Government of India
Institute of Secretariat Training and Management
(Department of Personnel & Training)

.....

READING MATERIAL

for

ORIENTATION TRAINING PROGRAMME

of

ASSISTANTS, SECTION OFFICERS, UNDER SECRETARIES

of

MINISTRY OF MINES
Government of India

Sponsored by
DEPARTMENT OF ADMINISTRATIVE REFORMS & PUBLIC GRIEVANCES
As part of the
DFID funded Capacity Building for Poverty Reduction Programme

SEPTEMBER 2010

FOREWORD

The utility and need for training in any organization is universally accepted. This is more so in Ministries and Departments of Government of India, where apart from rules and regulations on various subjects, policies in the area of social welfare at National, State and grass-root level are formulated and implemented.

2. The focus of training is generally directed towards foundational level, where the newly recruited officials are required to undergo intensive training on various aspects of administration. Also, the concept of in-service training at various levels focusing on requirements as and when such officials move up on promotion is also firmly established.

3. However, one aspect, which generally goes un-noticed, is when officials are moved from one Ministry/Department to another, as a result of routine transfer policy or on promotion and also, officials directly recruited are allotted Ministries/Departments and join after receiving Foundational Training on general subjects. Such officials are faced with the problem of familiarizing and learning the working of the new Ministry/Department. The concept of any kind of Orientation training, focusing on the need of the Ministry/Department, is by and large not in place. The problem of such officers is more acute in Ministries/Departments implementing National Level policies in various critical sectors like water resources, where the policies/schemes are formulated at National Level but implemented through States at District, Block and Panchayat level. The problem is also acute in Ministries dealing with technical subjects like Ministry of Labour and Employment. The newly posted officers have to handle technical subjects without any familiarization training.

4. The newly posted officials find it extremely difficult to learn about the important policy/schemes and also their implementation mechanism at the block and village level.

5. DARPG as part of the DFID funded Capacity Building for Poverty Reduction Programme has taken initiative to bridge this gap by providing Orientation Training to the officials posted to a ministry on promotion, transfer, deputation or direct recruitment. The task of identifying training needs for such orientation training programme and based on the same, designing training and development of training material has been assigned to ISTM as Consultant.

6. As part of the above endeavour, five ministries were identified and a task team constituted in ISTM to carry out a Training Need Analysis, design an Orientation Programme and conduct one pilot programme in each of the Ministries. The task team successfully completed this activity. It gives me great

pleasure to state here that this orientation progrmme was received extremely well by the Ministries and the participants.

7. As a follow-up of the successful completion of the Orientation Programmes in five Ministries, DARPG entrusted Phase-II of the programme for six identified Ministries to ISTM. As in the earlier Phase the task included carrying out a need analysis and identifying training needs, design a training programme based on the identified needs and developing training material.

8. To undertake the task assigned, ISTM has constituted a consultancy team consisting of Sh. K.S. Kumar, Joint Director, Sh. Chandan Mukherjee, Deputy Director and Sh. S.K. Dasgupta, former Director, DOPT and Dr.A.N.Chakravarty, former Joint Director, ISTM (as External Consultant).

9. It gives me great pleasure that the consultancy team has conducted extensive research and studies by collecting data through questionnaire and interview along with the literature survey. Based on analysis of the data so collected training needs for the target groups of Assistants, Section Officers and Under Secretaries in Department of Ministry of Mines.

10. Based on the identified training needs consultancy team has prepared Design brief, training programme brochure and training programme guide for the orientation training for the target groups on their posting to Ministry of Mines.

11. I am confident that this report of the consultancy team giving training needs, design brief, programme brochure and programme guide for orientation training programme for the target group will prove to be useful in commencing the capacity building initiative in the area which has remained unattended till now.

(KHWAJA M. SHAHID)
DIRECTOR

September 2010

PREFACE

This report is an outcome of DARPG initiative as implementing agency for DFID funded Capacity Building for Poverty Reduction Programme to operationalise Orientation Training Programme for Assistants, Section Officers and Under Secretaries on their posting to the Department of Higher Education, Ministry of Human Resource Development. DARPG assigned the task to ISTM as Consultant, which in turn constituted a consultancy team consisting of the undersigned along with Sh. Chandan Mukherjee, Deputy Director and Sh. S.K. Dasgupta, former Director, DOPT and Dr. A.N. Chakravarty, former Joint Director, ISTM (as External Consultant) to conduct training needs analysis , design training and develop training material. Consultancy team designed questionnaire and check lists for interview to collect data for identifying the training needs of the target groups. Data through questionnaire was collected from **310 officers and 02** officers were interviewed. The consultancy team also undertook extensive literature survey by collecting documents / reports from the Ministry.

2. Based on the data collected and analysis thereof, training needs of the target group have been identified and are given in **Chapter -6 of the Report**.

As the outcome of the identified needs, design brief, training design, programme brochure and programme guide indicating aim, objectives, contents, methodology, deliverables, evaluation and assessment parameters for Orientation Training Programme have been prepared and are at **Chapter 7 to 10.**

3. The consultancy team hopes that this report will facilitate operationalisation of Orientation Training Programme for Assistants, Section Officers and Under Secretaries on their posting to new ministry and lead to enhanced productivity and improved decision making. We look forward to constructive suggestions / comments for improving our efforts, both in content and context.

(K.S.KUMAR)
JOINT DIRECTOR
Email: kskumar53@hotmail.com
011-26108946

September 2010

ACKNOWLEDGEMENT

The initiative taken by Department of Administrative Reforms and Public Grievances to institutionalize a system of Orientation Training as a pilot project in five Ministries will go a long way in increasing efficiency and productivity of the concerned Ministries. The Institute of Secretariat Training and Management (ISTM) and the Consultancy Team express their deep gratitude to Department of Administrative Reforms and Public Grievances for entrusting this responsibility to them, which involves the entire gamut of collection of data, identification of training needs, design of training and also preparing the training material.

2. The Consultancy team is grateful to Secretary, Department of Administrative Reforms and Public Grievances and all other officers of the Department for their guidance and assistance extended to the team from time to time.

3. The Consultancy Team is grateful to **Sh. Sundeep Nayak, Joint Secretary and Sh. R.K. Malhotra, Deputy Secretary** for coordinating the visit of the team to the Ministry for collection of data and for facilitating meeting with other officers to ascertain their views. The Team is also grateful to all the officers of his Division for providing relevant material pertaining to the Ministry and also, copies of various circulars issued by the Ministry from time to time.

4. The Consultancy Team is grateful to **Sh. Sundeep Nayak, Joint Secretary and Sh. R.K. Malhotra, Deputy Secretary** for sparing their valuable time for interacting with the Team and providing valuable suggestions and information relating to Orientation Training in the Ministry.

5. Dr. Khwaja M. Shahid, Director, ISTM has been a great source of strength and morale-booster by providing necessary guidance and assistance to the

Consultancy Team as and when required. The Team is grateful to Dr. Shahid for guidance in undertaking the task.

6. Last but not the least the Consultancy Team acknowledges the contribution and assistance provided by the supporting staff consisting of Smt. Veena Monga, Smt. Binita Pandey, Shri Ravi Shankar, and Shri Attar Chand. But for their untiring efforts, the Team could not have succeeded in submitting this part of the Report.

K.S.Kumar,
Chandan Mukherjee,
S.K. Dasgupta and A.N.Chakravarty

CONSULTANCY TEAM

- Sh. K.S.Kumar, Joint Director, ISTM
- Sh. Chandan Mukherjee, Deputy Director, ISTM
- Sh. S.K. Dasgupta, (Former Director, Government of India), External Consultant
- Dr. A.N. Chakravarty, (Former Joint Director, ISTM)

STAFF MEMBERS

- Smt. Veena Monga, PA
- Smt. Binita Pandey, PA
- Sh. Ravi Shankar, Peon
- Sh. Attar Chand, Peon

MENTOR

Dr. Khwaja M. Shahid, Director, ISTM

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CHAPTER 1
MINISTRY OF MINES: OVERVIEW

Main Functions

1.1 Ministry of Mines is responsible for survey and exploration of all minerals, other than natural gases, petroleum and atomic minerals; for mining and metallurgy of non-ferrous metals like aluminium, copper, zinc, lead, gold, nickel etc. and for administration of the Mines and Minerals (Development and Regulation) Act, 1957 in respect of all mines and minerals other than coal, natural gas and petroleum. A list of subjects allocated to the Ministry of Mines, attached / subordinate offices, Public Sector Undertakings and Research Institutions under the administrative control of Ministry of Mines is given below :-

(a) Legislation for regulation of mines and development of minerals within the territory of India, including mines and minerals underlying the ocean within the territorial waters or the continental shelf, or the exclusive economic zone and other maritime zones of India as may be specified, from time to time by or under any law made by Parliament.

(b) Regulation of mines and development of minerals other than Coal, Lignite and Sand for stowing and any other mineral declared as prescribed substances for the purpose of the Atomic Energy Act, 1962 (33 of 1962) under the control of the Union as declared by law, including questions concerning regulation and development of minerals in various States and the matters connected therewith or incidental thereto.

(c) All other metals and minerals not specifically allotted to any other Ministry/Department, such as Aluminium, Zinc, Copper, Gold, Diamonds, Lead and Nickel.

(d) Planning, development and control of, and assistance to, all industries dealt with by the Ministry.

(e) Geological Survey of India

(f) Indian Bureau of Mines

(g) Metallurgical Grade Silicon.

Attached/Subordinate Offices

1.2 Geological Survey of India is an attached office and Indian Bureau of Mines is a subordinate office of the Ministry.

Public Sector Undertakings

1.3 There are four Public Sector Undertakings under the Ministry of Mines namely:-

- National Aluminium Company Limited (NALCO), Bhubaneswar
- Hindustan Copper Limited (HCL), Kolkata
- Mineral Exploration Corporation Limited(MECL), Nagpur
- Bharat Gold Mines Limited (BGML), Kolar Gold Fields (Karnataka). (Bharat Gold Mines Limited (BGML) has been closed under Section 25(O) of the Industrial Disputes Act, 1947 from 1.3.2001.)

Autonomous Bodies

1.4 There are three S&T Institutions which are Autonomous Bodies of this Ministry namely:-

- Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC) Nagpur.
- National Institute of Rock Mechanics, (NIRM) Kolar; and
- National Institute of Miners' Health (NIMH), Nagpur

1.5 In addition a registered Society, namely the Non-ferrous Materials Technology Development Centre, Hyderabad (NFTDC) a non-grant institution came within the administrative purview of the Ministry during the year as a consequence to the election of Secretary (Mines) as the Chairman of the General Body of the Centre in place of the Scientific Advisor, D.R.D.O

Organisational Structure

1.6 The Secretariat of the Ministry of Mines is headed by the Secretary to Government of India and includes other officers viz Additional Secretary, two Joint Secretaries, one Joint Secretary & Financial Adviser (common for Ministries of Coal, Ministry of Mines & Ministry of Youth Affairs & Sports), nine Directors / Deputy Secretaries, five Under Secretaries, one Junior Scientific Officer, twenty-five Section Officers, one Assistant Librarian and Information Officer in addition to a Joint Director and Assistant Director each for Official Language. Beside this, this Ministry has one Development Officer. The total number of sanctioned posts for the Secretariat of the Ministry of Mines is 60 Gazetted and 169 Non-Gazetted. In addition, there is a Chief Controller of Accounts assisted by a Pay and Accounts Officer and Assistant Accounts Officer and 31 Non-Gazetted Staff in the Pay & Accounts Office.

1.7 For the welfare of SC/ST/OBC, this Ministry has constituted a SC/ST Cell, which looks after the welfare of SC/ST/OBC employees. A Women's Cell has also been constituted in this Ministry to look into the complaints, if any, regarding sexual harassment of women working in the Secretariat proper of this Ministry.

Right to Information

1.8 To ensure transparency in the functioning of the Ministry of Mines, a Public Information Cell has been constituted under the Right to Information Act

comprising of a Nodal Public Information Officer, and 20 Central Public Information Officers.

Table 1.1

Sanctioned and Actual strength in Secretariat of Ministry of Mines as on 31.12.2009

	Sanctioned strength	Total Actual Strength	Number of SC/ST/OBC/Minority/Women out of Present incumbents				
			SC	ST	OBC	Minority	Women
Group-A Gazetted	23	18	3	1	-	1	3
Group-B Gazetted	37	32	3	1	1	-	8
Group-B-Non-Gazetted	53	43	3	2	4	2	16
Group-C	108	88	22	4	3	1	9
Group –D	8	7	-	-	-	-	-
Total	229	188	31	8	8	4	36

IT Support by NIC to Ministry of Mines

1.9. National Informatics Centre (NIC) of the Department of Information Technology is providing Information and Communication Technology (ICT) support to the Ministry of Mines. The NIC Computer Centre was set up in the Ministry of Mines in 1985 and the IT support being provided is as given in the following paragraphs.

1.10. A LAN has been established in the Ministry, with NIC support which interconnects computers of officers/ staff in the Ministry and enables internet services. At present approximately one hundred eighty users are connected to the LAN of the Ministry of Mines.

1.11. Website of Ministry of Mines:- Website of Ministry of Mines (http://mines.gov.in) has been created which provides comprehensive information on various subjects like Acts & Rules and working of the Ministry, National Mineral Policy, Information about the Indian Mineral Sector, current status of Revision Petitions and Mineral Concessions Applications for prior approval, Annual Report of the Ministry etc. and provides links to its PSUs, offices and other useful sites in the mineral sector.

1.12 Ministry of Mines with the help of National Informatics Centre (NIC) is implementing various Management Information Systems required for better planning, monitoring and decision making. To make the information available on a single window, related to various areas of the day-to-day functioning of the Ministry, an intranet based web portal for the Ministry of Mines has been developed. The key driver for this intranet based website is to reduce the Ministry's workload and increase overall efficiency by promoting 'self service'. The various applications which are operational in the Ministry are as follows:

- IntraMines – An intranet based website of Ministry of Mines
- Mineral Concession Approval System
- Revision Application System
- OPA (Office Procedure Automation)
- Court Case Management System
- Comprehensive DDO System
- RTI Monitoring System
- Public Grievance Monitoring System
- ACC Vacancy Monitoring System
- Complaint Monitoring System - equipments
- E-Notice Board
- Network Call & Asset Management System

1.13 NIC unit with the Ministry of Mines imparts training from time to time to the staff of the Ministry on various subjects like Email, Internet, file sharing, Power Point, Excel and word processing and hand holding on newly developed software packages.

Annual Plan 2010-11

1.14 The Organization-wise distribution of proposed Outlay for Annual Plan 2010-2011 showing Internal Resources (IR), Extra Budgetary Resources (EBR), Gross Budget Support (GBS), Net Budget Support (NBS) and NER, is given below:-

Proposed Annual Plan 2010-2011

S. NO	ORGANISATION	OUTLAY	IR	EBR	GBS	NBS	NER
1.	Geological Survey of India	162.00	-	-	162.00	162.00	162.20
2.	Indian Bureau of Mines	28.00	-	-	28.00	28.00	2.80
3.	Science & Technology	8.82	5.35	0.47	3.00	3.00	-
4.	National Aluminimum Company Ltd	1389.00	1389.0	0.00	-	-	-
5.	Hindustan Copper Ltd.	150.35	150.35	-	-	-	-
6.	Mineral Exploration corporation Ltd.						
	- Promotional	7.00	-	-	7.00	7.00	-
	V Capital	8.00	8.00	-	-	-	-
7.	Construction						
	Gelogical Survey of India	9.99	-	-	9.99	9.99	-
	Indian Bureau of Mines	0.01	-	-	0.01	0.01	-
		1763.17	1552.70	0.47	210.00	210.00	19.00

1. 10% of BS of only GSI & IBM is earmarked for expenditure in NER.

2. GBS in respect of loss making PSUs as well as those having no activities in North East Region and Foreign Aid component are exempted from earmarking of 10%.

