to Modern Mineral Processing Laboratory and Pilot Plant, Nagpur with an objective to develop a process flow sheet so as to achieve the lead and zinc concentrate suitable for end-use industries.

The original sample assayed 8.52% Pb, 6.46 Zn, 0.06% Cu, 22.71% Fe(T), 9.19% S, 25.05% SiO2 , 6.40% Al2O3, 4.42% CaO, 5.27% MgO, 1.12% Graphitic carbon, 0.04% Ni, 0.01% Co, 0.76% Mn, 0.13% Ti , 0.02% Cd.

By adopting flotation route for concentration, a lead concentrate assaying 72.69% Pb, 0.49% Zn, 0.13% Cu, 1.42% Fe, 12.71% S(T), 1.71% SiO2, 0.26% Al2O3, 0.58% CaO, 0.10 MgO, 8.23% LOI with 92.7% Lead recovery (wt% yield – 10.4).

A Zinc concentrate assaying 53.16% Zn, 0.86% Pb , 0.07% Cu, 3.14% Fe, 25.45% S(T), 0.78% SiO2, 0.11% Al2O3, 0.58% CaO, 0.10% MgO and 14.41% LOI with 94.3% Zn recovery (wt% yield – 12.4).

The Lead and Zinc concentrates obtained meets the desired specifications suitable for respective smelters.

LIME KANKAR

Bench Scale beneficiation studies on a Lime Kankar Sample (Screen Reject) for M/s The India Cement Ltd, Tirunelveli, Tamil Nadu.

A Lime Kankar Sample (Screen Reject) from Maravarperungudi/Maniyakkaranpatti Mines for M/s The India Cement Ltd, Tirunelveli, Tamil Nadu was received at Modern Mineral Processing Laboratory, Nagpur with an objective to develop a flow sheet to obtain Limestone concentrate preferable by dry mineral beneficiation technique.

The as received sample assayed 28.38% CaO, 2.77% MgO, 31.22% SiO2, 6.55% Al2O3, 2.75% Fe2O3, 0.15% TiO2 and 25.40% LOI. By adopting dry beneficiation technique, the desired grade concentrate could not be achieved.

Hence, a flow sheet comprising rougher flotation at a grind of 82.4% minus 200 mesh (~67% < 325 mesh), at a pulp density of 28/20% solids, using sodium oleate as collector was adopted. The rougher float after subjecting to two cleanings at a pulp density of 18/13% solids yielded the concentrate assaying ~ 47% CaO, ~ 2.50% MgO, ~ 6% SiO2, 1.70% Al2O3, 1.13% Fe2O3 & 40.20% LOI with ~ 75% CaO recovery (wt% yield ~ 45).

The concentrate meets the grade as stipulated by the party and may find utility in cement making.

ROCK PHOSPHATE:

Upgradation of Rock Phosphate sample from La-Negra Mine, Hidalgo Mexico for M/s Ingwenya Mineral Tech Pvt. Ltd, Bengaluru.

A Rock Phosphate sample from La-Negra Mine, Hidalgo, Mexico was sent by M/s Ingwenya Mineral Tech Pvt. Ltd, Bengaluru at RODL, Ajmer with an objective to develop a flotation process for obtaining a Phosphate concentrate assaying plus 32% P2O5 content.

The original sample assayed 24.56% P2O5(T), 18.28% SiO2, 40.53% CaO and 6.92%

Al_2O_3. By employing reverse flotation, a phosphate concentrate assaying 32.58% P_2O_5, 11.96% SiO_2, 46.79% CaO, 0.29% MgO & 2.31% LOI with 48.9% P_2O_5 recovery (Wt% yield 36.9) could be achieved. The concentrate meets the specification stipulated by the party.

Shri C.S. Gundewar, Controller General, IBM releasing the proceedings of the MineTech'12 organised by the the Indian Mining and Engineering Journal at Bhubaneshwar.

