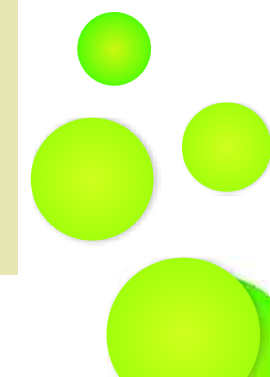


4.1 INTRODUCTION

Indian Bureau of Mines (IBM) was initially conceptualised as an advisory body to the Government of India. With growth in Mining Sector, IBM was given a statutory role in regulation of mines for ensuring that mining operations are carried out in a scientific and systematic manner. IBM was also mandated a role in creation of a suitable environment for mineral development. Discernible roles in respect of providing information and technical know-how on innovative mining practices, evolving cost-effective technologies and most importantly, ensuring sustainable mining practices aimed at mineral conservation and environmental protection have been entrusted with IBM. Since the 1990s, the Charter of Functions of IBM have increased manifold (Table 4.1). Combined with the right-sizing measures of the Government, the increased functions have necessitated this review.

Table 4.1 : Enhanced Functions of IBM

1. Processing of Mining Plans, Schemes of Mining and Mine Closure Plans submitted under the Mineral Concession Rules, 1960 and Mineral Conservation and Development Rules, 1988.
2. Preparation of multi-minerals Leasehold Maps with Forest Overlays.
3. Checking and reporting of illegal mining activities to State Governments.
4. Undertaking inspections and advising State Governments on technical feasibility of mining for second and subsequent renewals of Mining Leases.
5. Identification and preparation of reclamation and rehabilitation plan for abandoned and orphaned mines/sites.
6. Development of "Computerised Online Register of Mining Tenements System".
7. Monitoring CSR and community development activities carried out by the different companies. However, these aspects are inbuilt in EIA/EMP document presented to MoEF for prior environmental clearance.
8. Organising Mines Environment and Minerals Conservation Weeks in important mining clusters of the country to promote the awareness for conservation of minerals and protection of mines environment.
9. Ensuring compliance with UNFC in resources and reserves estimation.
10. Monitoring and testing of samples from mining areas in the in-house Environmental Laboratory.





highlights

11. Development activities in North-eastern States, by providing technical know-how.
12. Issue of mineral concessions in offshore areas and regulation of the same.
13. Monthly publication of Statewise average value of minerals by grades for computation of Royalty.
14. Expansion in statistical coverage of the Mining Sector.
15. Improve & expand the scope and coverage of Indian Minerals Yearbook.
16. Effective interaction and coordination with State Governments especially for prevention of illegal mining activities.
17. Monitoring of issues on Sustainable Developmental Framework.

4.2 CONCERNS

4.2.1 HR Concerns

The scope and coverage of IBM's Charter of functions even though were revised multiple times to accommodate the various added functions since the year 1990, depleted strength of trained and experienced human resource remained the major cause of concern. Adding to the woes was the fact about curtailment of the sanctioned strength of IBM by more than 25% which led to severity in the situation of human resource crunch (Table 4.2).

Table 4.2 : Reduction in Sanctioned Strength in IBM

Year	Event	Reduction in Human Resource	Sanctioned Strength
1990-91	-	-	1863
1993-98	Government directives for mandatory cut	121	1742
2003	Expenditure Reform Commission's (ERC) Recommendations	143	1599
2005-06	Abolition of posts in ADRP of 2001-02 to 2005-06 as per DOPT's OM dated 16.5.2001	91	1508
2006-07	Abolition of posts of IBM's quota due to excess filling up by GSI.	26	1482
2006-07	Deemed Abolition of posts	03	1479
2007-08	Abolition of posts in ADRP of 2006-07 to 2008-09 as per DOPT's OM dated 16.5.2001	88	1391

Expenditure Reforms Commission's recommendations and directives under the Annual Direct Recruitment Plan resulted in the reduction of sanctioned strength from 1863 to 1391. This, the Committee felt, has impacted not only the regulatory work but also caused deceleration of other technical & scientific works. The

Committee though is pleased to note that 86 posts, which were abolished over the years under the ADRP, have recently been revived in May 2010, would like to opine that mere revival of posts would not in anyway address the functionwise human resource deficit. The requirement of human resource expertise needs to be settled judiciously and should correlate with the diversified role that IBM is expected to perform, i.e. of a National Technical Regulator and Mineral Advisor to the Government of India.