CHAPTER 2
MINERAL AND METAL SCENARIO

National Mineral Scenario

2.1 Minerals are valuable natural resources being finite and non-renewable. They constitute the vital raw materials for many basic industries and are a major resource for development. The history of mineral extraction in India dates back to the days of the Harappan civilization. The wide availability of the minerals in the form of abundant rich reserves made it very conducive for the growth and development of the mining sector in India.

2.2 The country is endowed with huge resources of many metallic and non-metallic minerals. Mining sector is an important segment of the Indian economy. Since independence, there has been a pronounced growth in the mineral production both in terms of quantity and value. India produces as many as 86 minerals, which include 4 fuels, 10 metallic, 46 non-metallic, 3 atomic and 23 minor minerals (including building and other materials).

Mineral Production

2.3 Based on the overall trend so far the index of mineral production (base 1993-94=100) for the year 2009-10 is estimated to be 189.90 as compared to 175.96 for 2008-09 showing a positive growth of 7.92%.

2.4 The total value of mineral production (excluding atomic minerals) during 2009-10 is estimated at Rs. 1,27,921.42 crores, which shows an increase of about 4.61% over that of the previous year. During 2009-10, provisional value for fuel minerals account for Rs. 79,602.69 crores or 62.23%, metallic minerals, Rs. 27571.16 crores or 21.55% of the total value and non-metallic minerals including minor minerals Rs. 20747.56 crores or 16.22% of the total value.

PRICE TREND

2.5 The wholesale price index for non-fuel minerals (base 1993-94=100) stood at 588.1 in December, 2009 and the corresponding index for December, 2008 was 615.4. The minerals included in the wholesale price index are bauxite, chromite, iron ore, manganese ore, asbestos, barytes, dolomite, felspar, fireclay, fluorite, gypsum, kaolin, limestone, magnesite, ochre, phosphorite, silica sand, steatite and vermiculite. The wholesale price index for metallic minerals was 879.2 in December, 2009 as compared to 916.7 in December, 2008 and that of other minerals was 128.5 in December, 2009 as compared to 139.6 in December, 2008. The wholesale price index for Coal stood at 251.8 in

December, 2009 as compared to 251.8 in December, 2008. The wholesale price index of minerals oils stood at 418.3 in December, 2009 and that in December, 2008 it was 393.6.

Gross Domestic Product From Mining & Quarrying Sector

2.6 The Gross Domestic Product (GDP) accrued from mining and quarrying sector at 1999-2000 price is estimated by CSO. In 2009-10, the estimates of GDP in April-September of 2009-10, the mining and quarrying sector accounted for about 1.91 % GDP. The contribution of mining and quarrying sector to GDP in 2009-10 (April-September) at Rs. 31,808 crore indicated an increase of 8.7% over that in the preceding period. So far CSO has not published the Advance estimates of 2009-10.

Mining

2.7 Indian mining industry is characterized by a large number of small operational mines.

The number of mines which reported mineral production (excluding minor minerals, petroleum (crude), natural gas and atomic minerals) in India was 2729 in 2009-10 as against 2964 in the previous year. Out of 2729 reporting mines, 404 were located in Andhra Pradesh followed by Gujarat (398), Jharkhand (284), Madhya Pradesh (250), Rajasthan (236), Orissa (220), Karnataka (209), Maharashtra (145), Tamil Nadu (138), Chhattisgarh (126) and West Bengal (111). These 11 states together accounted for 92.38 % of total number of mines in the country in 2009-10.

2.8 During 2009-10, mineral production was reported from 32 States/Union Territories (actual reporting of MCDR & Fuel minerals from 22 states and estimation of minor minerals for all 32 States/Union Territories) of which the bulk of value of mineral production of about 82.92% was confined to 9 States (including offshore areas) only. Offshore areas continued to be in leading position, in terms of value of mineral production in the country and had the share of 17.98% in the national output. Next in order was Andhra Pradesh with a share of 12.24% followed by Orissa (11.85%), Chhattisgarh (9.18%), Jharkhand (8.79%), Maharashtra (7.05%), Gujarat (4.87%), Rajasthan (4.26%), Tamilnadu (3.42%) and Karnataka (3.29%) in the total value of mineral production. Remaining 23 States/Union Territories having individual share of less than 3% together accounted for 17.08% of total value during the year under review.

2.9 State-wise analysis reveals that during 2009-10, the value of mineral production in most of the principal mineral producing States has decreased as compared to that in the previous year. However, some states which have indicated an increase in the value of mineral production are Meghalaya (331.41%), Himachal Pradesh (84.46%), Maharashtra (76.05%), Tamilnadu

(53.61%), Arunachal Pradesh (35.29%), Jharkhand (19.47%) and Jammu & Kashmir(11.11%) during the year under review.

2.10 During 2008-09, the Public Sector continued to play a dominant role in mineral production accounting for 72% or Rs. 76,651 crores in the total value. Small mines, which were mostly in the private sector, continued to be operated manually either as proprietary or partnership ventures. The minerals which were wholly mined/recovered by the public/joint sector in 2008-09 were Copper ore and concentrate, Diamond, Dunite, Fluorite(graded) & concentrate, Phosphorite/Rock Phosphate, Rock salt, Sand (others), Selenite and Sulphur. By and large, almost the entire production of Lignite, Gold (primary and secondary of indigenous origin) and Gypsum was from Public Sector. In 2008-09, the Public Sector accounted for sizeable 92% production of coal, 86% of petroleum (crude), 76% of Natural gas(utilized), 80% Tin concentrate, 97% of Barytes, 83% of Kyanite, 76% of Sillemanite and 60% of Magnesite.

2.11 India's ranking in 2007-08 in world production was 2nd in barytes, chromite and talc/steatite/pyrophillite 3rd in coal & lignite and bauxite, 4th in iron ore and kyanite/sillimanite, 5th in manganese ore and steel (crude), 7th in zinc and 8th in aluminium.

Self-Reliance in Minerals & Mineral-Based Products

2.12 India continued to be wholly or largely self-sufficient in minerals which constitute primary mineral raw materials to industries, such as, thermal power generation, iron & steel, ferro-alloys, aluminium, cement, various types of refractories, china clay-based ceramics, glass, chemicals like caustic soda, soda ash, calcium carbide, titania white pigment, etc. India is, by and large, self-sufficient in coal (with the exception of very low ash coking coal required by the steel plants) and lignite among mineral fuels, bauxite, chromite, iron, manganese ores, ilmenite and rutile among metallic minerals; and almost all the industrial minerals with the exception of chrysotile asbestos, borax, fluorite, kyanite, potash, rock phosphate and elemental sulphur. Despite high degree of self-sufficiency, some quantities of flaky and amorphous graphite of high fixed carbon, kaolin and ball clay for special applications, very low silica limestone, dead-burnt magnesite and sea water magnesia, battery grade manganese dioxide, etc. were imported to meet the demand for either blending with locally available mineral raw materials and/or for manufacturing special qualities of mineral-based products. To meet the increasing demand of uncut diamonds, emerald and other precious and semi- precious stones by the domestic cutting and polishing industry, India continued to depend on imports of raw uncut stones for their value-added re-exports.

CHAPTER 3
MINING POLICY AND LEGISLATION

National Mineral Policy (NMP), 1993

3.1 In pursuance of the reforms initiated by the Government of India in July, 1991 in fiscal, industrial and trade regimes, the National Mineral Policy was announced in March, 1993. The National Mineral Policy recognized the need for encouraging private investment including foreign direct investment, and for attracting state-of-art technology in the mineral sector. The policy stressed that the Central Government, in consultation with the State Governments, shall continue to formulate legal measures for the regulation of mines and the development of mineral resources to ensure basic uniformity in mineral administration so that the development of mineral resources keeps pace, and is in consonance with the national policy goals.

Legislative Changes Consequent to National Mineral Policy, 1993

3.2 With a view to give effect to the National Mineral Policy, 1993, the Mines and Minerals (Development & Regulation) Act,1957 (MMDR Act) was amended in January, 1994. The amendments, inter-alia, covered the following:-

(i) Removal of restriction on foreign equity holding in the mining sector enabling any Company registered in India irrespective of foreign equity holding to apply for mining concessions (prospecting licence or mining lease)

(ii) Amendment of First Schedule to the MMDR Act, 1957, whereby more powers were devolved on the State Governments by way of deleting 15 minerals. With this amendment, only 11 minerals comprised Part 'C' of the said First Schedule apart from Coal and Lignite and 11 atomic minerals, which constitute Parts 'A', and 'B', respectively of the said Schedule.

(iii) Providing greater stability in tenure of mineral concessions,for which the minimum period for mining lease was specified as 20 years, alongwith maximum period for grant of mining lease enhanced from 20 to 30 years. The maximum period for renewal was also increased from 10 to 20 years and provision made for subsequent renewals in the interest of mineral development provided for.

(iv) The State Governments were empowered to terminate a lease for minor minerals without prior approval of the Central Government.

3.3 In order to boost exploration and detailed prospecting of high value and scarce minerals in the country, Government of India in October,1996, issued guidelines for facilitating aerial prospecting over large areas by allowing grant of a single prospecting licence upto 5000 Sq.kms with the proviso that the aggregate area held under such prospecting licence by a single person or company may not exceed 10000 sq.kms. in the whole country.

3.4 In December, 1999, the following amendments were made in the MMDR Act, 1957 and the Rules framed there under based on the report of the Tandon Committee constituted by the Ministry of Mines:-

(i) The concept of reconnaissance operations as a stage of operation distinct from and prior to actual prospecting operations was introduced and detailed provisions were made in the Rules laying down conditions, criteria, area limits, scope of operations, etc. in regard to reconnaissance operations/ permits.

(ii) The mineral 'Limestone' was deleted from Part 'C' of First Schedule to the Act, thereby bestowing full powers of grant of mineral concessions to the State Governments in respect of this important mineral, addressing the demand from a large number of State Governments and industry. The 10 minerals in Part 'C' of the First Schedule of the Act which now require prior approval of the Central Government for grant of mineral concession are Asbestos, Bauxite, Chrome ore, Copper, Gold, Iron ore, Lead, Manganese ore, Precious stones and Zinc.

(iii) Incorporation of legal provisions regarding renewal (first or subsequent) of mining lease and prospecting license, and full delegation of these powers to the State Governments in respect of 10 mineral in Part 'C' of the First Schedule.

(iv) Similarly, power for transfer of mining leases for 10 minerals in part 'C' of the First Schedule was delegated to State Government so that reference to the Central Government was not necessary.

(v) State Governments were delegated powers to grant mineral concessions even for areas which are not compact or contiguous.

(vi) State Governments were empowered to permit amalgamation of two or more adjoining mining leases .

(vii) The area restrictions of mining lease/ prospecting license/ reconnaissance permits were substantially liberalised by making such restrictions applicable State-wise instead of the country as a whole.

Area Limit/ Time Period for Mineral Concessions

S.NO	MINERAL CONCESSION	MAS. AREA IN A STATE (SQ. KMS)	INITIAL GRANT (YEARS)	RENEWAL (YEARS)
1.	RP	10,000 (single permit 5000)	3	-
2.	PL	25	3	2
3.	ML	10	20-30	20

(viii) The legal provisions for curbing illegal mining were strengthened by delegation of powers for check, search entry, etc. to the State Governments. The provisions for confiscation, apart from existing powers of seizure in respect of tools, equipment, etc. used in illegal mining; introducing legal provision for transport and movement of minerals so as to curb movement of illegally mined minerals, were made.

(ix) Powers for approving mining plan for 29 non-metallic /industrial minerals in case of open cast mines were delegated to the State Governments.

(x) For large mining operations (proposed investment exceeding Rs. 2 billion) mining lease shall not lapse if mining development does not take place in two years.

(xi) Level playing field between Government owned Companies and others were provided, e.g. prematurely terminated lease area is available for re-grant to both public and private sector, and Government owned Companies cannot charge premium in case of transfer of mining lease.

Need for Review of National Mineral Policy of 1993

3.5 Mining is a three-stage operation, involving regional exploration, detailed exploration, and actual mining. Regional exploration is mainly a survey activity to identify areas bearing deposits. Detailed exploration is a little more invasive and can involve close distance drilling (depending on the mineral) and substantial testing to establish commercially exploitable ore bodies. Mining projects, therefore, have a long gestation period requiring large investments in exploration and other development activities before commercial production can begin, and are thus considered as a high risk venture for the reason that a prospector's investment may or may not result in finds of commercially exploitable deposits. In India, investment has been lacking in such high-risk ventures and the work done by GSI continues to be the main basis for investment in mining.

3.6 Even though it is commonly agreed that India is endowed with large mineral resources, especially of iron ore, bauxite, lime stones, base metals, noble metals, and diamonds, due to inadequate survey and exploration activities, the full potential of these deposits are not known. Out of 1.82 million sq. km of hard rock area (excluding the Deccan Trap), geological mapping on a scale of 1:50,000 has been largely completed on an estimated 347,040 sq. km, geophysical mapping of only 56,000 sq. km and geochemical survey of only 73,000 sq. km has been completed. Assuming a general geological environment of only scheduled minerals at about 571,040 sq. km, proper regional exploration for only 8–13 per cent has been done. There was a need felt to attract high risk investment in the interest of discovering commercially exploitable deposits.

3.7 Foreign Direct Investment (FDI) policy was announced by the Government in February 2000 which allowed 100% investment. Out of the proposals for FDI amounting to Rs 4044 crore reported to have been approved by the Foreign Investment Promotion Board for investment in mining in India, the actual inflow was only Rs345 crore till February 2006, when 100 per cent FDI was put on the automatic route. Further, only a few Reconnaissance Permits and Prospecting Licences had actually converted into Mining Lease.

3.8 Simultaneously, the growing global demand for metals and minerals has been continuously pushing up both domestic and international prices of minerals. Moreover, the country's accelerated growth rate warranted a rapid development of the mining sector because most of the basic industries in the manufacturing sector are dependent on assured ore supply. Similarly, the world mineral scenario had changed significantly, and in today's globalised economy, it was noticeable that investments in mining and exploration flow into such countries where apart from existence of mineral potential the regulatory regime is also investor friendly. Realizing this fact, many developing countries had significantly reoriented their mining laws and policies to attract global investment.

3.9 The slow pace of FDI in the mining sector even five years after the liberalization of the investment regime, the lack of enthusiasm for investment in prospecting shown by the domestic private sector, and the lack of resources with public sector agencies such as GSI, MECL, and other state and central agencies for undertaking promotional exploration had meant that the sector was unable to contribute to growth of the Gross Domestic Product (GDP) of the country to an optimal extent.

3.10 During the Mid-term Appraisal of the 10th Plan in the Planning Commission, it was observed that the 1993 policy had not been able to achieve the aim of encouraging the flow of private investment and introduction of high end technology for exploration and mining because of procedural delays, etc. A High Level Committee under the chairmanship of Shri Anwarul Hoda was

therefore constituted on 14th September, 2005 by the Planning Commission to review the existing policy and make recommendations for possible amendments to the Mines & Minerals (Development & Regulation) Act, 1957 to give a fillip to private investment in the mining sector. Based on recommendation of Hoda Committee, the National Mineral Policy, 2008 has been announced by the Government of India in March, 2008. The National Mineral Policy, 2008 (NMP) endeavors to attract technology and fresh investment through specific measures.

National Mineral Policy 2008

3.11 The new NMP enunciates measures like assured right to next stage mineral concession, transferability of mineral concessions and transparency in allotment of concessions, in order to reduce delays which are seen as impediments to investment and technology flows in the mining sector in India. The Mining Policy also seeks to develop a sustainable framework for optimum utilisation of the country's natural mineral resources for the industrial growth in the country and at the same time improving the life of people living in the mining areas, which are generally located in the backward and tribal regions of the country.

3.12 Other policy features of the Mineral Policy are:-

(a) NMP recognizes that minerals are a valuable natural resource being the vital raw material for infrastructure, capital goods and basic industries and development of the extraction and management of minerals has to be integrated into the overall strategy of the country's economic development.