6. TECHNICAL CONSULTANCY, MINING RESEARCH AND PUBLICATION (TMP) DIVISION

A view of Ambaji Multimetal Project of Gujarat Mineral Development Corporation.

The Technical Consultancy, Mining Research and Publication Division is headed by the Controller of Mines. It offers technical consultancy services to the mining industry, undertakes scientific, techno-economic, research oriented studies and brings out monographs and bulletins on topical interest.

TECHNICAL CONSULTANCY

6.2 Technical consultancy services are offered on charge basis to the mining industry within the country and abroad in the fields of surveying, exploration, geology, mining and environment related issues. It offers consultancy services to large as well as small mine owners. Small mine owners are offered services at a concessional rate. It helps the mine owners in systematic development of their mines, formulation of their production plans, better utilisation of mineral resources available in the areas, to take investment decisions for implementation of new projects and obtain financial assistance from the financial institutions. The services offered are:

6.3 Survey and Geological Services

- Topographic survey of mineral properties.
- Preparation of geological plan as per MMR-61 and MCDR 1988.
- Preliminary geological appraisal of mineral deposits.
- Formulation of scheme of exploration and preparation of detailed exploration reports.
- Geo-statistical evaluation of mineral deposits.
- Collection of bulk samples from mineral deposits/mineralised dumps for laboratory and pilot plant investigation.

6.4 Mining Services

- Preparation of mine development scheme of opencast and underground mines.
- Preparation of mining feasibility reports of opencast and underground mines.
- Evaluation of feasibility reports for financial institutions.
- Financial analysis of mining projects.
- Remodelling of old mines for introduction of advanced mining technology.

6.5 Environmental Studies

- Preparation of Solid waste management plan.
- Generation of environmental base-line data.
- Preparation of Environmental Impact

Assessment (EIA) & Environmental Management Plan (EMP).

6.6 Specialised Services

- Productivity study of opencast and underground mines.
- Techno-economic survey of mineral properties.
- Production planning and grade control on given process parameters.

6.7 Advanced computer facilities like Surpac 2000 computer system along with latest software on mine planning and designing, map making etc, highly sophisticated, sensitive and accurate survey equipment like Differential Global Positioning System (DGPS), Electronic Total Station, Electronic Distance Meter, Lap Top Computer with software suitable for processing of survey data, available in this division provide necessary sophisticated backup to these services.

6.8 Achievements

During the year 2012-13, three assignments comprising one techno-economic evaluation and two survey assignments were completed. A total amount of ₹ 13,97,301/- was received as consultancy fee during the year.

Assignments completed

6.9 The details of consultancy assignments completed during the year 2012-13 and salient features of these assignments are as follows:

1) Valuation of Tangible & Intangible Mining Assets including Mineral Reserves of GMDC Multimetal project at Ambaji, District: Banaskantha (GUJ) (Project cost ₹ 10,30,423/-)

The total geological reserves of 76.86 lakh tonnes (60.38 lakhs for opencast and 16.48 lakhs tonnes for underground working) with a Total Metal Content (TMC) of 10.31% has been estimated against party's estimation of 68.54 lakh tonnes (23.75 lakhs for opencast and 44.79 lakhs tonnes for underground working) with a TMC of 10.84%.

Similarly, total mineable reserves of 62.19 lakh tonnes (53.07 lakhs for opencast with 3% dilution and 9.12 lakh tonnes for underground working with 5% dilution) with a TMC of 12.51% has been estimated against latest party's estimation of 53.53 lakh tonnes (23.51 lakh for opencast with 3% and 30.02 lakh tonnes for underground working with 10% dilution) with a TMC of 10.24%.

Production schedule has been planned as 3.5 lakh tonnes for first 2 years exclusively for opencast working and thereafter 2.5 to 3 lakh tonnes for opencast and 0.32 to 0.87 lakh tonnes for underground simultaneously up to 17 years maintaining of total annual production of 3.5 lakh tonnes. The planned life of mine is up to 17-18 years.