In this context of renewed role envisaged for IBM and that performed by it presently, the human resource concerns that require immediate redressal are:

1. Absence of adequate number of trained and experienced junior level, middle level and senior level officers for planning, supervision and execution requisites.
2. Lack of sufficient trained personnel in the operation of DGPS for checking and ensuring correctness of lease areas.
3. Absence of quality legal expertise for effective implementation of Acts and Rules.
4. Absence of specialised and trained technical experts with thorough understanding and knowledge of a) Land use features b) Bio-diversity c) Socio-economic aspects / corporate social responsibility etc. so as to enable such prerequisites get translated into mining plans/ schemes of mining/EIA & EMP and mine closure plan and their effective implementation could be ensured and superintended.
5. Absence of technically and scientifically well-trained and experienced personnel to monitor & control offshore mineral exploration, exploitation and regulation.

4.2.2 Work Culture in IBM

Before zeroing in on specific areas of concern, the Committee sought to acquaint itself with the work culture prevailing in the organisation and the orientation of its employees. For the purpose, a questionnaire was circulated amongst the employees and specific responses were elicited. The responses when analysed indicated the following:

1. The considered perception is that officers individually are result oriented, are diligent in achieving targets on time and are amenable to performance improvement. With necessary support and guidance in terms of imparting innovation and motivation, enhancement in qualitative work output could be engendered.

Expenditure Reforms Commission's recommendations and directives under the Annual Direct Recruitment Plan resulted in the reduction of sanctioned strength from 1863 to 1391.

The primary human resource concerns of IBM is absence of adequate number of trained officers.



(b) The responses also showed that on the issues of transparency in work, work ethics, effectiveness of centralised system of decision making, empowerment & delegation of powers, tolerance of differences, trustworthiness etc. were highly prioritised parameters among employees.

The Committee further formulated the opinion that there is a need for a greater inter-Divisional coordination and need for essential strategies to be in place that would offer incentives to foster improvement through suitable means and that that would enable recognition & appreciation of good performance.

4.2.3 Role of Top Level Management

IBM as a National Technical Regulator and Mineral Adviser needs to continuously update and re-invent itself to become a relevant and more effective agent in the constantly changing and challenging circumstances. It is therefore imperative for the top level management of IBM to focus on development of effective systems, optimise the standard practices that have been built into the system and strategise & superintend work processes. As social and economic issues are cardinal to mining, IBM's role has become even more crucial as to strike an effective balance between development along with sustenance of scientific & systematic mining practices and addressing the social & economic concerns of the local milieu. To realise the goals and for effective management, IBM has to have and pursue an effective HR strategy, expertise & skills and perforce strategies to bring & utilise the latest state-of-the-art technology. However, in reality it was felt that such state of preparedness often remains elusive and not achievable. Targets are invariably set and pursued, but as the tasks have become multitudinous, quality often gets compromised with.

To fulfill its role as an advisor to the Government, there is a paramount compulsion for easy flow of information within IBM and amongst all its associate agencies. Any impediment in the chain of flow of information could grossly impede access of data and thereby could cause hindrances to IBM to fulfil its Advisory obligations. The Committee has learnt that despite many odds and preclusions, IBM does the expected and fulfils its mandatory obligations albeit with huge effort & expediency. The Committee therefore strongly believes that for effective implementation of envisaged functions, new posts need to be created and filled and adequately supplemented with orientation and Management Development Training Programmes – for the fresh recruits – through its Training Centre.

highlights

IBM as a National Technical Regulator and Mineral Adviser needs to continuously update and re-invent itself to become a relevant and more effective agent in the constantly changing and challenging circumstances.