(b) The exploitation of minerals has to be guided by long-term national goals and perspectives which are dynamic and responsive to the changing global economic scenario.

(c) The NMP also recognizes that the country is blessed with ample resources of a number of minerals and has the geological environment for many others being a part of the ancient Gondwanaland, which includes parts of Australia, South Africa, and Latin America.

(d) NMP lays out that the guiding strategy for development of any mineral should naturally keep in view its ultimate end uses in terms of demand and supply in the short, medium and long terms and this would be market oriented. However, a disaggregated approach in respect of each mineral will be adopted and a mineral specific strategy will be developed to maximise gains from the comparative advantage which the country enjoys and mineral development will be prioritized in terms of import substitution, value addition and export, in that order.

(e) Conservation of minerals shall be construed not in the restrictive sense of abstinence from consumption or preservation for use in the distant

future but as a positive concept leading to augmentation of reserve base through improvement in mining methods, beneficiation and utilisation of low grade ore and rejects and recovery of associated minerals.

IMPLEMENTATION OF THE NATIONAL MINERAL POLICY- INITIATIVES TAKEN SO FAR

Strengthening Geological Survey of India

3.13 As stated in the Policy, in order to explore the country's geological potential, it is important that scientific and detailed prospecting is carried in search of its mineral resources, and regional and detailed exploration needs to be carried out systematically in the entire geologically conducive mineral bearing area of the country. The Geological Survey of India needs to be strengthened accordingly with man power, equipment and skill sets upgraded to the level of state-of-the art. The Policy further states that Government agencies will expend public funds primarily in areas where private sector investments are not forthcoming despite the desirability of programmes due to reasons such as high uncertainties. As a first step in this direction the Ministry had constituted a High Powered Committee (HPC) to suggest measures to strengthen the GSI. The HPC has submitted its report on 31.3.2009 with a number of recommendations including on issues of training and capacity building. The recommendations are being implemented in a phased manner.

Strengthening of Indian Bureau of Mines

3.14 The new Mineral Policy lays stress on the need to strengthen IBM as a national level technical regulator. In terms of the new Policy, conservation of minerals shall be construed not in the restrictive sense of abstinence from consumption or preservation for use in the distant future but as a positive concept leading to augmentation of reserve base through improvement in mining methods, beneficiation and utilisation of low grade ore and rejects and recovery of associated minerals. In order to ensure this, the new Mineral Policy enunciates that there shall be an adequate and effective legal and institutional framework mandating zero-waste mining as the ultimate goal and a commitment to prevent sub-optimal and unscientific mining. Such a framework would be regulated by the IBM. A Committee has been constituted on 23.07.2009 in the Ministry of Mines for revising and restructuring of functions and role of IBM in terms of the Policy directions given in the National Mineral Policy 2008.

Mining Tenement & Registry System

3.15 The Policy lays down that a national inventory of mineral resources will be based on a comprehensive and up-to-date review of exploration data, and in coordination with Geological Survey of India, the Indian Bureau of Mines will maintain a database in digitized form comprising both a Resource Inventory and a Tenement Registry in accordance with the latest version of the UNFC system. The Tenement Registry will also give information of both Leasehold Areas as well as Freehold Areas in terms of green field, brown field and relinquished areas including areas given up by the GSI and other reconnaissance permit /prospecting licence holders. It is envisaged in the Policy that the data would be maintained online giving instant information to prospective investors on what is available for reconnaissance, prospecting and mining. Summaries of work done by public agencies will be kept in the form of meta-data in the public domain and detailed reports will be made available to interested investors on cost recovery basis. In order to introduce such a system, the Ministry of Mines has started work on a Mining Tenement System, in consultation with the concerned Ministries/ Departments of the Central Government and State Government. A pilot project for Durg, Chattishgarh and Bellary, Karnakata is underway.

Forest & Environment issues

3.16 The policy lays down a framework for sustainable development which will be designed to take care of bio diversity issues and to ensure that mining activity takes place along with suitable measures for restoration of the ecological balance. Special care will be taken to protect the interest of host and indigenous (tribal) population through developing models of stakeholder interest based on international best practice. Project affected persons will be protected through comprehensive relief and rehabilitation packages in line with the National Rehabilitation and Resettlement Policy. The matter has been raised with the Ministry of Environment and Forests in the light of the new Mineral Policy, expressing the readiness of the Ministry to strengthen the IBM in order to ensure that the provisions of the Policy and statutory requirements in Forests and Environment Acts are fulfilled in letter and spirit.

Sustainable Mining Issues

3.17 The Hoda Committee, set up to review the National Mineral Policy, held that some of the challenges facing the Indian Mining sector to develop in a sustainable manner would be to identify the appropriate use of land within a Land Planning framework through a democratic decision making process on the basis of integrated assessment of ecological environmental economical and social impact. The Committee also held that mining should contribute to economic, social and cultural well-being of indigenous host populations and local communities by creating stakeholder interest in mining operations for the Project

affected Persons (PAP). The Committee recommended development of a Sustainable Development Framework specially tailored to Indian context. The Ministry of Mines has initiated action to prepare a Sustainable Development Framework for the Indian Mining sector, and has engaged a reputed Consultant for the purpose through a competitive process.

Geological Programming Board:

3.18 Coordination of the regional exploration work by government agencies at present is being done by the Central Geological Programming Board of the GSI. The disaggregated projects are generally discussed in the State Level Committees and other technical forums before being incorporated into the annual programme. The existing arrangement has been revamped to ensure that projects and programmes are prioritized in line with the national policy goals and are chalked out after taking into account the exploration work undertaken by the private sector. The Central Geological Programming Board is now meeting twice a year (in September and again in February) as part of the process to strengthen the linkage between the Central Geological Programming Board and the State Geological Programming Boards. With this, it is expected that the Central Board will effectively articulate the policy and programmatic requirements in a technically feasible and scientifically desirable manner, so that projects and programmes are prioritized in line with national policy goals and take into account and facilitate the exploration work of the private sector.

Enforcement of Data Filing by Concession Holders

3.19 The National Mineral Policy mandates that data filing requirements will be rigorously applied and all concession holders will be subjected to detailed monitoring in this regard. Lock-in arrangements for data will be assured and released data will be integrated with the data generated by the state agencies and made available to other prospectors. GSI and IBM have been instructed to closely monitor data filing requirements. The matter is a regular item of review in the Central and State Geological Programming Boards.

Re-assessment of Threshold Values of Important Minerals

3.20 Minerals being a valuable resource, the extraction of mineral resources located through exploration and prospecting has to be maximised through scientific methods of mining, beneficiation and economic utilisation. Zero waste mining will be the national goal and mining technology will be upgraded to ensure extraction and utilisation of the entire run-of-mines. In this context, a Study Group in IBM carried out a study in consultation with the stakeholders in the Industry for reassessing the threshold values of 23 minerals including iron ore. The Study Group in IBM in its report submitted in November, 2008 recommended revision of threshold values for 12 minerals. After consultations with the State Governments,

IBM has published the revised threshold values for 12 minerals, including iron ore, chromite and manganese, on the 16th October 2009. The new threshold values will ensure that lower grade ore is properly stacked and where possible, used after appropriate beneficiation.

GSI Data

3.21 One of the directions of the National Mineral Policy is that in order to exploit the country's geological potential, it is important that scientific and detailed prospecting is carried out in search of its mineral resources. It will be ensured that regional and detailed exploration is carried out systematically in the entire geologically conducive mineral bearing area of the country using state-of-the-art techniques in a time bound manner. The GSI was accordingly directed on 05.06.2009 to make all its reports, maps, etc. (non-restricted, non-sponsored) freely available (at copy printing cost) and upload the same on the GSI portal. However, at the same time, publication of Reports will continue and the pricing of these Reports will be done as per the guidelines issued from time to time. The GSI would be hosting the following information free of cost on its Portal to facilitate potential prospectors:-

(a) All published maps of 1:1million and smaller scales.

(b) Published reports and journals, and in particular the Economic Geology services (Bulletin Series A)

(c) All unpublished maps of 1:50000 and smaller scale.

(d) All limited circulation and open file reports.

(e) Detailed information Dossiers on important minerals (DID)

Mines Development and Mineral Conservation

3.22 The National Mineral Policy lays down that the Mine development and mineral conservation as governed by the rules and regulations will be on sound scientific basis, with the regulatory agencies, viz. IBM and the State Directorates, closely interacting with R&D organisations, and scientific and professional bodies to ensure optimal Mining Plans. Conditions of mining leases regarding size, shape, disposition with reference to geological boundaries and other mining conditions shall be such as to favourably predispose the leased areas to systematic and complete extraction of minerals. The regulatory agencies, namely the Indian Bureau of Mines and the State Directorates will be suitably strengthened through capacity building measures. IBM has accordingly been asked to prepare detailed guidelines for mine closure best practices, and the actual process of obtaining approval from the IBM for the Mine Closure Plan, detailing the socio-economic aspects of mine closure, long-term impact, costs

involved, etc. This should be available as a publication and also on the website of the IBM. In this context, the IBM has constituted Working Groups to :-

(a) suggest incentives to be given to mine operators to promote mechanization, computerization and automation,

(b) develop a Plan for Private sector networking of institutions and jobs in the field of mineral beneficiation,

(c) develop legal and institutional framework for zero waste mining.

(d) evolve guidelines for operating small deposits in a scientific and efficient manner, safeguarding vital environmental and ecological aspects; and

(e) examine improved coordination between the States and IBM.

Coordination-cum-Empowered Committee

3.23 The Hoda Committee, in its report, recognised that the present law of the land required various clearances for starting a mining operation from various agencies and recommended that in order to reduce delays at various levels in grant of approvals for mineral concessions, Coordination-cum-Empowered Committees need to be set up at both the Central Government and the State Governments. Accordingly, the Central Government has set up a Coordination-cum-Empowered Committee in the Ministry of Mines to monitor and minimize the delays in grant of various approvals by the concerned Ministries/Departments in the Central Government for grant of mineral concession. The Committee has held two rounds of meetings, on the 24th July 2009 and 22nd December 2009 during 2009-10. The Central Government has also advised the State Governments to set up a Coordination-cum-Empowered Committee at the State level for, inter- alia, effective coordination with the Revenue Department for managing the land for purposes of concessions, ensure that clearances are given by various Departments of State in a timely manner, monitor the process of approval of concessions, and ensure creation of a computerised data base which could be effectively integrated with other State level databases. The committee would also ensure that effective steps are taken to combat the menace of illegal mining.

Model State Mineral Policy

3.24 While the Central Government is engaged in the task of formulating legislative measures necessary for giving effect to the NMP to ensure basic uniformity in mineral administration across the country and to ensure that the development of mineral resources keeps pace, and is in consonance with the national policy goals, a model State Mineral Policy has been circulated to all the State Governments. This model framework is intended to act as an aid to the State Governments to develop suitable mineral policies within the ambit of the

National Mineral Policy for their States keeping in view their local requirements. The Model Policy recognizes that while on the one hand, mineral exploration brings about increased economic activity and development of the State, it can have adverse social and ecological consequences, which must be sincerely and adequately addressed in the interest of well being of all the citizens of the State. In order to do so, it advocates scientific mining with sustainable management practices for the long-term economic development of the State.

Centre for Techno Economic Mineral Policy Option (C-TEMPO)

3.25 The Ministry of Mines has set up a small techno-economic think-tank to provide policy inputs for decision making on mineral policy. The new body, C-TEMPO, has been registered, and started functioning from January,2010.

Implementation Committee for Non-Legislative Issues in the NMP

3.26 To oversee the implementation of non-legislative action points arising out of the National Mineral Policy, 2008, a Committee has been constituted under the chairmanship of Special Secretary (Mines), including Joint Secretary (Minerals & Regulation) in the Ministry of Mines, and representatives from IBM and GSI as members. Four meetings of the Implementation Committee have been held on 15th July 2009, 1st September 2009 11th November 2009, and 7th December 2009. The Implementation Committee has identified actions points and directed the concerned agencies to initiate steps accordingly on the major policy issues of the National Mineral Policy.

Mineral Legislation

3.27 The National Mineral Policy, (NMP) 2008, while ushering into greater liberalisation, has also sought to widen the scope of the regulatory framework of the Government in the mining sector, to ensure transparency and level playing field.

Some of the implications of the policy changes for the legislation are given below:

(a) Absolute right of a prospector to obtain a Mining Lease in the areas where they have done requisite work, implying seamless transition from regional exploration (RP) to prospecting (PL), and to mining (ML), except for National Security/ specified Public Purpose

(b) Unbundling of prospecting from mining, whereby prospector may invest, find and sell data.

(c) Encouraging competitive exploration with state-of-art technology and investment with two types of concession instruments, i.e. Reconnaissance Permit on non exclusive basis and Large Area Prospecting Licence on exclusive basis.

(d) Introducing competition and level playing field by ensuring an arms length between the Government as a regulator and Government as a miner

(e) Promoting auction of ore bodies fully prospected at public expense for transparency in allotment, recovery of cost of exploration borne by the Government and generating additional resources for the States.

(f) Allowing State Governments to give preference to a "value adder" in case of multiple applicants for a concession subject to other eligibility requirements. At the same time State Governments cannot hold back grant of mineral concession if no "value adder" is available.

(g) Reducing delays in the grant of mineral concessions.

(h) Promoting welfare of the local community and mainstreaming of the people in mining areas, particularly those situated in backward and tribal areas by introducing a Sustainable Development Framework.

(i) Ensuring fair compensation to the State Government by:

- moving to an ad valorem basis royalty system.
- increasing dead rent on escalating scale on unused areas, to dissuade idle holding of resources.
- allowing levy of fees on transfer of concessions.
- several fold increase in penalties on illegal mining.

3.28 Based on the policy, the Ministry of Mines recognises that the regulatory framework would have to move from conventional areas of managing the mineral concession system to new areas of regulating the mineral sector holistically through addressing issues of attracting capital and technology in the sector from new sources, better management of resources, improving the R&D and Human Resources in the sector, and striking a balance through sustainable mining, dealing also with related socio-economic matters such as post mine closure situations. The regulatory framework therefore would need to be detailed suitably in the Mines and Minerals (Development and Regulation) Act, and Rules framed thereunder. Such detailing would help in making the regulatory framework transparent, reduce the discretions in the rules and eliminate conflicting interpretation of the regulations. Most importantly, the implications would be felt in developing a suitable system maintaining an arm's length for independent regulation of the framework.

3.29 The change in the perception towards the regulatory framework as enunciated by the NMP is underpinned by recent socio-economic trends in the various mineral rich States of the country and global experience which has

shown that while on one hand minerals are a national wealth, to be used in public interest, on the other, in a democratic framework, mineral extraction has to be based on due recognition to local stakes at all levels (community and provincial) which enables a 'Social Licence' to conduct mining operations through a process of free prior informed consent. These are the prime issues which are in the process of being addressed by the regulatory framework.

Principles for The Legislative Changes

3.30 **Decentralization:** In terms of the NMP, it has become necessary that for development of mineral sector, the State Government should be allowed to have an effective role in the utilization of the minerals including those in the Part 'C' of the First Schedule of the MMDR Act. Accordingly, in terms of the NMP, the role for Central Government should move away from micro-management of grant of individual concession to regulating the mining sector through transparent and technically sound mechanisms

3.31 Managing minerals, the State Government as the owners of minerals, have to be directly responsible for management of the mineral sector, including grant of concessions, collection of revenues from minerals, controlling activities in mineral bearing areas to prevent illegal mining, and use of mineral revenues for local area development and mining infrastructure development within a regulatory framework set in the Act and Rules framed by Central Government. This requires strengthening of capacities of the State Departments that administer the areas. State Government, as a stakeholder, would be the beneficiary, but at the same time utilize the revenues from resources for its people.