The capital investment for mine development is worked out as ₹ 143.69 crore and for deployment of mining machinery is worked out as ₹ 50.76 crore. Moreover, have kept the provision of capital investment of ₹ 22 crore at the 7th year and ₹ 36.38 crore which include ₹ 22 crore for replacement of mining machinery to be deployed at the opencast and underground respectively at the 14th year and ₹ 14.38 crore for repair & maintenance cost as per the mechanical engineering norms. Moreover, 10% of the cost of the purchase value of the old mining machinery taken into account of cash-outflow, if sale is same at the respective years.

The Net Present Value (NPV) of the mineral property is ₹ 17.58 crore and Internal Rate of Return (IRR) is arrived as 10% with an original investment of ₹ 85.02 crore already made by M/s GMDC in addition to the capital investment.

2) Joint survey of Excavation measurement and original ground level survey of Mangrol mine of M/s Gujarat. Ind. Power Co. Ltd, Surat, Gujarat.

and

3) Joint survey of Excavation measurement at Vastan Lignite mine of M/s Gujarat. Ind. Power Co. Ltd, Surat Gujarat

Joint survey of Excavation measurement and original ground level survey of Mangrol lignite mine & Vastan lignite mine of M/s Gujarat. Ind.

Power Co. Ltd, Surat, Gujarat. Ind. Power Co. Ltd, Gujarat has been completed with total assignment value of ₹3,87,463/-.

6.10 Assignments in progress

Three assignments of Joint survey of Excavation measurement and original ground level survey were at various stages of completion.

MINING RESEARCH CELL

6.11 The Mining Research Cell carries out applied mining research on various mining aspects with a view to help the industry in systematic development of mines, improvements in productivity and to achieve sustainable development by adopting state-of-the-art environmental management systems. Besides, undertaking assignments on promotional basis, it undertakes industry sponsored assignments on environmental and geo-technical aspects, on charge basis.

Achievements

6.12 During the year 2012-13, 03 assignments were completed including 02 consultancy assignments of Ground Vibration Monitoring Studies and 01 no. of Checking and Updating of revised estimate of techno-economic feasibility study. Besides, 01 assignment on techno-economic feasibility report on Ajjanhalli Gold Mine of M/s HGML is completed and finalisation of report was under progress.

During the year 2012-13, total revenue generation from consultancy services was ₹12, 78,791.00 (including Service Tax).

Projects completed

6.13 The details of assignments completed during the year 2012-13 and salient features of these assignments are as follows:

(i) Blast induced Ground Vibration Study at Sitapuram Limestone Mines, M/s Zuari Cements (Italcementi Group), Sitapuram, At & P.O. Dondapadu, District Nalgonda (AP).

On the request of M/s Zuari Cements Ltd, (Italcementi Group), Sitapuram, At & P.O. Dondapadu, Distt., Nalgonda (Andhra Pradesh), study of ground vibrations due to blasting at their Sitapuram Limestone Mine, Sitapuram, Distt., Nalgonda (AP), over an area of 1329.28 ha (two leases), was carried out to study the impact of blast induced ground vibrations on the nearby structures, human settlements and to suggest control measures to minimise the adverse impact of the same. Under this study, total 13 numbers of blasts at Sitapuram Limestone Mine at different dates were carried out and monitored at three locations at a time and report submitted to party.

(ii) Ground vibration study at 19 nos. of Mines near Chittorgarh (Rajasthan), as per Hon'ble Jodhpur High Court, Rajasthan's decision dt.19.12.2011, through Mining Enginner, DMG, Chittorgarh (Rajasthan).

The project completed in Feb-2012 and report prepared and sent to all parties. As per letter received from DMG Chittorgarh (Rajasthan), comments on the points raised on the report were sent to them to submit in the Hon'ble Jodhpur High Court, Rajasthan.