IBM has six Divisions namely (i) Mines Control & Conservation of Minerals (MCCM), (ii) Ore Dressing (OD), (iii) Planning & Coordination (P&C), (iv) Mineral Economics (ME), (v) Technical Consultancy, Mining Research & Publications (TMP) and (vi) Mines & Mineral Statistics (MMS) Divisions.

4.3 ISSUES

In the context of the above-mentioned concerns, there are inherent issues that IBM will have to confront with & mitigate.

4.3.1 Inter-divisional Coordination

IBM has six Divisions namely (i) Mines Control & Conservation of Minerals (MCCM), (ii) Ore Dressing (OD), (iii) Planning & Coordination (P&C), (iv) Mineral Economics (ME), (v) Technical Consultancy, Mining Research & Publications (TMP) and (vi) Mines & Mineral Statistics (MMS) Divisions. While each of the Division independently has been succinct in its functioning, there seems to be lack of inter-Divisional coordination in sharing of technical information. This lack of coordination impacts the quality and reliability of the technical output that emanate from IBM. The Planning and Coordination Division of IBM will therefore have to orient itself suitably so that inter-Divisional coordination effectively improves and transmission & exchange of information between Divisions become prompt and efficient.

4.3.2 Quality of Mining Plan

IBM has been performing the role of approving mining plans for major minerals, excepting 29 minerals for which State Governments have been empowered. Of late, the quality of the mining plans and mining schemes in general has been diminishing with noticeable fall from the set standards. While mechanisms to ensure preparation of quality mining plan by mine management are already in place, there is perhaps a need for IBM to fine tune & refine the system of approval of mining plan. IBM being the authorised & competent body to devise systems, framework and standards for mining plan, would have to adopt measures to reverse this fallen trend. Presently, IBM expends considerable time & effort in introducing modifications to the mining plans submitted before affixing seal of approval. Further, it is under contemplation as to whether the mining plan should be part of a declaratory exercise by each miner, so that the mining plan is available in public domain. The Committee, however, feels that the commercial information of mining plan should not be part of the information that could be made available to the public.

4.3.3 Quality of Inspections

IBM undertakes periodical inspections of mining of all major minerals. The objective is to ensure that mining is done in a systematic and scientific manner and in accordance with the mining plan. However, several inherent concerns do impede proper effectuation of inspection work, such as,



1. Lack of multi-disciplinary approach that affect quality of inspection;
2. Shortage of inspecting officers that restrict effective coverage of mines;
3. Shortage of human resource that impacts effective follow-up action;
4. Lack of due focus towards developmental activities in mining areas including socio-economic aspects and CSR during IBM inspections;
5. Non-implementation of effective reviewal system—information filed by the miners needs to be cross-checked in field inspections. Targets of inspections of mines in respect of those conducted by individual inspecting officer need to be reviewed keeping in view the quantum of work involved in office and field;
6. Augment efficacy of the existing evaluation standards—the inspection reports need to be analysed objectively at an appropriately senior level. Such evaluation needs to be carried out regularly. A realistic inspection format consistent with developmental and regulatory function of the IBM in consonance with the new MMDR Act needs to be designed.

4.3.4 Effective Implementation of Statute

Although IBM has launched prosecution cases in the Court of Law against many defaulting mining lessees for violations of various rules, many of which are proceeding at a languid pace, it is but evident that due to inadequacy in the follow-up actions, pendency of these cases in the Court of Law has inordinately risen. This mainly could be attributed to absence of quality and timely legal assistance to IBM. The legal system of prosecution launched against defaulting mining lessee is quite cumbersome and time consuming. The result is that the numbers of prosecution cases are piling and are only rising every year. Further, as envisaged in the National Mineral Policy, IBM has to render assistance to State Government on various techno-legal issues. In view to augment the efficiency to tackle, pursue & settle legal issues, the Committee proposes that it would be worth the effort to explore the possibility of setting up a “Legal Cell” in IBM for effective implementation of statutes.