3.32 **Impartial regulation:** In terms of the NMP, the need of the hour for the Central Government is to balance regulation with development in the national interest and for the economic development in the country. It is a well accepted fact that even with its enormous potential for mineral wealth, the contribution of mining sector to the economy has been extremely low. There is also a growing awareness about the need to promote scientific mining, sustainable development in mining operations, effective Rehabilitation & Resettlement policies for the mining areas and facilitation of Industry self regulation. In addressing these issues the Central Government is required to emerge as credible and impartial regulator, who can provide appropriate mechanisms for the Stakeholders to participate in the sector. The new role for Central Government, therefore, is as the source of mineral and mining related policies and initiatives for the social, economic, scientific and technological Research & Development activities. Central Government would now act as a promoter, developer and facilitator of the mineral sector.

3.33 **Increasing investor confidence:**

As brought out by the Hoda Committee, the mining sector in India has been characterized by.

– a large number of small mines.

– low levels of technology for modern and scientific exploration.

– high preponderance of mining of surfacial deposits.

3.34 The Committee has identified deficiencies in the current mineral concession system which need to be addressed including.

– prior right to first in time in virgin areas.

– assured right to next stage concessions.

– transferability of concessions to promote specialized exploration.

– Independent mechanism to check delays and enforce legislative provisions.

3.35 The National Mineral Policy accordingly incorporates these concerns and these features will need to be suitably incorporated in the legislative framework.

Promoting Sustainable Mining

3.36 Keeping in view the concerns incorporated in the National Mineral Policy, sustainable practices in mining would need to factor in :-

– ensuring stakeholders and community involvement to facilitate a 'Social Licence' to mine.

– promotion of scientific and environmentally more friendly mining practices.

– mineral conservation and beneficiation.

– a technically sound administrative system to ensure proper mine planning and mine closure.

3.37 The legislative framework would need to include suitable mandatory, directory, enabling and facilitating provisions for the purpose.

New draft MMDR Act and Rules

3.38 The new Policy States that the Central Government in consultation with State Governments shall formulate legal measures necessary for giving effect to new National Mineral Policy, 2008, to ensure basic uniformity in mineral administration across the country, to ensure that the development of mineral resources keeps pace, and is in consonance with the national goals. Accordingly, the Ministry of Mines have initiated an exercise to prepare a suitable mining legislation in consultation with all the stakeholders including State

Government, Industries, concerned Ministries/Departments of Central Government, Civil Rights Groups/NGOs etc.

3.39 The Ministry of Mines has drafted a new Mines and Minerals (Development & Regulation) Act, and consulted with all the stakeholders in seven rounds of meetings, and a two-day workshop held between July 2009 and December 2009 (minutes of the meetings are available on the website of the Ministry). Subsequent to these consultations, progressively modified drafts were circulated /uploaded on the website of the Ministry on 5.8.2009, 17.9.2009, 17.11.2009 and 8.1.2010 for obtaining the comments of the stakeholders. The Ministry of Mines is seeking to soon introduce the new draft MMDR Act in Parliament after obtaining the approval of the Cabinet.

3.40 An Act to provide for development and regulation of mineral resources in the territorial waters, continental shelf, exclusive economic zone and other maritime zones of India and to provide for matters connected therewith or incidental thereto was notified on 31st January, 2003. The Act has come into force w.e.f. 15.01.2010. Controller General, Indian Bureau of Mines (IBM) has been appointed as the administering authority for the purpose of the Act.

CHAPTER 4
MINERAL CONCESSION SYSTEM

4.1 In the federal structure of India, the State Governments are the owner of minerals located within the boundaries of the State concerned. In accordance with article 297 of the Constitution, the Central Government is the owner of the minerals underlying the ocean within the territorial waters or the Exclusive Economic Zone of India. In this connection, entry at serial No. 23 of List II (State list) to the Constitution provides that 'Regulation of mines and mineral development subject to the provisions of List I with respect to regulation and development under the control of the Union', are within the purview of States while entry at serial No. 54 of List I states that 'Regulation of mines and mineral development to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest' shall be within the purview of the Central Government. In pursuance to entry at serial No. 54 of List I, Parliament has passed legislation titled 'The Mines & Minerals (Development and Regulation) Act, 1957' as Central Act (No. 67 of 1957).

4.2 The State Governments grant the mineral concessions for all the minerals located within the boundary of the State, under the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 (MMDR) and Mineral Concession Rules, 1960 (MCR) framed thereunder. Under the provisions of the MMDR Act, 1957 and MCR, 1960, prior approval of the Central Government is required in the following cases:

- Granting mineral concessions in respect of minerals specified in the First Schedule to the Mines and Minerals (Development and Regulation) Act, 1957.
- Granting areas under prospecting licence and mining lease to a person in excess of limits prescribed under Section 6(1)(a) and Section 6(1)(b) of the Act.
- Imposing special condition(s) in mining lease under Rule 27(3), in prospecting licence under Rule 14(3) and in reconnaissance permit under Rule 7(3) of Mineral Concession Rules, 1960 over and above the conditions prescribed in MCR, 1960.
- Granting mineral concession in an area previously reserved by the Government, or previously held under a mineral concession, without first

notifying the same by relaxing the provisions of Rule 59(1) under Rule 59(2) of MCR, 1960.

- Revision of any order made by State Government with respect to any mineral except a minor mineral. (Section 30 of MMDR Act.)
- Relaxation of Rules in special cases under Section 31 of the Act, keeping in view the interest of mineral development.

Status of Mineral Concessions

4.3 There are three kinds of mineral concessions, viz Reconnaissance Permit(RP), Prospecting License(PL) and Mining Lease(ML).

4.4 RP is granted for preliminary prospecting of a mineral through regional, aerial, geophysical or geochemical surveys and geological mapping. The RP for any mineral or prescribed group of associated minerals is granted for 3 years and for a maximum area of 5,000 sq. kms, to be relinquished progressively. After 2 years, the area should be reduced to 1,000 sq. kms or 50% of the area granted, whichever is less. At the end of 3 years, area held under an RP should be reduced to 25 sq kms. In a State, a person can be granted a maximum area of 10,000 sq. kms under RP subject to the condition that area in a single RP does not exceed 5000 sq. kms. A RP holder has preferential right to obtain PL(s) in the area concerned.

4.5 PL is granted for undertaking operations for the purpose of exploring, locating or proving mineral deposit. A PL for any mineral or prescribed group of associated minerals is granted for a maximum period of 3 years. A PL can be renewed in such a manner that the total period for which a PL is granted does not exceed 5 years. In a State, a person can be granted a maximum area of 25 sq. kms in one or more PLs, but if the Central Government is of the opinion that in the interest of development of any mineral it is necessary to do so, the maximum area limit can be relaxed. A PL holder has preferential right to obtain ML in the area concerned.

4.6 ML is granted for undertaking operations for winning any mineral. A ML for any mineral or prescribed group of associated minerals is granted for a minimum period of 20 years and a maximum period of 30 years. A ML can be renewed for periods not exceeding 20 years each. In a State, a person can be granted a maximum area of 10 sq. kms in one or more MLs, but if the Central Government is of the opinion that in the interest of development of any mineral it is necessary to do so, the maximum area limit can be relaxed.

Major initiatives

4.8 The Ministry of Mines has, in consultation with the State Governments, issued detailed guidelines on 24th June,2009 and 9th February,2010, in order

to bring more clarity in processing of the mineral concession proposals under the Mines and Minerals (Development & Regulation) Act, 1957 and Mineral Concession Rules, 1960. The guidelines also seek to ensure application of uniform criteria by the State Governments while examining and recommending proposals to the Central Government.

4.9 The Ministry of Mines has constituted a Central Coordination-cum-Empowered Committee (CEC) on 4th March, 2009, under the chairpersonship of Secretary (Mines) to monitor and minimize delays at various levels in grant of approvals for mineral concession applications. Besides senior officers of the Ministry of Mines, the CEC comprises representatives of the Ministry of Environment and Forests (separate representations), Ministry of Defence, Ministry of Home Affairs, Ministry of Steel, Directorate General of Civil Aviation, Geological Survey of India and Indian Bureau of Mines. Representatives of Departments of the State Government dealing with Mining and Geology in mineral-rich States are also co-opted in the Committee.

4.10 The first meeting of the CEC was held under the chairpersonship of Secretary (Mines) on 24th July, 2009. The Committee reviewed the procedure followed by the State Governments and the Central Ministries/Agencies for processing mineral concession applications with a view to identifying the areas for improvement. One of the main decisions taken in the first meeting was that a Coordination-cum-Empowered Committee should be constituted in each State under the chairmanship of Chief Secretary or Additional Chief Secretary/Principal Secretary of the Mining/Industries Department with representation from all Departments / institutions concerned.

4.11 The second meeting of the CEC was held under the chairpersonship of Secretary (Mines) on 22nd December, 2009. The Committee reviewed various important aspects relating to mineral concessions viz., constitution of State level Empowered Committees, measures to tackle illegal mining, adoption of model State Mineral Policies, minimizing delays at various levels including delay in forest clearance, reducing delays in execution of lease/licence subsequent to prior approval of the Central Government, proper utilization of periphery development funds, and adoption of a more transparent policy on 'special reasons' for invoking section 11 (5) of the MMDR Act, 1957 while considering a later applicant. The Committee took decisions on these aspects aimed at improving the mineral concession system.

Web based Mineral Concession Approval System

4.12 The Web based Mineral Concession 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 Reconnaissance Permit (RP) Prospecting Licence (PL) Mining Leases (ML) for major minerals specified in the first schedule of the MMDR Act, 1957. The status of proposals is available online on the website of

the Ministry. The system is being extended to capture the post approval activities.

Revision Cases

4.13 Under Section 30 of the Mines and Minerals [Development & Regulation] Act, 1957 (MMDR Act, 1957), the Ministry of Mines exercises its revisionary powers in dealing with the revision applications filed by the applicants who are aggrieved by any order passed by the State Government or any other authority in exercise of the powers conferred by the MMDR Act. The Mineral Concession Rules, 1960 (MCR 1960) prescribes the detailed procedure for filing and disposal of revision applications under Rule 54 and 55.

4.14 In view of the high pendency, directions of the High Courts in several cases for expeditious disposal, and complaints of delays, new guidelines vide letter/order dated 16.12.2009 have been issued so that the provisions of Section 30 of the MMDR Act, 1957 and Rule 54 and 55 of Mineral Concession Rules, 1960 are enforced with reference to procedure and time limits and to obviate scope for delay.

4.15 A New software for effective monitoring of the revision applications has been developed by which revision application details, status, final decisions, reports etc. are available on Intramines. The data will be released on to internet by end of June, 2010.

4.16 A System to monitor the Revision Applications received in the Ministry of Mines has been conceptualized, designed and developed. The system keep tracks of the various stages of the Revision Application filed by various applicants till their final disposal. The system is web enabled and is available on the intranet site of the Ministry. Internet outputs will be available in the first quarter of 2010-11.

4.17 A total of 160 revision applications were disposed off during the period from 1.4.2009 to 31.12.2009. A Statement indicating age wise State wise pendency of revision applications is given at **Table 4.1**.

Table 4.1
Age Wise Pendency of Revision Application under Section 30 of MMDR Act, as on 02/02/2010

Sl. No	State	0-1 Year	1-2 Years	2-3 Years	More than 3 Years	Pendency
1.	ANDHRA PRADESH	16	35	15	26	92
2.	BIHAR	01	0	0	1	2
3.	CHATTISGARH	9	14	22	26	71
4.	GOA	6	1	1	6	14
5.	GUJARAT	39	17	26	21	103

6.	HARYANA	0	0	1	7	8
7.	JHARKHAND	1	9	0	0	10
8.	KARNATAKA	16	18	8	3	45
9.	KERALA	0	1	0	1	2
10.	MADHYA PRADESH	96	67	78	92	334
11.	MAHRASHTRA	28	16	4	6	54
12.	ORISSA	7	7	46	111	177
13.	RAJASTHAN	34	115	115	138	408
14.	TAMIL NADU	9	3	3	22	37
15.	UTTAR PARADESH	2	0	0	0	2
16.	UTTARANCHAL	1	1	0	7	9
17.	WEST BENGAL	1	0	0	0	1
	Total	266	304	319	467	1369

CHAPTER 5
ROYALTY

Legal Provisions

5.1 Under the provisions of Section 9(3) of the MMDR Act, 1957, the Central Government may, by notification in the Official Gazette, amend the Second Schedule, so as to enhance or reduce the rate at which royalty shall be payable in respect of any minerals with effect from such date as may be specified in the Notification, provided that the Central Government shall not enhance the rate of royalty in respect of any minerals more than once during any period of three years. Similarly under Section 9A(2) of the Act, the Central Government may, by notification in the official Gazette, amend the Third Schedule so as to enhance or reduce the rate at which the dead rent shall be payable in respect of any area covered by mining lease and such enhancement or reduction shall take effect from such date as may be specified in the notification, provided that the Central Government shall not enhance the rate of the dead rent in respect of any such area more than once during any period of three years.

Collection of royalty for Major minerals (excluding Coal & Lignite) for some important mineral producing States

5.2 The royalties collected in some important mineral producing States in the last three years in respect of major minerals excluding Coal & Lignite are given in **Table 5.1**.

Table 5.1
Royalty collections for major minerals (excluding coal & lignite) during last four years
for important mineral producing States

States	2005-06	2006-07	2007-08	2008-09
Chhattisgarh	121.62	144.15	148.80	153.89
Jharkhand	51.00	86.29	86.88	63.24
Karnataka	149.86	172.26	135.53	184.80
Tamil Nadu	77.62	85.55	86.82	134.74
Rajasthan	350.06	810.28	761.79	653.13

Andhra Pradesh	**170.38**	**202.95**	**232.37**	**242.85**
Orissa	**247.17**	**320.66**	**336.23**	**431.35**
Maharashtra	**68.10**	**57.69**	**78.97**	**107.56**
Madhya Pradesh	**157.75**	**186.85**	**208.88**	**191.44**
Goa	**18.08**	**22.26**	**26.48**	**28.46**
Total	**1411.64**	**2089.14**	**2102.75**	**2191.46**

Royalty Rates

5.3 As per practice, for revision of royalty rates of minerals (other than minor minerals coal & lignite and sand for stowing) a Study Group is constituted under the Chairpersonship of Additional Secretary, Ministry of Mines, with representatives of major mineral producing States (on rotational basis) Central Ministries/Departments concerned, Indian Bureau of Mines, and the Federation of Indian Mineral Industries as members.

5.4 A Study Group for the purpose of revision of royalty rates and dead rent was constituted on 24.8.2006 under the chairmanship of Additional Secretary(Mines) having State Governments of Rajasthan, Karnataka, Chhattisgarh, Orissa and Jharkhand, Ministry of Steel and Department of Atomic Energy, Indian Bureau of Mines and Federation of Indian Mineral Industries as members.

5.5 The Study Group submitted its Report to the Central Government on 27.9.2007. Based on the recommendations of the Study Group, in respect of minerals (other than minor mineral, coal, lignite and sand for stowing), the Central Government revised the rates of Royalty and Dead Rent vide Official Gazette notification number GSR 574 (E) dated 13th August, 2009 and GSR 575 (E) dated 13th August, 2009 respectively.

5.6 The highlights of the revised rates are as follows:

(i) Royalty rates for minerals amphibole asbestos, china clay/kaolin (including ball clay, white shale and white clay), graphite, iron ore, quartz, silica sand, moulding sand and quartzite has been shifted from tonnage basis system of royalty to ad valorem basis. The Hoda Committee had recommended that the rates of royalty should move forward decisively on ad valorem basis. The basic principle of fixing ad valorem of royalty ensures that the market forces themselves take care of the increase and decrease of royalty accruals

and further intervention from the Government is not required other than in exceptional cases.

(ii) Royalty rates for 9 minerals, Chrysotile asbestos, dolomite, limestone, lime kankar, lime shell, monazite, ochre, slate and tungsten, would continue to attract royalty on tonnage basis because it was held that shifting over to ad valorem rates for these minerals is not administratively feasible.