(iii) ***Checking of Revised / Updated cost estimates in respect of Holme's Shaft Deepening Work at Balaghat Mine of M/s MOIL Ltd, Nagpur.***

An assignment received from M/s MOIL regarding checking of revised / updated cost estimate in respect of Holme's Shaft Deepening work at Balaghat Mine. Report was prepared by IBM considering escalation of price index of different commodities and data supplied by MOIL and submitted to party.

(iv) Preparation of Techno-economic Feasibility Report for Ajjanahalli Gold Mines, M/s Hutti Gold Mines Co. Ltd, Hutti, Karnataka.

The project is under completion. The work carried out during the year is as under:


Asset Valuation of Ambaji Multimetal Project of M/s GMDC

- Preliminary field visit to chalkout the scope of work.
- Field visit by Geologist & Surveyors for calculation of Geological reserves.
- Field visit by Mining Engineers to study the method of mining, mine planning & development, cost aspects etc.
- Preparation of plan sections, cross sections & level-wise plans.
- Calculation of reserves.
- Calculation of Mineable reserves, ore to over burden ratio.
- Mine planning & preparation of slice plan.
- Calculation of costs for different activities of the project.
- Calculation of financial evaluation including NPV, IRR etc.
- Considering the above aspects, draft has been prepared. Based on the discussion with the party the report has been modified incorporating Slice plans and same is under finalisation.

Projects in Progress

6.14 Two proposals of Ground Vibration Monitoring were under negotiations. Project proposals enquiries received in Mining Research Cell which are under consideration:

- Ground Vibration Monitoring at Amli & Thandiberi Limestone Mines of M/s Binani Cement, Distt. Sirohi, Rajasthan.
- Ground Vibrations Monitoring at Limestone Mines of M/s Zuari Cements Ltd, Yerguntala, AP.

Assignments outside Annual Programme

6.15. i Preparation of background note on Asbestos mining with respect to lifting the ban on Asbestos mining and processing plants:

Background note on status of asbestos mining in India with reference to lifting the ban on asbestos mining and processing plants was prepared along with guidelines based on the comments received from Director NIMH. The note was forwarded to Ministry of Mines.

IBM is representing Ministry of Mines on the Advisory Committee constituted by Ministry of Labour and Employment to develop appropriate control strategies and to review the safeguards in relation to primary exposure to asbestos by workers.

ii. Preparation of Guidelines on "Environmental Aspects on Quarrying Minor Minerals – Evolving Model Guidelines":

Ministry of Environment & Forests had constituted a group of Secretaries of both the Environment and Mining Departments of major States under the chairmanship of Secretary (E&F), Government of India to evolve model guidelines

on environmental aspects of quarrying of minor minerals. Shri R. K. Sinha, Controller of Mines, IBM represented Ministry of Mines as a member of the Group. The Group submitted its report in March, 2010.

As a follow-up of the recommendations of the Group, the Ministry of Mines assigned IBM the work of the preparation of "Environmental Aspects on Quarrying Minor Minerals – Evolving Model Guidelines" for (i) Mining framework of Minor Minerals; (ii) Framework for cluster of mining and (iii) Guidelines for reclamation and rehabilitation. The Controller General, IBM, constituted a 4-member committee under the chairmanship of Dr. B.P. Sinha, COM (TMP) to draft the documents in this regard. The said Committee prepared draft of model guidelines and submitted to the Ministry of Mines. As per the directions of Ministry of Mines, draft model guidelines prepared by the Committee have been uploaded on IBM website and comments were sought from stakeholders and State Governments. After due consideration and incorporation of the comments the finalised model guidelines on all the three topics have been sent to Ministry of Mines.

Further, in the Special Leave Petition (C) No.19628-19629 of 2009 filed by Shri Deepak Kumar Vs State Government of Haryana with SLP (C) Nos.729-731/2011, 21833/2009, 12498-499/2010, SLP (C) CC...16157 & CC 18235/2011, the Hon'ble Supreme Court of India vide Order dated 27th February, 2012 directed Ministry of Mines to give effect to the model guidelines framed by the Ministry of Mines within a period of six months from the date of order (i.e. 27th February, 2012) and also to take steps to bring into force the Minor Minerals Conservation and Development Rules, 2010.