4.3.5 Monitoring of Environmental Issues

IBM, as part of its functions, monitors implementation of approved mining plan through routine inspections. The Environmental Management Plan (EMP) and Progressive Mine Closure Plan (PMCP) are integral parts of the Mining Plan, which are also monitored. The environmental management plan prepared by the mine proponent for obtaining environmental clearance from the Ministry of Environment and Forests is accepted and affirmed by IBM as EMP of the mining plan, as such EMPs prepared for environmental clearance from MoEF are quite

comprehensive and exhaustive. It is quite laborious & difficult to monitor the micro-level aspects of environmental components of the EMP with the limited resources available with IBM at its disposal. Further, scientific closure of mining operations and reclamation of the area post mining are also important issues which are under the purview of IBM that requires persistent monitoring through Progressive and Final Mine Closure Plans. The Committee is of the view that limited resources and shortage of manpower have in more than many ways impeded deliverance of discernible actions that are required for such vital issues. Further, the Committee is of the opinion that there is need for enhanced coordination between Ministry of Environment & Forests and IBM for implementation of various conditions vis-à-vis grant of environmental clearance so as to avoid duplication of work. Consequently, it is felt that IBM's capabilities in the area require strengthening to meet the desired objectives.

4.3.6 Capacity Building in Environmental Analysis

To monitor the various environmental parameters, it is necessary to collect, examine & analyse samples of water, air, soil, mine effluent etc. within allowable time limit. IBM has also been empowered to collect and analyse environmental samples under the Environment (Protection) Act, 1986. The environmental samples are also collected by IBM for carrying out various technical consultancy and mining research assignments. However, it has come to the attention of the Committee that because of non-availability of proper infrastructure facilities for analysis of environmental samples, justice to the work could not be adequately imparted. Presently, IBM has facilities for environmental analysis at its laboratories in Nagpur and Bengaluru. Monitoring of environmental parameters is an important sub-section and a regular feature in the framework of sustainable development. Thus there is need to enhance IBM's capabilities in this area of expertise and at the same time create & develop regional level facilities for environmental analysis at all its Regional Offices. Portable equipment for monitoring and quick analysis of environmental samples must be installed at all such regional centers to improve efficacy of work.

4.3.7 Monitoring of Framework of Sustainable Development

As enunciated in the National Mineral Policy 2008, the Government has proposals to introduce framework of sustainable development (SDF) within which all the mining operations are required to be carried out. While a few options of implementation of SDF would be voluntary in nature, most of the provisions would have statutory backing. The SDF also involves interdisciplinary approach, such as, social, economic,

highlights

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To monitor the various environmental parameters — water, air, soil, mine effluent etc., IBM has been empowered to collect and analyse environmental samples under the Environment (Protection) Act, 1986.



environmental and technical aspects of the Mineral Industry. Presently, IBM does not have the expertise to take up the challenges and therefore, infusion of requisite infrastructure in the form of human resource and material for effective implementation of SDF would have to be effected.

4.3.8 Mineral Beneficiation – Need for Effective Regulation

Utilisation of low-grade minerals in the country was observed to be unsatisfactory. This is mainly due to the fact that there is lack of indigenously developed technology for utilisation of low-grade ores and minerals and absence of regulation in the field of mineral processing. Therefore, it is imperative to segregate the various functions of IBM in the field of mineral processing into categories, such as, regulatory, regional, mine and commercial. Introduction of private players for mineral processing could be essential to bridge the gaps in the technology front. Further, paucity of dissemination channels due to which many of the commendable work achievements of IBM and other organisations engaged in R&D do not get the required coverage & recognition, is a cause of concern which needs to be addressed. The Committee is of the firm view that development of a knowledge network for transmission & for channelising the research achievements in the field would have to be established with IBM as its nodal agency which should primarily look after dissemination of information of R&D-related mineral processing/ beneficiation work. In order to meet the above objective the existing Ore Dressing Division of IBM needs to be revamped & re-oriented.