(iii) For base metals (copper, zinc, lead etc.), Gold, Silver, and bauxite and laterite dispatched for extraction of alumina and aluminium, the rates of royalty would continue to be linked to the international benchmark metal prices. This would ensure higher royalty payment for high grade ore. However in case of bauxite and laterite dispatched for non metallurgical uses, royalty would be levied on ad valorem basis as per the average value of minerals published by Indian Bureau of Mines (IBM).

(iv) There is a substantial increase in the rates of dead rent from the second year of mining lease in order to discourage dormant holdings.

(v) The rates of royalty for coal and lignite would continue to be levied as per the Official Gazette notification number GSR 522(E) dated 1st August, 2007.

(vi) The rates of royalty for uranium would continue to be levied as per the Official Gazette notification number GSR 96(E) dated 13th February, 2009.

5.7 Section 13 (2) (i) of the MMDR Act, 1957 gives power to the Central Government for "fixing and collection of fees for reconnaissance permits, prospecting licences or mining leases, surface rent, security deposit, fines, other fees or charges and the time within which and the manner in which the dead rent or royalty shall be payable". In exercise of the powers, the Central Government has framed Rule 64D in the Mineral Concession Rules, 1960, specifying the guidelines for computing of Royalty on minerals on ad valorem basis. In order to streamline and simplify the mechanism for calculation of the average value of mineral for the purposes of the computation of the Royalty on ad valorem basis, the Central Government, vide notification dated 10.12.2009, has amended Rule 64D of Mineral Concession Rules, 1960. Accordingly, the Indian Bureau of Mines shall publish and host on its website:

(i) in the case of minerals for which bench mark prices are not available, the sale price of minerals calculated from the weighted average price per tonne of Pit Mouth Value (PMV) of the mineral / ore as reported by the top ten non captive producers or actual number of non captive producers, whichever is less, in monthly returns under Mineral Conservation and Development Rules, 1988, excluding minerals produced for captive consumption;

(ii) in the case of such minerals for which bench mark prices are available for the metal contained in the ore/concentrate, the average monthly price for metal calculated on the basis of the London Metal Exchange prices in case of aluminium, copper, lead, zinc, nickel, silver and tin, and the London Bullion Market Association Price in case of Gold.

5.8 The IBM shall also set up a Monitoring Committee to monitor the accuracy of reporting of the grade wise production, pit mouth value (PMV) and sale value of minerals by the lessees in the monthly and annual returns as required under Mineral Conservation and Development Rules, 1988. Amendments are also underway to suitably modify the reporting forms for miners.

5.9 Royalty rates for some important industrial use minerals is given at **Annexure 5.1.**

5.10 A comparative statement of old and new rate of royalty is given at **Annexure 5.2.**

CHAPTER 6
INTERNATIONAL TRADE & INVESTMENT PROMOTION

Foreign Direct Investment Policy

6.1 India possesses great potential of mineral resources. However, there exists considerable scope for augmenting the resource position by further exploration of known deposits and discoveries of new deposits, adopting state-of-the-art technology and modern methods like aerial reconnaissance or geophysical surveys.

6.2 The geological and metallogenic history of India is similar to mineral rich Australia, South Africa, South America, and Antarctica, all of which formed a continuous landmass prior to the breaking up of Gondwanaland. It also has some features similar to the mineral rich Canadian shield of North America. Being aware of the vast potential of the sector, the Indian Government, has been consistently and in a pragmatic manner opening up the previously controlled regime to usher private investment in the sector and infuse funds, technology and managerial expertise. The opening up of the Indian mining sector has, therefore, generated considerable global interest. The Indian mining sector was opened up to Foreign Direct Investment in 1993 after the announcement of the New Mineral Policy. Initially, all proposals were considered on a case to case basis by the Foreign Investment Promotion Board (FIPB). FDI policy in the mining sector was further liberalised in January 1997 which opened up an "automatic approval" route for investments involving foreign equity participation upto 50% in mining projects, and upto 74% in services incidental to mining.

6.3 The Foreign Direct Investment (FDI) policy in the mining sector has been gradually liberalized over the last few years. FDI cap for exploration and mining of diamonds and precious stones have been increased to 100% under the automatic route with effect from 10th February, 2006.

With this, the Foreign Direct Investment in the mining sector for all non-atomic and non-fuel minerals have now been fully opened upto 100% through the automatic route including diamonds and precious stones.

6.4 The data on FDI in the mining sector for the last three years and in the current year upto September, 2009 are as follows:-

(amount in USD million)*

	2006-07	2007-08	2008-09	2009-10 (April to September, 2009)
Mining	6.62	444.26	34.22	86.63

*(Source: DIPP)

EXPORTS AND IMPORTS

6.5 The provisional value of export of ores and minerals during 2008-09 was Rs. 1,08,837 crore. Diamond (mostly cut) was the principal item of export during 2008-09, which accounted for 66.24 %, followed by iron ore with a contribution of 19.96 percent, granite 4.42 % and alumina 1.45 %. Chromite 0.89 %, Precious and semi precious stones 0.72% and Lead ores and conc. 0.52% were the other important minerals exported during the year 2008-09.

6.6 The provisional value of import of ores and minerals during 2008-09 was Rs. 5,13,632 crore. Petroleum (crude) was the main constituent of mineral import during 2008-09, which accounted for 67.53% of the total value of import of ores and minerals followed by diamond (uncut) with 14.57 %, Coal (excluding lignite) 8.05%, Copper ores and concentrate 3.47%, Natural gas 2.51 percent. Coke, rock phosphate, sulphur etc. were the other important minerals imported during 2008-09.

International Investment Promotion Australia

6.7 The India-Australia Joint Working Group (JWG) on Energy and Minerals was established in the year 2000 for enhancing bilateral co-operation in the energy and mineral sectors. Six meetings of the JWG have so far been held. Under the Joint Working Group, both countries have signed Action Plans in November, 2008 in the coal, mines, petroleum, new and renewable energy and power sectors envisaging a number of activities and events for implementation. The Action Plans have been signed with a view to maintain momentum in the Australia-India bilateral energy and resources relationship.

6.8 The sixth meeting of the Australia-India Joint Working Group on Energy and Minerals was held on 16-17 March, 2009 at New Delhi. Ministry of Mines is the nodal Ministry from the Indian side for this Working Group. A Protocol was signed at the end of the meeting. The Joint Working Group endorsed the activities under the five Action Plans in the workshops held on Mining and Minerals, New and Renewable Energy, Power, Petroleum and Natural Gas and Coal sectors.

6.9 As a follow-up to the Work Plan signed between the two countries in the Mining Sector, Workshops were held in Kolkata and Nagpur during November-

December, 2009 in which experts from Australia made presentation on the updated technologies in the mining sector to the Indian geoscientists.

6.10 Under the Indo-Australian Joint Working Group on Energy and Minerals, India-Australia Technical and Policy exchange programme on "Mining and Minerals Exploration – Capacity Building in India" was held at Nagpur during 3-4 December, 2009. This was the second Workshop being organized by the Australian Agency for Capacity Building in India. The Workshop was jointly inaugurated by Shri C.S. Gundewar, Controller General, IBM and Dr. Barnicoat from Australia. Fifteen Officers from IBM apart from GSI, MECL, SAIL& MOIL participated in the Workshop.

Western Australia

6.11 There is also an MoU between Ministry of Mines and Western Australia on mine rehabilitation. There has been regular exchange of visits under this MoU. A delegation from the two sides have pursued a very active/ fruitful relationship. Exploring possibilities of broadening the scope of the MoU was discussed with a delegation from Western Australia led by Hon. Brendon Grylls MLA, Minister for Regional Development in September, 2009.

6.12 A delegation from Geological Survey of Western Australia had a meeting with GSI and Officers of Ministry of Mines on 13th October, 2009. Both sides discussed areas of cooperation such as capacity building, exchange of scientists to enhance knowledge and capabilities in earth science activities, sustainable mining practice etc.

Canada

6.13 After the signing of MoU with Department of Natural Resources, Canada in April, 2003 on Co-operation in Geosciences, five meetings of the Joint Working Group (JWG) have so far been held. The fifth meeting was held on 27th May, 2008 in Canada. The main projects are study on Arsenic Toxicity in the ground water of West Bengal and monitoring of landslides at selected sites in India, etc.

MoU With Ontario

6.14 A Memorandum of Understanding (MoU) between Ministry of Mines, Government of India and the Ministry of Northern Development, Mines and Forestry of the Province of Ontario, Canada on cooperation in the fields of Geology and Mineral Resources is proposed to be signed shortly in view of the geological potential of Ontario Province and the avenues of co-operation and investment. The MoU will provide an umbrella framework for development of mutual cooperation in the field of geology and mineral resources between India and Ontario Province, Canada.

Chile

6.15 A Memorandum of Understanding (MOU) was signed between India and the Republic of Chile on 17th March, 2009, for cooperation in the field of Geology and Mineral Resources during the visit of President of Chile to India. The Ministry of Mines is in the process of identifying specific collaborative project proposals under the framework of the MoU. Under the MoU, a Joint Working Group has been formed which will coordinate the implementation of the areas of cooperation under the MoU.

6.16 The first meeting of the India-Chile Joint Working Group was held in Santiago, Chile during 2nd-4th February,2010 Ms. Santha Sheela Nair, Secretary (Mines) led the Indian delegation.

Namibia

6.17 Ministry of Mines has signed a Memorandum of Understanding (MoU) with the Republic of Namibia on cooperation in the field of geology and mineral resources, in New Delhi on 31st August, 2009. The MoU was signed by Hon'ble Minister of Mines and Development of North Eastern Region on behalf of the Government of India and the Minister of Mines and Energy, on behalf of the Republic of Namibia.

6.18 The Minister of Mines and Energy, of the Republic of Namibia also had a meeting with Hon'ble Minister of Mines on 31st August, 2009 and discussed possible areas of co-operation in the mining sector.

6.19 A delegation from Ministry of Mines led by Secretary (Mines) visited Namibia from 27-31 October, 2009 and attended the 1st Meeting of the India-Namibia Joint Working Group on Geology & Mineral Resources held in Windhoek, Namibia. Minutes of the meeting was signed by both sides after the Joint Working Group Meeting. The delegation visited various mine sites and had meetings also with important dignitaries in Namibia. Follow-up action on the discussions which emerged of the 1st JWG meeting are being taken up.

Argentina

6.20 Geological Survey of India (GSI), an attached office under the Ministry of Mines has signed a Memorandum of Understanding (MoU) with the Serviceo Geologico Minero Argentino (SEGEMAR), of the Argentine Republic on scientific and technical cooperation in the earth sciences in New Delhi on 14th October, 2009 during the visit of the Argentine President to India.

PDAC

6.21 The Annual Convention of the Prospectors and Developers Association of Canada (PDAC) is a major mining event. The PDAC Conference is one of the most important and prestigious events in the global mining industry, which is attended by delegates from all over the world. Ministry of Mines participated in PDAC 2009 and put up booths which received a large number of visitors and prospective investors. An 'India Day' was also organised on 3rd March, 2009 which showcased India's mineral wealth and capabilities and potential of the Indian Mining Industry as an investment destination.

Mining Exploration Convention & Trade Show

6.22 A Mining Exploration Convention & Trade Show was held during 16-18 November, 2009 in Bengaluru. The Conference was organized by Federation of Indian Mineral Industries in association of PDAC, Toronto, Canada and the Trade Show was supported by the Canadian Association of Mining Equipment and Services for Export (CAMESE). The Conference was a success.

6.23 The PDAC Convention for 2010 is being held on 7th-10th March, 2010 and in order to further promote investment, State Governments have been encouraged to join the Indian delegation planned for the convention.

South Africa

6.24 After a gap of several years the Ministry of Mines participated in the annual Mining Indaba at Capetown held on 1st to 4th February 2010. Special Secretary (Mines) led a CII delegation which included major steel and aluminium producers. The visit is likely to help promote Indian trade and investments in coal and ferrous minerals in Africa.

Iran

6.25 An Indian Delegation comprising of representatives from the Ministry of Mines, Department of Fertilizers , NALCO, HCL, GSI and IBM, led by Shri V.K. Thakral, the then Joint Secretary, Ministry of Mines attended the first meeting of the India-Iran Sub-Group held on 1st October, 2009 at New Delhi.

6.26 The meeting was co-chaired by Shri V.K. Thakral, the then Joint Secretary, Ministry of Mines and Eng. Abdollah Kashani Movahhed, Manager of Economic & International Relation, Iranian Mines & Mining Industries Development and Renovation Organization, (IMIDRO), Islamic Republic of Iran.

Thailand

6.27 A delegation to study local minerals for the upcoming iron-smelting joint venture project with Tata Steel, comprising 9 Government Officials from the Department of Primary Industries & Mines, Ministry of Industry, Thailand visited Kolkata Regional Office of IBM on 4th April, 2009 with a view to exchange knowledge and experience of Mineral Sector regulations in India.

CHAPTER 7

GEOLOGICAL SURVEY OF INDIA (GSI)

Introduction

7.1 The Geological Survey of India (GSI) was established in 1851 primarily with the objective of locating mineral resources including coal. In the 150 years since its inception, GSI has continued to grow and diversify into various geoscience activities, and has contributed immensely to Indian Geoscience. After independence, GSI's activities in mineral exploration as well as baseline surveys have increased manifold in order to sustain the momentum of national economic development.

GSI's activities may be grouped as 'Geoscientific baseline data' which includes geological surveys and mapping; 'Mineral Resource Assessments' which includes ferrous and nonferrous minerals, coal and lignite etc. 'Special Studies' which includes Natural hazards studies, Climatic studies, Geotechnical studies etc, and 'Geoinformatics' which include publication of Maps and Reports and generation of spatial information through GIS and related software for a variety of applications in developmental and regulatory situation as well in the commercial sphere.

Under the National Mineral Policy (NMP) 2008, Geological Survey of India remains the principal agency for geological mapping and regional mineral resources assessment of the country. The NMP seeks to ensure that GSI programmes are prioritized in line with the national policy goals and are chalked out after taking into account the exploration work undertaken by the private sector for which the existing arrangement of programme formulation through the Central Geological Programming Board (CGPB) would be revamped.

NMP envisages strengthening the Geological Survey of India with manpower, equipment and upgraded skill sets.

Thrust Areas of Activity

7.2 The thrust areas of GSI's activities have evolved with changing national priorities throughout successive Five Year Plans and are presently oriented in the light of the objectives and goals set for it in the XI Plan. The major thrust areas identified for GSI in the XI Plan are:

- Creation and updation of national geoscientific information and knowledge base through ground, marine and airborne surveys, with concept oriented thematic geological mapping on progressively larger scales and geochemical and geophysical mapping.

- Identification as well as preliminary assessment of the mineral resources.
- Geoscientific input to water resource development, transport and miscellaneous civil engineering projects.
- Natural hazard studies and disaster management including earthquake and landslide zonation studies.
- Shallow Subsurface Geology
- Geo-environmental investigations for both regional and site specific studies.
- Computerised archival, analyses, retrieval of geoscientific data and creation of theme-based relational databases.
- Dissemination of data through maps, publications, customization, intranet/extranet facilities through GSI portal etc.
- Training in specialised fields for upgradation of technology and expertise.
- Modernisation and expansion of laboratories and survey facilities.

Central Geological Programming Board

7.3 The Government set up the Central Geological Programming Board (CGPB) by Government Resolution in 1966 for formulation and implementation of the programmes in the earth- science area, with close coordination between GSI and State Geological Departments and other central agencies. CGPB is supported by State level programming Boards and various subcommittees formed for the development of various mineral and geoscience based issues. While finalizing the programmes of GSI, the Government policies and directives, suggestions and recommendations of Five Year Plan document, Sub-committees of the Central Geological Programming Board and State Geological Programming Boards are considered.

The Central Geological Programming Board (CGPB) was revamped on 12th March, 2009 with three broad objectives viz., i) to effectively coordinate the different earth science related activities in the country, ii) to create geoscientific partnership through collaboration with various earth science organisations and State Agencies and iii) to create a modern data dissemination mechanism through its Web Portal.