As directed by Ministry of Mines vide letter dated 30th April, 2012, Controller General, IBM has constituted the Committee comprising members from IBM, MoEF and State Governments of Andhra Pradesh, Chhattisgarh and Rajasthan. The draft Minor Mineral Conservation & Development Rules (MMCDR), 2012 has been submitted to the Ministry. As a result of the discussions held in various meetings, certain provisions were incorporated in the draft rules and modified draft was forwarded to the Ministry on 22nd July, 2012. The Ministry vide letter dated 4th September, 2012 informed that draft MMCDR rules have been approved by the Hon'ble Minister, and in order to send it to the Ministry of Law & Justice for vetting advised to depute an officer to Ministry of Law & Justice to clarify the issues. An IBM officer met the concerned officer of Ministry of Law & Justice on 18th September, 2012 and explained the Draft rules. The officer of Ministry of Law & Justice advised that once the

Sheared BIF Zone

View of blast

Steming Operation 1

Monitoring location

Setting of Instrument Minimate

Benches of Mine, Limestone exposure

Setting of Instrument-Blast mate

draft rules are gone through, required clarification will be sought. Draft Model Guidelines on Mining of Minor Minerals prepared by IBM with an emphasis on environmental concerns, especially EMP and the Concept of Cluster Mining after modifications by Ministry are under circulation to State governments for their comments /suggestions.

iii. Revision of schedule of charges of consultancy assignments:

A committee has been constituted by CG, IBM, for the revision of schedule of charges of consultancy assignments of TC, MR & OD under the chairmanship of COM (TMP). The committee finalised revised schedule of charges on the basis of recommendations of committee members & considering escalation of price index and VI pay commission. Controller General Conveyed the approval and revised schedule of charges will be effected as on 1.03 2013.

PUBLICATION CELL

6.16 The Publication Cell brings out Monographs on individual minerals under the series Mineral Facts and Problems, and Bulletins of topical interest.

(a) MONOGRAPH ON CHROMITE:

The draft chapters of Chromite monograph were scrutinised and under modification.

(b) APPLICATION OF ROCK MECHANICS, SURFACE AND UNDERGROUND EXCAVATION:

The bulletin is under printing.

A view of Ajjanahalli Gold Mine of M/S.HGML

7. MINERAL ECONOMICS DIVISION

A view of the Library at IBM headquarters at Nagpur.

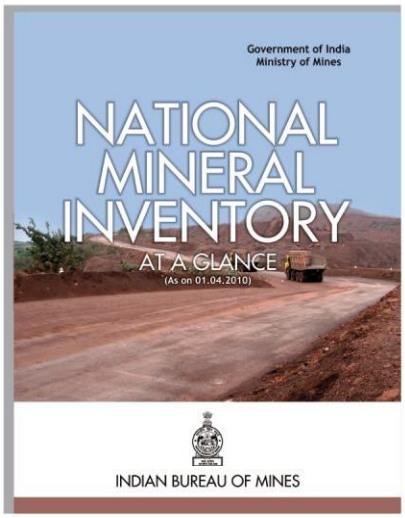
The Mineral Economics Division (ME) provides information support and advisory services to the Government and Mineral Industry especially on issues like marketing, specifications and uses of minerals, mineral legislation, inventory of mineral resources, mining leases and taxation etc. Moreover, it disseminates latest information on mineral industry, collected through statutory as well as non-statutory sources through its flagship publication, `Indian Minerals Year Book' and number of other publications. This Division is headed by Chief Mineral Economist (CME). The IBM's Library and Publication Section also function under this Division.

Performance

7.2 National Mineral Inventory (NMI)

Quinquennial updating of NMI as on 01.04.2010 as per UNFC and its computerisation in respect of all the 70 minerals including five new minerals added was completed during 2011-12. Result of this exercise along with a comparative analysis of resources with the previous inventory as on 1.4.2005 was brought out in a publication entitled, "National Mineral Inventory-An Overview (As on 01.04.2010)". This publication had been posted on IBM Website.