4.3.9 Need for Strong Mineral Intelligence

Mineral intelligence in the era of globalisation is an extremely important area, which needs to be augmented & strengthened. A strong Mineral Information System (MIS) to collect, analyse and disseminate information on domestic and as well as international trends with regard to supply and demand of minerals and mineral materials is essential for Indian economy to gear up adequately for raw material security which is extremely important. Therefore, short, medium and long-term mineral specific policies would have to be formulated. The functions of the Mineral Economics Division that handle the Mineral Intelligence segment for IBM would require the much-needed & upgraded mineral intelligence system to meet this desired objective.

highlights

Mineral intelligence in the era of globalisation is an extremely important area, which needs to be augmented & strengthened in IBM.

The offshore minerals come under the purview of the Union Government. The Union Government has already declared Controller General, IBM as an 'Administering Authority' to perform various statutory functions related to exploration and mining in offshore areas.

4.3.10 Mineral Regulation of Offshore Minerals

Offshore Mineral Sector for mineral development is currently open to prospective and interested stakeholders. The offshore minerals come under the purview of the Union Government. The Union Government has already declared Controller General, IBM as an 'Administering Authority' to perform various statutory functions related to exploration and mining in offshore areas. IBM therefore, needs to equip itself with necessary infrastructure including qualified manpower in offshore exploration and mining to shoulder this responsibility.

4.3.11 Digitisation of Records

With the advent of information technology, proposals to convert all documents & records into digital format have already been initiated. It is necessary that not only the returns filed by the concession holders be in electronic form, but the data submitted in the Mining Plans also needs to be digitised with geo-referencing. This will help effective regulation of mining activities through satellite imagery and also will go a long way in preventing and controlling illegal mining activities.

4.3.12 Relocation of Regional Offices

Present locations of Regional offices were decided on the basis of cluster of mining operations. In the changed scenario, it is incumbent upon the Regional offices to frequently interact with State Government authorities for effective and coordinated regulation of mining activities. As some mineral-rich states, such as, Chhattisgarh and Gujarat do not have offices of IBM within their region—it has become logistically cumbersome to coordinate the regulatory exercise with these states. It is therefore the considered opinion of the Committee that the jurisdiction of regional offices of IBM be suitably reorganised so that the expected synergy with the State Government agencies could be established which in turn could yield beneficial outcomes in effective development of the Mineral Sector.

4.3.13 Increase Use of Technology

With the advent of technological advancements, mining operations in India too have adopted technology-induced growth & development strategies. Concomitantly, IBM in order to monitor these mining activities will have to suitably upgrade its technological potency & must equip itself with latest technology & equipment. In inspections, there is a pressing need for IBM to use modern equipment for regulation of mining activities like DGPS, GIS database, Satellite imagery etc. Likewise, the Ore Dressing Division needs to scale-up its laboratory infrastructure with necessary & latest equipment & paraphernalia that would enable cross-check the process sheets developed by private players. R&D



works at regional level especially for strategic and technology minerals need be carried out in the Ore Dressing Laboratories for which requisite wherewithal and alignment of efforts would have to be earmarked and arranged.