In accordance with the reconstitution, 12 Committees for the various sub-sectors support CGPB and meet at least twice a year, to submit recommendations to the Central Board in respect of the respective sub-sector. During 2009-10 the 12 newly constituted Committees of CGPB met for the first time and deliberated on relevant issues concerning the development of natural resource before the 45th CGPB meeting held in September 2009. The second meeting of the Committees took place in November – December 2009 before the 46th CGPB meeting in February 2010. An important aspect of revamping was to energize the State Geological Programming Boards (SGPB) and 19 States have convened SGPB meetings during the year.

Restructuring of GSI

7.4 A High Powered Committee (HPC) was set up in January 2008 to thoroughly review the functioning of Geological Survey of India and assess its capacity to meet the emerging challenges. The Committee submitted its report on 31st March 2009 and the recommendation have been accepted by the Government. The organizational structure, recommended by the HPC Committee and accepted by Government, is under implementation.

The Director General (DG) as the operational head of the GSI has the overall responsibility of planning and execution of programmes of the organization. The DG, GSI is supported by Additional Director General (ADG) / Dy. Director Generals (DDG), in-charge of Missions and Support Systems. There are six Regions (geographically based) for programme execution and Additional Director General/Deputy Director General (HAG/SAG level) head each of these Regions and function as "Head of Department" (HOD) to oversee the formulation and implementation of annual programmes, exercise budgetary control, allocate resources, determine the relative priorities, and effect executive and other controls on Divisions/Projects within the Regions/Wings. Each Region has a headquarters unit for planning, finance and administration. Operational units at State level, headed by a Deputy Director General, execute the programmes in the field.

GSI has its Central Headquarters in Kolkata and six Regional offices (geographically based) at Kolkata, Shillong, Lucknow, Jaipur, Nagpur and Hyderabad and has State Units in almost all States.

As recommended by the High Powered Committee, Geological Survey of India's status was upgraded on 14th July, 2009 and it is now formally an Attached office of the Ministry of Mines.

Status of Implementation of HPC Report

7.5 An Implementation Committee has been set up to go into the details for implementation of the HPC report and for further follow up of its 74 main recommendations. The following is the status of implementation of some of the main recommendations:

- GSI has switched over to the Mission- Region mode and the Field Season 2009-10 starting from 1.10.2009 is being conducted in this Mode.
- 'Mission Offices' have started functioning. Support Systems are being revamped.
- For implementation of Enterprise Portal Project in GSI, a Monitoring Committee under the Chairmanship of Additional Secretary (Mines) was

constituted on 2nd April, 2009 and progress of the Portal Project work is being closely monitored. Completion Report of Phase I and Phase II is awaited. GSI is planning for Phase III in collaboration with National Informatics Centre (NIC).

- Central Geological Programming Board (CGPB) and its Committees have been revamped and a new CGPB Secretariat has already started functioning from Delhi.
- The Ministry of Mines has issued orders on 5.6.2009 for dissemination of Geoscientific information gathered by GSI for use by public at large for free of cost. GSI has drawn an action plan for digitizing and uploading all information legacy and larger scale maps.
- A Note for right sizing of GSI as per HPC Report circulated to all concerned Ministries for comments before being submitted for Cabinet approval.
- Training Policy Coordination Committee (TPCC) has been set up under the chairmanship of Secretary [Mines] to improve Training capabilities and set up Regional Training Institutes. GSI has started imparting training to officials of the State Governments in GSI's Training Institutes free of charge as recommended by the HPC.
- A New Transfer Policy was approved for GSI with effect from 01.01.2010.

Modernisation

7.6 As part of the effort to meet emerging challenges GSI is constantly upgrading its technology both for field as well as laboratory equipment.

The current status on procurement of the important capital assets is as under:

- Procurement of a new ocean going research vessel in replacement of GSI's existing Research Vessel Samudra Manthan at a cost of Rs.448.00 crores is underway.
- Procurement of a Heliborne Geophysical Survey System for GSI at a cost of Rs.52.00 crores is almost complete. The integration of sensors with the helicopter is to begin from March, 2010 with trial flights and to be completed by May, 2012 for all the four sensors. [Eleven Officers of GSI were trained on G-1A Gravimeter in Toronto, Canada in the month of August, 2009]
- Proposal for acquisition of a new Geotechnical Vessel with shallow drilling capacity for GSI at a revised cost of Rs.70.20 crores has been finalized and procurement action initiated.
- Laboratory and IT equipment: In addition, GSI as part of Modernisation has been purchasing laboratory and field equipment. A Modernization Committee

was set up in 2001 which made many significant recommendations in this regard and the recommendations have been substantially implemented except in respect of the following:-

(i) Palmtop computer, Digital camera and Cellular phone for each field officer

(ii) Magnetic Gradiometry

(iii) Gamma ray Spectrometry

(iv) Penetrometers

(v) Transient EM sounding and profiling etc.

A new Modernisation Committee has been constituted on 30th June, 2009 to make further recommendations keeping in view the HPC Report.

Landslide Hazard Studies

- GSI has undertaken 20 programmes of landslide investigation in the landslide prone hilly terrain. A total of 2,195 sq km by Landslide Hazard Zonation and 572 Line kilometer road corridors have been covered on Macro Scale (1:25,000/50.000) during F.S. 2008 - 09.
- Eleven townships have been covered by Landslide Hazard Zonation on Meso Scale (1:5000/10,000) to assess the stability status of the existing thickly populated townships/important civil engineering structure etc. in the landslide prone hilly terrain.
- Landslide Inventory has been taken up for all old and fresh landslides for their documentation throughout the country. Detailed site-specific studies of three landslides have been carried out.

Environment Geology

- Regional Geoenvironmental impact assessment of limestone mines and cement plants in Chittorgarh; Sirohi, Pali, Jodhpur and Nagaur districts, Rajasthan and formulation of effective environmental management plans, Geoenvironmental appraisal in parts of Sohagpur Coalfied, Annupur and Shahdol Districts, MP - Surguja District, Chhattisgarh and Geo-environmental impact on rapid urbanization of Berhampore – Murshidabad townships and their environs in West Bengal were taken up.

Medical Geology (Bio- & Chemical Geohazards)

- Study of incidence of arsenic in groundwater in parts of Saran and Vaishali districts, Bihar reveals that the older alluvium surface appears to be free from hazardous incidence of arsenic in groundwater while the younger alluvium

(older/present flood plain) show hazardous incidence of As ranging from 50 ppb to >500 ppb in ground water with reports of varied forms of skin diseases in local population.

- Development of a mitigation strategy to manage risk from arsenic toxicity in groundwater of West Bengal, India was continued in collaboration with NR-Can, Geological Survey of Canada.

Glaciological Studies

- Glacio-geomorphological mapping covering an area of 0.50 sq km has been undertaken on the both the banks of melt water stream of the Hamtah glacier, Lahul – Spiti district, H.P. Monitoring of glacier snout on 1:5000 scale has shown that the glacier has vacated an area of 0.006 km^2 since 2007. During the last eight years 2000 – 08, the glacier has vacated an area of 0.0346 km^2 with an average being 0.0043 km^2/year.

Antarctic Studies

- GSI has been continuing with its Antarctic studies programme and till date more than 19000 sq km area has been mapped with the help of ground traverses. During the 28^{th} expedition (2008-09) two geologists of GSI have mapped around 250 sq km area in the Gjelsvikfjella region using the Norwegian station TROLL as base.

- Monitoring of the snout of “Dakshin Gangotri Glacier” overriding the southern edge of Schirmacher Oasis has shown a consistent recession (1.09 m during 2008-2009) which has been partly attributed to changes in the global climate pattern. During the same period the drift snow accumulation over the shelf has been recorded as 89.5 cm. GSI started drilling for retrieving ice cores to study the palaeoclimate of the area and embarked on the study of sediments from the lake bottoms of Antarctic lakes and GPR studies to draw profiles of lakes as well as to determine the ice-land-ice-sea interface. Using MLF antenna of 35 MHz frequency, a depth of up to 400 m has been reached in profiling.

- India’s third research station has been planned to be established at Larsemann Hills region, Prydz Bay area of East Antarctica. GSI started mapping of the new site and a geological map has been prepared for a portion of the area around the new station site.

Arctic Studies

- To continue the studies carried out in previous expeditions, the Third Arctic Expedition launched from 16th June 2009 to 18th July 2009. In view of the heavy snow cover on Vestre Broggerbreen glacier, and several melt water channels in the proglacial region, glacier remained unapproachable. Field

work was restricted to density profiling of snow cover sections and geomorphological mapping in the proglacial region using handheld GPS. Mapping of the snout of glacier revealed marginal recession as compared to August 2008. During the period, five snow and melt water samples collected for trace elements. In addition, two samples were collected from terminal moraine –I and II for T.L./O.S.L. dating. The team also tested their ice-drilling machine using gasoline for fixation of stakes.

7.7 Laboratory Studies, Research and Development

- GSI laboratories have been upgraded with state-of-the-art instrumental facilities. Intensive laboratory studies are being carried out to generate precise analytical database to support the field investigations. Input from Electron Probe Micro Analyses, Fluid inclusion study, Optically Stimulated Luminescence (OSL) dating etc. has been widely and effectively used in different research projects.
- Basic petrological researches on crustal evolution, metallogeny, volcanism, evolution of sedimentary basins through time and space, experimental petrology, climatic change and responses of environment system, studies on geological health hazard and remedies etc are continued.
- The study of the geological and geomorphological determinants of the characteristics of present day beaches in Andaman Island for coastal management identified that both the sea and hinterland are the possible source of stress on the target beaches. The Betapur beach in Middle Andaman appears to be vulnerable in respect of effects of sea induced stress. Corbyn's Cove beach of South Andaman and Wandoor beach close to Port Blair are more susceptible to stress from hinterland due to man induced process.
- Palaeontological and palaeobiological studies for stratigraphic correlation and records of climate change revealed that there has been a three fold increase in low salinity indicator planktonic foraminifera suggesting increased monsoonal precipitation and increased runoff from Ganga-Brahmaputra river system diluting the salinity of surface layer water in the central Bay of Bengal.
- Precise dating of the geological samples has been undertaken at the Geochronology and Isotope Geology Division. Regression of strontium isotopic data of six whole rock samples of Chinnapendekallu granite, Andhra Pradesh yielded a Rb–Sr whole rock isochron age of 2364Ma.
- Radiocarbon dating of Shell samples from Gujarat revealed an age of 29,609 ± 320 Ybp.

Museum:

The Indian Museum has four galleries dedicated to Geology namely: Siwalik Gallery, Earth & Meteorite Gallery, Rock & Mineral Gallery and the Invertebrate Fossil gallery since 1875. As a part of setting up of a state-of-the-art Earth & Meteorite Gallery, an initiative has been taken up to restore the antique showcases of the Indian Museum 200th anniversary (2014) Celebrations of the Museum.

- Provided information on earth science and of the department's activity Curatorial Division has put up 8 major Earth Science Exhibitions with preparation of pavilion model, planning of pavilion setup, ordering the displays, designing presentations etc. Audio visual presentations were also prepared through divisional resources and presented through LCD TV.
- A data base on the Fossil Repository is available online with 756 nos. of GSI collection along with modification of more than 250 old records.

MISSION: V TRAINING AND CAPACITY BUILDING

Training Policy Coordination Committee

7.8 The High Powered Committee recognized that training activity needs to be vastly expanded to cover all the stakeholders, organizations and recommended that in addition to the Training Advisory Committee of GSI, there should be a Training Policy Coordination Committee (TPCC) chaired by the Secretary (Mines). A Committee was formed to meet at least once a year to review training activities of Training Mission, approve policy and strategy initiatives. The Committee met for the first time on 10.9.2009 and again on 23.12.2009, and has been giving policy and strategic direction to GSI in revamping the training infrastructure.

Human Resource Development

Since its inception in 1976, the GSITI has conducted 666 training programmes (up to 31st July, 2009) and trained 14,078 geoscientists of GSI, other earth science organizations and universities of the country and also geoscientists from ESCAP and SAARC countries. The training programmes are focused on fundamentals and applied aspects of geosciences viz. Geology, Geophysics, Chemistry, Mineral Investigation, Natural Hazards, Remote Sensing, Drilling and Surveying. The Institute regularly conducts DST (Department of Science & Technology) supported programmes, ISRO (Department of Space) supported Remote Sensing (NNRMS) programmes, customized courses for other agencies and administrative courses for the departmental personnel.

GSI Training Institute is providing high quality cutting edge training /knowledge with state-of-the-art facilities. The TI would conduct induction level Courses for GSI scientists, specialized courses, International courses and Training of Trainers (TOT) courses for Regional Training Centres and State Institutes. The Institute has embarked on programmes of capacity building in the field of geosciences to raise the technical ability of departmental candidates, students, research scholars, faculty from Universities and officers of various State Governments and private sector departments. GSITI conducted orientation course for geologists, 10 scientific courses, 6 technical courses, 11 administrative courses and 2 sponsored courses. Five programmes have been undertaken as outside FSP programme.

The HPC recommended creation of Regional Training Institutes (RTI), one each at the Regional Headquarters of Geological Survey of India except at Southern Region, (the training needs of Southern Region will be looked after by GSITI, Hyderabad), under GSITI to function in a hybrid matrix system of Administration. Regional Training Institutes forming part of the Regions will have Field Training Centres (FTCs) specializing in a particular geologic domain. Accordingly, order was issued December, 2009 creating Regional Training Institutes as follows:

Sl. No.	**Regional Training Institute**	**Specialisations**
1	GSI Regional Training Institute – SR	Petrology, Remote sensing, Geoinformatics, Geophysics, Rock Mechanics, Geotechnical Studies
2	GSI Regional Training Institute – NR	Glaciology, Engineering Geology Himalayan Geology, Siwalik Mapping, Seismotectonics and Earthquake Engineering, Quaternary Geology, Landslide and Landslide Hazard studies, Active Fault Mapping
3	GSI Regional Training Institute – WR	Desert Geology, Exploration Techniques, Ore Deposit modeling & evaluation, Geochemical exploration, Archaean/ Proterozoic Terrain Mapping
4	GSI Regional Training Institute – CR	Deccan Traps, Drilling techniques, Geo-archaeological studies, Photogeology & Remote

		sensing studies, Medical Geology, Quaternary Geology, Geomorphology and landuse
5	GSI Regional Training Institute–ER	Sedimentary basin analtysis, Gondwana Geology, Mapping techniques in Coal field areas, Coal Exploration, Coal petrography, Coastal & near chore processes
6	GSI Regional Training Institute – NER	Mapping techniques for Tertiary rocks, Neotectonics, Landslide & Landslike Hazard studies, Geo – environmental & Fragile ecological studies.

The Field Training Centres attached to the Regional Training Institutes (RTI) are as follows:

Sr.No	RTI	Field Training Centre	Specialization
1	RTI- SR Hyderabad	1)Chitradurga, 2) Kothagudem*	Mapping in Igneous and Metamorphic terrain
2	RTI - NR, Lucknow	1) Bhimtal, 2) Saketi*	Himalayan Geology/Bio-stratigraphy/Paleontology
3	RTI- WR, Jaipur	Zawar	Mineral Exploration
4	RTI- CR, Nagpur	Raipur	PGRS /Administration
5	RTI- ER, Kolkata	Kuju,	Mapping in Sedimentary terrain /Coal Geology
6	RTI- NER, Shillong	Aizawl*	Landslide

*** Proposed New FTC**

S&T Support System

I.T. Infrastructure & Connectivity

7.9 GSI manages a countrywide robust IT infrastructure for rapid collection, documentation and effective dissemination of geoscientific data.