The NMI based on UNFC System is being used for making decision of investments in exploration and mining by foreign investors. Such a system has wide ramifications of use in different kinds of decision making and policy formulation concerning not only minerals but allied fields as well.

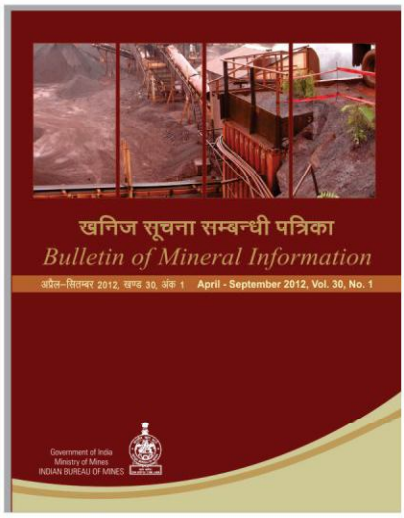


7.3 Market Survey on Minerals and Metals

The Market Survey Reports on minerals and metals of topical interest are prepared. These reports provide comprehensive analysis of resource availability, uses, consumption pattern, and holistic approach to the future demand-supply projections. The reports also provide the various problems faced by the mineral consuming industries and their probable solutions. These reports are useful to the entrepreneurs, researchers, planners, traders, etc.

A Market Survey Report on Manganese Ore is under finalisation while work related to Market Survey Report on Rock Phosphate has been initiated.

7.4 Bulletin of Mineral Information (BMI)



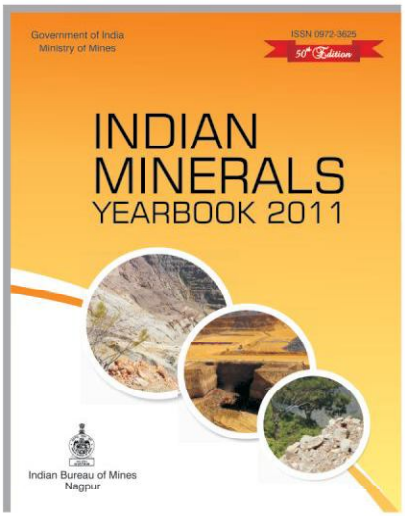
Bulletin of Mineral Information (BMI) is a half yearly Bulletin, a sole publication in the country in its nature, which provides information to mine owners and mining industry on – court decision concerning mineral legislation, trade policy on minerals & metals; trends in mining lease and prospecting licences along with R/P granted for mineral-based industries in the country; the month-wise production of various mineral-based products and also highlights status of mineral and mining industries both in domestic & foreign sector.

In a nutshell, this publication provides concise & synthesised knowledge and information on mining of various metallic / industrial minerals of the country, explored through its respective mines.

During the period 2012-2013, BMI October 2011-March 2012 issue was released. The April 2012-September 2012 issue, is under printing, however it has been uploaded on IBM Website.

7.5 Indian Minerals Year Book (IMYB)

IMYB is the flagship publication of IBM. It consists of Part I having as many as 11 General Chapters and Part II consists of 69 Mineral Reviews. This publication covers information on minerals and mineral-based commodities, their development, production, resources/reserves, consumption, trade and policy. It also includes world scenario. IMYB provides a status report of Mining and Mineral Industry in India on an annual basis. This publication has wide readership- both National and International.



The IMYB 2011 was released in November, 2012.

For IMYB 2012 (data 2011-2012) about 3,200 letters/questionnaires were issued for capturing of data. Receipts from various mineral-based industries, Central/State Government Departments, Central/State Undertakings, National Laboratories etc. received are under processing during the period under review. End-use mineral consumption tables (data 2011-2012) in respect of 50 minerals were completed. Reviews of IMYB 2012 are at various stages of drafting/technical editing.