4.3.14 Usage of Mining-related IT Applications

Use of Information technology in IBM was felt to be inadequate and therefore the scope to broaden its utility needs to be explored. The Committee dwelt in depth to study the design of the present database and the structure of TMIS with an attempt to suggest course correction for enhancing IT applications and integrating these into the work culture of IBM. The Committee is of the opinion that increased use of mining-related IT applications is an absolute must and an interactive portal would have to be developed for synergising IT applications with functional domain needs. Affirming that the present data entry and system for retrieval of information are exacted by outdated hardware and software, the Committee identified that dearth of IT qualified personnel in IBM was a cause of major concern. Observing that IT-related work is looked after by in-house officers and that too by an extremely small complement of officers who on the strength of training partaken earlier continue to manage the systems even today – this, according to the Committee, is grossly insufficient to meet the portend requirements of usage of IT, development of portal and management of the entire system. Induction of qualified personnel with sound prerequisite of experience & proficiency into the work force of IBM must be prioritised.

4.3.15 Refurbishing Training facilities

IBM has an full-fledged Training Centre that caters to the Training needs of the Bureau & the Industry. The Committee, however, is of the view that the existing training infrastructure is moderate in nature and desperately requires major overhaul. In consonance with the changed mining demands wherein renewed thrust & emphasis are devoted to scientific and systematic mining practices, the Training Centre should be accordingly revamped in such ways that new pragmatic modules with specificity in objective be incorporated. IBM's Training Centre would effectively need to address specific areas of training need that could benefit State DGMs, Mineral Industry, local community and its own personnel. There is also a need to establish training facilities at different places of the country to cater to the requirements of the local mineral industries, State Governments etc. The Training Centre further would have to explore the possibility of including external faculties from institutions and industries and would therefore have to coordinate with such institutions of repute as a measure to scout for experienced resource person.

4.3.16 IBM Publications

Publications form the primary source of dissemination of information. All data on mines & minerals collected & generated by IBM are analysed and transformed into technical publications for consumption of interested readers. Publications on

topical core subjects, i.e., exploration, mining, mineral processing, mineral economics etc. are brought out by IBM with regularity in the form of yearbook, bulletins, periodicals, monographs etc. which serve as excellent and authentic reference material. It is observed that the time lag for release of these publications is a concern that needs to be addressed. Due importance towards quality and maintenance of time schedule besides, sprucing of infrastructure & human resource need, require fair attention and augmentation. The Publication Cell of IBM requires to be revived and reoriented and be put on path for evolving effective and quality-based publishing programme.

4.3.17 Technical Consultancy & Mining Research

IBM undertakes consultancy work for the Industry in the field of preparation of feasibility reports, geo-technical investigations, preparation of environmental management plan etc. Most often due to human resource crunch and cramming of schedules, it has become rather arduous for IBM to honour the excessive demands for consultancy assignment from the Mineral Industry. The Committee firmly feels that in order to rationalise the demand from the Industry and the capacity to undertake such assignments by IBM, necessary capacity-addition to strengthen the Technical Consultancy Division is crucial. As it is observed that such consultancy works – mainly that of evaluation of mining projects – often result in benefitting small and medium mining entities enormously, necessary impetus to augment the infrastructure & human resource efficiency in this line of expertise, the Committee feels, must be injected. Although Mining Research Unit was created at IBM to carry out applied research work in the field of mining engineering, its role, except in its initial period, got largely constricted and became confined to small consultancy projects that involved monitoring environmental parameters around mine sites and other issues concerning mining operations. Several issues to improve the relevance of Technical Consultancy Division & the Mining Research Unit and augment their levels of competency in line with the present day mining scenario need thorough mitigation.

4.3.18 Infrastructure Development

Expansion of IBM to fulfil its logistic & technical demands is an imperative requirement. At many mine-intensive locations where mining operations are conducted in medium- to large-scale intensities, be it in Bhubaneswar, Dehradun, Guwahati or Ranchi, IBM does not have the necessary infrastructure – for that matter, even its own premises – to govern & administer the territory that fall under the respective jurisdictions. The places where IBM does have some basic infrastructure, paucity of fund has always inhibited better upkeep & maintenance of its facilities. All issues pertaining to infrastructural needs, in terms of building, vehicles, equipment etc. need to be revisited and given a complete overhaul.

highlights

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