Infrastructure resource of GSI can be classified under the following broad heads;

- Local area network at different regions and operations
- Wide area networking connecting those LANs.
- Data center at Kolkata
- Disaster recovery center at Hyderabad

Local Area Network

Local Area Networks (LAN) at GSI is designed to provide a scalable, secure and stable network based on intelligent Ethernet switches. Important design parameters include high availability, Quality of Service (QoS) and network security. To achieve optimized network performance adequate for sustaining portal applications, three-layer hierarchical model has been adopted in CHQ and RHQs.

Wide Area Networking

Wide Area Network (WAN) at GSI joins 37 offices of GSI spread over different parts of India with Data Center at Kolkata and Disaster Recovery site at Hyderabad. The WAN with state-of-the-art TCP/IP based MPLS VPN technology is implemented over BSNL backbone. The links have variable bandwidth: CHQ and CAN at Kolkata 2 Mbps each, RHQs 1 Mbps each, Op Units 512, 256, 128 Kbps and very small offices 64 Kbps.

GSI WAN connectivity is established with MPLS link to the nearest BSNL POP using dedicated managed leased line link. The links are configured with static routing upto PE router, from where MPLS takes care of the further traffic flow.

IP Telephony Service: IP Telephony infrastructure has been established using the Data Network of GSI for voice communication within the organization.

Video-conferencing: Implementation of Video-conferencing facility includes installation of Main Control unit at various locations (DG, GSI's Office all Regions / Wings, Central Data Centre) have been completed and in few places like MOM, New Delhi, SRO, Liaison Office, New Delhi, GSITI, work is in progress.

Analytical Chemistry and the Chemical Laboratory Network

The GSI Chemical Laboratories with its large infrastructure constituting with 21 laboratories (CHQ, Regions : 6, Operations : 12 and erstwhile Wings: 2) located in almost all the states of the country is playing key supportive role for the successful completion of various time bound approved programmes / projects particularly the prestigious NGCM project, mineral exploration & prospecting, environmental studies, fundamental geoscientific studies etc.

Consequent upon the induction of NGCM programme to maintain the flow of output, all the laboratory facilities have been upgraded to a great extent by means of introducing various sophisticated state-of-the-art instruments like

WDXRF, ICP-MS, DMA-80, GF-AAS, GC, HPLC, HG-AAS, TOC analyzer etc. for generating data bank from percentage level to below crustal abundance level.

The main thrust of the chemical laboratories is to analyse NGCM samples (mainly stream sediment and soil) for 68 elements determination at a very low level with high level of precision and accuracy. At present, based on the Laboratory equipment Standards available, analysis for 59 elements is being taken up.

Laboratory Network (Other than Chemical)

Research and developmental activities are carried out to supplement the work in the various field investigations and activity domains in the Geological Survey of India. Establishment of state-of- the-art instrumental facilities in the fields of Petrology, Geochronology and Isotope Geology, Palaeontology, Photogeology and Remote Sensing, Geophysics, Mineral Physics etc is in progress.

Drill Core Library

GSI has embarked upon preserving drill cores of selected drill holes of mineralized and stratigraphically important deposits for posterity with a view to create a National Drill Core Repository. Digital record of drill cores preserved would be maintained online through the Portal and a policy would be put in place which allows use of core samples by concession holders on appropriate terms and conditions.

Policy Support System

Planning, Programming and Monitoring

7.10 The Planning, Programming and Monitoring operation, with its different Monitoring Divisions, is the nerve centre of CHQ as well as GSI and it acted in the domains of policy formulation, policy dissemination, linking-translating the decisions of different committees like CGPB Committee, advisory board of allied organisations and undertakings in the Annual Programme etc.

The Monitoring Divisions of the Operation monitored the items in various mineral commodities, mapping and specialized investigations of F.S. 2008-09. Norms and guidelines for field activities, e.g., Airborne Surveys, Engineering Geology, Landslide Hazard, Earthquake Geology, Marine Geology, Environmental Geology, Desert Geology, Geothermal, Glaciology, Medical Geology, Geophysical and Geochemical mapping etc. are set and periodic progress in specialised domains are monitored. Scrutiny of research projects emanating from various organizations under sponsorship of Department of Science and Technology was also undertaken. These divisions also participated in interactions with other agencies involved in earth science activities, like MECL, IBM, and DST etc. on various geoscientific matters. Planning Division looked after task force activity, budgetary managements of F.Y. 2008-09 and prepared

budget estimates of F.Y. 2009-10 as well as the annual plan of GSI 2009-10, and modernization aspects while Parliament Cell provided information and supplementary details to MoM on Parliament questions.

GSI upgraded its existing 'Liaison office in Delhi' to 'DG's camp office in Delhi' and created the CGPB Secretariat, Science Policy & Coordination and Commercial Operation Divisions, as suggested by HPC.

Science Policy & Coordination

Science Policy & Coordination division will identify critical areas in field of geoscience in short, medium- and long-term periods, develop strategies, workout priorities for GSI over different timeframe, interact/collaborate with other national and international organizations and suggest changes about infrastructural capabilities, skill mix and integrated approach to enable GSI to meet challenges.

CGPB Secretariat

CGPB Secretariat now operating from Delhi will help realizing the full potential of the CGPB mechanism with continuous interactions with the various stake holders of the geosciences sector.

International Cooperation & Activities

7.11 Geological Survey of India (GSI) continued its international activities with various international governmental organisations/ scientific agencies through collaborative and bilateral exchange programmes in scientific projects, participation in international seminars, symposia, workshops, advanced foreign training programmes and in Indian Scientific Expedition to Antarctica and Arctic region.

International Geoscience Programme

International Geological Correlation Programme renamed as the International Geoscience Programme since 2004 with retention of its acronym IGCP and logo, was jointly established by UNESCO and IUGS in 1972. It contributes through coordinated interdisciplinary activities involving all branches of earth science to the prevention and solution of problems of the natural and social sciences with the objectives to serve the geoscientific needs of the society. India was one of the first few countries to support the IGCP since its launching. The activities of the IGCP projects in India are monitored by a duly constituted Indian National Committee (INC) for the IGCP, for which the GSI is the nodal agency and the Director General, GSI is the Ex-officio Chairman. At present there are fourteen INC members, from leading Indian scientific organisations/ institutes, which include AMD, NGRI, ONGC, INSA, WIHG and other distinguished universities. The INC identifies new projects from those already approved by the IGCP Scientific Board, Paris, for Indian participation and reviews the progress of on-going projects as well as recommends new project proposals for future implementation. Eleven IGCP projects were in operation.

One hundred seventy two officers from GSI participated in 31 International / National training Programs, workshops, Fellowship/Scholarship programme and Seminar/ Symposia/Conventions.

GSI continued its interaction with other countries to explore possible bilateral cooperation and collaborative programmes. Details of MoUs and activities thereunder are given below:

Collaborating Country (and year of commencement)	**Projects/Activities**
Argentina 2009	•Exchange visits of scientists and specialists. •Exchange of scientific and technical information. •Joint research programme. •Collaboration on research of mutual interest. •Training of individual scientists through participation in collaborative projects. •Conducting joint symposia, conferences and seminars. •Other forms of cooperation as may be mutually agreed between the Parties
Bhutan2007	Preparation of Detailed Project Report (DPR) for Punatsangchhu Hydroelectric Power Project – II
Canada 2003	•Arsenic toxicity in groundwater - Phase 2 •Scope for the utilization of state-of-the-art equipment for seismic micro-zonation •Long-term crustal deformation study and multi-hazards •Commercialisation of other scientific equipment . Landslide monitoring/ mitigation
Chile2009	Co-operation in the fields of Geology and Mineral Resources in geological mapping and mineral exploration in Chile and also can impart training to their geoscientists in several disciplines.
China 2005	•Technology transferring and training programme regarding modern geological mapping •Active fault mapping under seismic hazard assessment •Development of .Geological database and Geographic Information System and their implementation in resources administration •Utility of low-grade deposits viz. nickel, gold, basemetal, cesium

Kazakhstan	•Mineral exploration in Kazakhstan through surface geological mapping (including geological, geochemical, geophysical mapping and aero-geophysical survey as necessary) with special emphasis on resources of copper, zinc and gold. •Off shore survey and exploration •Geo-environmental studies •Geology of water resources •Providing training facilities to the geoscientists of Kazakhstan at GSI Training Institute as per the need of the Kazakh side.
Namibia2009	The first meeting of the India – Namibia Joint Working Group on Geology and Mineral Resources was held at Namibia during last week of November 2009 which was led by Secretary (Mines).
Netherlands 2004	Collaboration in strengthening capabilities in the application of digital methods in geological, geophysical and geo-chemical mapping and geo-hazard assessment
Saudi Arabia2009	Training of scientific and technical personnel of Saudi Geological Survey (SGS) in GSI Training Institute
United States of America (Regents of the University of Colorado, Michigan University and California State University, Northridge, USA)2008	Rotation, Fragmentation and Flexure at the Northeast Corner of the Indian Plate

India-Africa Forum Summit

7.12 Two international courses on “Mineral Exploration and Remote sensing and Digital Image processing” for African Participants were conducted in October 2009 as per the decision taken in India-Africa Forum Summit. This is the first time that GSITI is conducting training for African Countries. There were in total thirteen participants from various countries e.g., Egypt, Botswana, Sudan, Senegal, Kenya and Zimbabwe. The objective of the training programs was to equip the earth scientists from African countries with latest techniques for exploration / exploitation of their countries’ mineral resources.

CHAPTER 8

INDIAN BUREAU OF MINES (IBM)

8.1 The Indian Bureau of Mines (IBM) is a subordinate office under the Ministry of Mines. It is engaged in the promotion of scientific development of mineral resources of the country, conservation of minerals, protection of environment in mines for minerals, other than coal, petroleum and natural gas, atomic mineral and minor minerals. It performs regulatory functions, namely enforcement of the Mineral Conservation and Development Rules, 1988, the relevant provisions of the Mines and Minerals (Development and Regulation) Act, 1957, Mineral Concession Rules, 1960 and Environmental (Protection) Act, 1986 and Rules made thereunder. It also undertakes scientific, techno-economic, research oriented studies in various aspects of mining, geological studies, ore beneficiation and environmental studies.

8.2 IBM provides technical consultancy services to the mining industry for the geological appraisal of mineral resources, and the preparation of feasibility reports of mining projects, including beneficiation plants. It prepares mineral maps and a countrywide inventory of mineral resources of leasehold and freehold areas. It also promotes and monitors community development activities in mining areas. IBM also functions as data bank of mines and minerals and publishes statistical periodicals. It also brings out technical publications/ monographs on individual mineral commodities and bulletins of topical interest. It advises the Central and State Governments on all aspects of mineral industry, trade, legislation, etc.

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

Organizational Set-up

8.4 IBM is organized into six functional divisions, namely :

(i) Mines Control and Conservation of Minerals Division.

(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.

8.5 IBM has its headquarters at Nagpur, 03 Zonal Offices at Ajmer, Bangalore and Nagpur, and 12 Regional Offices at Ajmer, Bangalore, Bhubaneswar, Chennai, Dehradun, Goa, Hyderabad, Jabalpur, Kolkata, Nagpur, Ranchi and Udaipur and 2 sub-regional offices at Guwahati and Nellore.

8.6 IBM has well equipped Ore Dressing Laboratories and Pilot Plants at Ajmer, Bangalore and Nagpur.

Performance of IBM

8.7 Performance relating to various activities of IBM during the year 2009-10 (up to December 2009) is given below.

Inspection of Mines

8.8 During the year 2009-10 (up to December 2009), 1,775 mines were inspected for enforcement of the provisions of Mineral Conservation and Development Rules (MCDR) 1988 and for examination of mining plans/ schemes of mining / mine closure plans. Consequent to the inspection of mines, 1,568 violations under MCDR, 1988 were pointed out in respect of 726 mines and during the period 787 violations were rectified; 22 prosecution cases were launched in various courts; 10 cases were decided in the Court in favour of IBM and 11 cases were compounded.

8.9 During the year 2009-10 (up to Dec., 2009), 230 mining plans were approved and 20 were not approved, 307 schemes of mining were approved and 24 were not approved and 23 final mine closure plans were approved and 04 were not approved.

Technical Studies

8.10 During the year 2009-10 (up to December 2009), 12 Regional Mining Geological Studies were at various stages of completion. IBM monitors the progress of reconnaissance permits and prospecting licences.

Preparation of Mineral Maps

8.11 During the year 2009-10 (up to December 2009), preparation of 100 multi-mineral leasehold maps of Gujarat on a scale of 1:50,000 along with corresponding forest overlays was at various stages of completion.

Mineral Beneficiation

8.12 Mineral beneficiation studies including mineralogical testing and chemical analysis is intimately related to both conservation and development of mineral resources. During the year 2009-10 (up to December 2009), 53 ore dressing investigations, 37,700 chemical analysis and 1,870 mineralogical examinations were completed. Three in-plant studies were also carried out.

National Mineral Inventory

8.13 During 2009-10 (up to December 2009), based on the updated NMI adopting UNFC, a Handbook on "National Mineral Inventory – An Overview (as on 1.04.2005)" was released. Besides, preparatory work for updating the NMI as on 1.04.2010 was in progress. As a preparatory exercise for updation of NMI, a National Conference on NMI as on 1.04.2010 for the exploration and exploitation agencies was organized at IBM, Nagpur on 24 November 2009. Representatives from GSI, MECL, NALCO, KIOCL, MOIL, nine State Directorates of Geology and Mining, AMD, HCL and various leading private organizations totaling about 50 participated in the conference.

Market survey of Minerals and Metals

8.14 Market Survey on copper, lead and zinc was continued and drafting of the report was in progress. Besides, 03 reports on end-use metal consumption for copper-lead-zinc for the quarters ending March, June and September, 2009 were prepared.

Statistical Publications

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

8.16 The statistical publications released during the year 2009-10 (upto December 2009) include 07 issues (September 2008 – March 2009) of Monthly Statistics of Mineral Production and Statistical Profile of Minerals 2006-07 & 2007-08 Combined issue. Besides, Indian Mineral Industry at A Glance, 2006-07 & 2007-08 Combined issue and Statistical Profile of Minerals 2008-09 issue were at various stages of preparation.

Consultancy Service

8.17 IBM provides technical consultancy services on prescribed charges for geological appraisals, survey of the areas, preparation of feasibility study reports, environment impact assessment and environment management plan, selection of suitable mining equipment, evaluation of feasibility report prepared by other consultants, financial institutions, etc. During the year 2009-10 (up to December 2009), 06 assignments were completed and 06 are in progress.

Technical Publications

8.18 IBM brings out technical publications relating to mines and minerals, mineral based industries, trade, beneficiation, R&D activities, etc. During the year 2009-10 (up to December 2009), Handbook on National Mineral Inventory - An Overview (as on 1.04.2005), Bulletin on Mining Leases & Prospecting Licenses 2007 issue and Half-yearly Bulletin on Mineral Information, April-September 2008 issue were released. Besides, Indian Minerals Year Book (IMYB) 2008 issue was under printing.

8.19 Under the series 'Mineral Facts and Problems" the Monograph on Chromite, was under scrutiny and modification. Directory of Mineral Consumers in India and two bulletins on (i) Recent Developments in Blasting Technology and (ii) Application of Rock Mechanics in Surface and Underground Excavations, were at various stages of preparation.

Mining Research

8.20 Applied Mining Research is carried out in IBM on various mining aspects so as to help in systematic development of mines and improvement in productivity in mines through evolution of suitable norms. Industry sponsored assignments on environment and rock mechanics on charge basis are also undertaken. During the year 2009-10 (up to December 2009), 07 such assignments have been completed and another 05 assignments were in progress.

Training

8.21 IBM imparts training to technical and non-technical officials of IBM and also to persons from mineral industry and other agencies in India and abroad. During the year 2009-10 (up to December 2009), 12 training programmes were conducted in which a total of 76 IBM personnel and 222 industry personnel participated.

Advisory Role

8.22 IBM continued to advise the Central and State Governments on matters concerning mines and minerals, mining legislation, export and import policies, mineral consumption and industrial utilization, recovery of by-products, demand and supply of minerals, renewal of mining leases. Assistance was also rendered to private parties, institutions and foreign organizations on subjects like mineral production and other statistics.