It has now been decided to publish IMYB 2012 and subsequent issues in three separate volumes, viz Volume-I for General Reviews, Vol. – II for Metals and Alloys and Volume – III for Mineral Reviews.

7.6 Directory of Mining Leases

Updating of mining lease information based on consolidated Annual returns from State Governments and Union Territories under statutory provisions of rule 57(2) of MCR, 1960 was continued. Based on these data an Annual Directory on All India basis depicting the distribution of mining leases granted/executed for different states are generated.

The Directory of Mining Leases in India as on 31/3/2012 is under finalisation. State-wise summary of Mining leases as on 31.3.2012 (P) and mineral-wise summary of Mining leases as on 31.3.2012 (P) are placed at **Annexure XIV C & D .**

A sum of ₹ 37,594 was realized on sale of Mining Lease information during the year.

7.7 Bulletin of Mining Leases and Prospecting Licences

The Bulletin of Mining Leases and Prospecting Licences is the sole publication which contains information on mining leases, prospecting licences as well as reconnaissance permits. The bulletin provides the distribution pattern of mining leases spread over in as many as 28 states with its break-ups, into state-wise, district-wise, mineral-wise and sector-wise (Public and Private) information demarcating high, medium and low mineral potential bearing districts. Exhaustive information on mining leases abridged concisely for easy assimilation will suit the convenience of readers/entrepreneurs or policy makers.

Bulletin on Mining Leases and Prospecting Licences, 2011 was releas on 15 March 2013.

7.8 Mineral Information and Advisory Services

During the year, 99 Parliament Questions, 106 Central Government references, three State Government references and 24 private and other inquiries were attended. These were related to mineral resources, availability and utilisation, reservation of mineral-bearing areas, mineral trade, policy, mineral legislation, and etc. 01 draft speech was prepared.

7.9 World Mineral Intelligence

Data on country-wise production for the year 2010 were incorporated in the database and output on country-wise production in respect of 60 minerals were generated. Data on country-wise reserve and resources for the year 2011 was also incorporated in the database and output on country-wise reserve/resources was generated.

7.10 MINERAL LEGISLATION

The Mines and Minerals (Regulation and Development) Bill, 2011

The Mines and Minerals (Development and Regulation) Bill, 2011 prepared by the Ministry of Mines to replace the existing Mines and Minerals (Development and Regulation) Act, 1957 has been introduced in Lok Sabha on 12th December, 2011, and the same has been referred to Standing Committee on Coal and Steel on 5th January, 2012. The committee has held thirteen meetings and submitted its report on 7th May 2013.

The bill has been prepared after several rounds of consultation and workshop with all the stakeholders. The draft Mines and Minerals (Development and Regulation) bill, was circulated to all the stakeholders in July, 2009 for comments. Subsequently, follow-up meetings and workshops were held with the various stakeholders between August, 2009 and April, 2010. The successive draft bills were circulated/uploaded six times on the website of the Ministry for obtaining comments from stakeholders between August, 2009 and June, 2010.

The Bill seeks a complete and holistic reform in the mining sector with provisions to address issues relating to sustainable mining and local area development, especially families impacted by mining operations. The bill also aim to ensure transparency, equity, elimination of discretions, effective redresser and regulatory mechanisms along with incentives encouraging good mining practices, which will also lead to technology absorption and exploration of deep seated minerals.

7.11 Study Group on Revision of Rates of Royalty and Dead Rent

In order to review the royalty rates and dead rent, the Ministry of Mines has on 13th September, 2011 constituted a Study Group on revision of rates of royalty and dead rent for minerals (other than coal, lignite and sand for stowing) and to make appropriate recommendations to the Government. It was reconstituted on 4th February, 2013 with Special Secretary (Mines) as Chairperson. The Study Group completed its discussions/deliberations, and draft recommendations on the rate of royalty and dead rent have been prepared. The draft recommendations were circulated to the members of Study Group on 16.5.2012 for their comments, based on which the Study Group will