Computerized On-line Register of Mining Tenement System

8.23 The project is to be implemented in 12 States, namely, Goa and one district each in Andhra Pradesh (Khammam), Chhattisgarh (Durg), Gujarat (Jamnagar), Jharkhand (Singbhum [W]), Karnataka (Bellary), Kerala (Thiruvananthapuram), Madhya Pradesh (Katni), Maharashtra (Sindhudurg), Orissa (Keonjhar), Rajasthan (Udaipur), and Tamil Nadu (salem). Initially, a pilot project has been taken up in two districts viz Durg (Chhattisgarh State) and Bellary district (Karnataka State).

8.24 The Regional Remote Sensing Service Centre (RRSSC), ISRO, Nagpur has been assigned the work of digitization of mining lease plans. So far 61 lease plans (24 of Bellary & 37 of Durg) were handed over by IBM to ISRO. The State Governments of Chhattisgarh and Karnataka have been requested to take up the job of fixation of boundary pillars in all mining leases of Durg and Bellary districts so that IBM can take up the GPS work. IBM has designed formats on Reconnaissance Permits, Prospecting Licenses, Mining Leases & Exploration etc., and circulated to all the concerned State governments, which will be the input data for the database to be designed at later stage.

Measures for Abatement of Pollution and Environmental Protection

8.25 The IBM undertakes inspections/studies for the enforcement of provisions of MCDR 1988 which include provision on protection of mines environment. During inspection it ensures that mine operators are taking due care for preservation and utilization of top soil, storage of overburden/waste rocks, reclamation and rehabilitation of land, precaution against ground vibration, control of ground subsidence, abatement measures against air, water and noise pollution, restoration of flora etc. in addition to other conservation and developmental measures. Necessary guidance to mine managements/ operators are also given for systematic and scientific development of mine including protection of environment. 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.

8.26 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 2009-10 (upto December 2009), about 2.80 million saplings have been planted over an area of 760 hect. in and around mine areas. Thus, so far, 93.21 million saplings have been planted over an area of about 38,164 hect. with a survival rate of 67 percent.

8.27 Simultaneous reclamation of working mines and abandoned mines is required to be carried out. During the year 2009-10 (upto December 2009), simultaneous reclamation / rehabilitation is going on in 48 working mines covering an area of about 352 hects. taking the cumulative figure upto 1,250 working mines covering an area of about 12,123 hects. So far, 53 abandoned mines covering an area of 660 hects. have been reclaimed/ rehabilitated.

8.28 IBM continued to take initiative to organize Mines Environment and Mineral Conservation (MEMC) Weeks every year in important mining centres through its regional offices to promote awareness amongst mine owners for minimizing environmental pollution. During the year 2009-10 (up to December 2009), two such weeks were organized, in which 143 mines owners participated. Besides, 10 MEMC weeks will be celebrated during the remaining period.

Revenue Generation

8.29 IBM generates revenue through promotional activities. Revenue generated during 2009-10 (up to December 2009), is of the order of Rs. 149.52 Lakhs comprising Rs. 16.98 Lakhs from the consultancy work in mining and geology; Rs. 91.74 Lakhs from mineral beneficiation assignments; Rs. 11.62 lakhs from mining research assignments; Rs. 10.56 Lakhs from processing of mining plans / schemes of mining and compounding fees & fines; Rs. 12.59 Lakhs from training and balance Rs. 6.03 Lakhs through sale of publications, mineral maps, mineral inventory data etc.

Computerization

8.30 The Regional/Zonal offices and Headquarters of IBM have been linked through a sophisticated system based on client server architecture established with the help of BRGM, France, which includes new databases required by IBM. IBM has well established LAN facility, besides WAN system to communicate and exchange data from Regional, Zonal offices and Headquarters. Wide Area Network through leased lines of BSNL has been established between IBM Head Quarters at Nagpur and Ajmer, Bangalore, Hyderabad and Kolkata; between Ajmer Zonal Office and Regional Office; and between Kolkata regional office and Guwahati sub-regional office.

8.31 IBM is maintaining a website (http://ibm.gov.in) linked with the site of Ministry of Mines. This website provides information on the main functions and activities of IBM. This website has been linked to the Grievance Portal of DoPT and also to the website of CVC, New Delhi. Presently discussions / correspondence with NIC is going on to develop new website for IBM according to the guidelines of Govt. of India and also to make database of IBM web enabled thereof.

8.32 IBM has implemented "IT Infrastructure Security Policy (version 1.0 of 2006)" with a view to implementing Information Security to safeguard information infrastructure from possible attack through Internet or corruption, compromise of data etc,.

Task Force of IBM to Check Illegal Mining

8.33 In compliance of the direction of the Ministry in the light of large scale reports of illegal mining in the media, a Task Force of IBM was constituted 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 where illegal mining is rampant.

The Task Force have inspected 106 mines out of the target of 103 mines and recommended 60 mines for suspension under rule 13(2) of MCDR, 1988.

IBM Advisory Board

8.34 IBM Advisory Board was reconstituted under the chairpersonship of Secretary, Ministry of Mines, Government of India on 14 November 2008 for a tenure of two years. Meeting of the reconstituted Board was held under the chairpersonship of Ms. Santha Sheela Nair, Secretary (Mines) on 7 August 2009 at Chennai.

8.35 As a follow up action on the decisions taken in the Board meeting, IBM have constituted Working Groups on the following aspects:

(i) To suggest incentives to be given to mine operators to promote adoption of mechanization, computerization and automation;

(ii) To develop a plan for Private Sector, networking of institutions and jobs in the field of mineral beneficiation;

(iii) To develop legal and institutional framework for zero waste mining and strengthening of mechani-zation in mining;

(iv) To evolve guidelines for operating small deposits in scientific and efficient manner safeguarding vital environmental and ecological aspects; and

(v) To examine improved coordination between States and IBM.

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

8.36 Ministry of Mines constituted a Working Group on Sustainable Development Framework (SDF) for the Mining Sector in India on 04 March 2009, under the chairmanship of Additional Secretary (Mines) with Director (Mining Policy) as Member Secretary and representatives from Ministry of Mines, Ministry of Environment & Forests, NEERI, FIMI, Controller General, IBM and Director General, GSI. The Working Group will supervise the preparation of SDF for

Mining Sector in India comprising of principles, reporting Initiatives and good practice guidelines after studying the work of International Council on Mining and Metals (ICMM) and International Union for Conservation of Nature (IUCN) and other such organizations.

8.37 The Sustainable Development Framework would address important issues pertaining to Rehabilitation & Resettlement, environment mine closure etc. The Ministry has selected M/s ERM India Ltd, as a Consultant to prepare the draft Sustainable Development Framework through a bidding process. Consultations have also been initiated with Civil Rights Groups and NGOs in this matter.

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

8.38 A 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 has been constituted under the chairpersonship of Joint Secretary (Mining Legislation) and Director (Mining Policy) as Member Secretary, on 23 August 2009. The Committee comprises of representatives from Ministry of Environment & Forests, Central Pollution Control Board, State Directors of Mining & Geology of Andhra Pradesh & Chhattisgarh, GSI, IBM, ISMU, FIMI, NIC and retired officers of IBM. S/Shri Ranjan Sahai, CCOM and Y.G. Kale, ACOM are the members of the committee from the IBM.

Group to Evolve Model Guidelines on Environmental Aspects of Quarrying of Minor Minerals

8.39 Shri R.K. Sinha, Controller of Mines, IBM was nominated as a member on the Group constituted under the chairmanship of Secretary (E&F), Government of India, to evolve model guidelines on environmental aspects of quarrying of minor minerals.

Study Group to examine implemen-tation of UNFC of Ores / Resources

8.40 A Study Group to examine implementation of UNFC of Ores/ Resources on the Ground was constituted by the Ministry of Mines under the chairmanship of Dr. A.K. Bhandari, Advisor, TPPC with Shri S.B.S. Chauhan, Advisor, FIMI as Member Secretary and members from IBM, GSI, MECL and State DGMs. The Study Group submitted its report to the Ministry on 15 April 2009. S/Shri R.N. Meshram, Chief Mineral Economist and M. Sengupta, Sg. Mining Geologist were the members from IBM on this committee.

Steps taken to curb Illegal Mining

8.41 Illegal mining is a bane to the entire mining sector as it not only leads to loss of revenue but also encourages unscientific mining practices, and there is a need to curb this menace. In the recent past increasing incidents of illegal mining have come to the knowledge of the Central Government through various reports,

including media. Even though minerals are the property of the State Government and the entire royalty accrues to the State Governments, due to the fact that illegal mining has ramifications for the ecology, internal security and for the proper management of the sector, the Central Government is deeply concerned by the rising incidence of illegal mining.

8.42 In the First phase (1999), the Central Government amended the Mines and Minerals (Development and Regulation) Act, 1957, to empower the State Governments to take action against illegal mining by giving them powers to enter and inspect any mine, penalize transportation and storage of illegally mined minerals, confiscate illegally mined minerals, tools, equipment and vehicles, and frame separate Rules under the Mines and Minerals (Development and Regulation) Act, 1957 for curbing illegal mining. The results were not encouraging as many States did not actively use their powers.

8.43 In the Second Phase (since 2005 onwards), The Central Government adopted a three- pronged strategy, whereby the State Governments were required to set up Task Forces at District and State level for prevention of illegal mining, immediately frame separate Rules under the Mines and Minerals (Development and Regulation) Act, 1957 and put them in operation, and furnish quarterly reports on cases of illegal mining detected by the State Governments, and action taken in the matter. As a result of this action a total of 157057 cases of illegal mining were detected, 117 lakh tonnes of mineral seized, 90431 vehicles seized, 3791 FIRs registered, 22980 court cases filed, and Rs325 crore realized as fine by State Governments.

8.44 In the Third Phase (September 2009 onwards), in order to evolve a holistic plan using modern technology to curb illegal mining, all the State Governments have been requested to prepare an Action Plan on the following points:

- Use of Satellite Imagery sourced from State Remote Sensing Organisations to curb illegal mining,
- Developing reliable mechanism in the State Government for collecting and monitoring of data regarding prices of various minerals, wherein the price trend could indicate possible chances of illegal mining in certain minerals,
- Developing a mechanism for integrated monitoring of information on movement of trucks/ vehicles from mining areas to ports/ markets/ manufacturing units which use mineral ores, and correlating the same with the production data to capture any spurt in mining activity,
- Maintaining and collecting information from ports, custom authorities, Ministry of Commerce on export of ores out of the country;
- Bar-coding, use of Holograms for transport permits, royalty paid permits etc., as a means of tracing unauthorized transport or sale of ores;

- Compulsory registration of all the end-users and issue of directives to the end-user industries to mandatorily check payment of royalty before purchase of ores for various manufacturing processes, with penalties for violations
- Development of reporting mechanism for the traders of mineral ores and end-use industries to report receipt of ore for which royalty payments have not been made;
- Constituting and empowering Joint teams of officials from various Departments of the State Government including, Police, Forest, Revenue department to conduct checks and file cases,
- Coordinating and concentrating efforts of both State Government and Indian Bureau of Mines through combined inspection in specific areas in which illegal mining is suspected and to ensure safety and effective cessation of illegal mining.
- Creation of a Special Cell in Police force to tackle illegal mining.

The IBM has constituted special Task Forces for checking incidents of illegal and irregular mining.

8.45 During the year 2009-10, 12 state governments have submitted the quarterly return on illegal mining upto the quarter ending June 2009 and 18 states upto the quarter ending September 2009.

CHAPTER 9
PUBLIC SECTOR ENTERPRISES

National Aluminium Company Ltd

9.1 National Aluminium Company Ltd (NALCO) was incorporated in January, 1981 as a Public Sector Undertaking. Presently, Govt. of India holds 87.15% share in NALCO. The Company is an integrated and diversified mining, metal and power producer and achieved annual sales of Rs. 5,474 crores in financial year 2008-09. The primary operations are located in Orissa and the Company enjoys major market presence in alumina and aluminium. It has bulk shipment facilities at Vizag port, besides utilizing the facilities at Paradeep and Kolkata Ports.

9.2 Revenue from alumina and aluminium export accounts for approximately 40% of turnover and business with more than 30 countries in recent past. NALCO is the First Company from India in the aluminium sector to be registered with LME in May 1989. The Company is listed in Bombay Stock Exchange (BSE) and National Stock Exchange (NSE). Besides, ISO 9001, ISO 14001 & OHSAS 18000 certification, the Company has also been accorded SA 8000 International Standards, for Corporate Social Accountability.

9.3 In addition to existing operations, NALCO has drawn ambitious plans for extensive brown field and green field expansion projects at estimated cost of Rs. 30,000 crore in the country and abroad. Further, the Company has taken up steps for commissioning of a coal block (Utkal-E in Orissa) and is taking action for acquiring new bauxite mines in Andhra Pradesh and in Orissa besides setting up some forward and backward integration projects.

9.4 Leveraging the technical collaboration with Aluminium Pechiney (now Rio Tinto Alcan) since 1982, NALCO has continued to add value and is poised to grow further. NALCO has signed a strategic alliance agreement with Rio Tinto Alcan, which shall facilitate both the companies to share information to identify potential projects to create value for each other.

Bauxite Mine

9.5 Bauxite is the primary raw material used to produce alumina and aluminium. The bauxite mine is situated at Panchpatmali hills in Damanjodi, Koraput, in the State of Orissa. This plateau bauxite deposit is mined by a fully mechanized system at a capacity of 4.8 million tonnes per year being upgraded to 6.3 million tonnes per year under 2nd phase expansion. The capacity of mines is being

further upgraded to 6.8 million tonnes per year under the upgradation project. Approximately 90% of the bauxite from the mine represents gibbsitic alumina, also called tri-hydrate alumina, a property which allows it to be digested at a relatively low temperature and at atmospheric pressure during the alumina refining process.

9.6 Bauxite occurs over the full length of the Panchpatmali plateau, which spans over 18 kms.

Alumina Refinery

9.7 Alumina refinery plant is located at Damanjodi, Orissa, approximately 14 kms. from the bauxite mine. The bauxite is transported to refinery by a 14.6 kms. long single flight multi curve 1,800 tonnes per hour (TPH) capacity cable belt conveyor. The alumina produced is transported to aluminum smelter plant and Vizag port storage and handling facilities by rail.

9.8 The present capacity of alumina refinery is 1.575 million tonnes per year, which is by way of three production lines of each of 525,000 metric tonnes per annum. The capacity is being augmented to 2.1 million tonnes per annum under 2nd phase expansion with addition of one more stream. The capacity of alumina refinery is being further enhanced to 2.275 million tonnes per annum under an up-gradation project. Alumina produced is used first to meet own alumina requirements for production of primary aluminum. The alumina that remains after internal consumption is sold to third parties primarily in the export markets.

9.9 The salient features of the refinery are a high throughput capacity, use of temperature atmospheric digestion technology, production of sandy calcined alumina and co-generation of power.

Aluminium Smelter

9.10 The aluminum smelter plant is located at Angul, Orissa, which is approximately 699 kms. from the refinery plant, 5 kms. from the captive thermal power plant, 564 kms. from Vizag port storage and handling facilities, 194 kms. from the Paradeep port and 551 kms. from the Kolkata port, respectively. The aluminum produced at aluminum smelting plant, Angul is transported to Vizag, Kolkata and Paradeep ports by rail for export.

9.11 The aluminum smelter entered into production progressively from 1987. Presently, the aluminum smelter is producing about 425,000 tonnes per annum and is poised to achieve 460,000 tonnes per annum by December, 2009 after completion of ongoing expansion project.

9.12 Alumina is converted into primary aluminum through a smelting process using electrolytic reduction. From the pot-line, the molten aluminum is routed either to casting units, where the aluminum can be cast into ingots, sow ingots, billets, wire rods, cast strips and alloy ingots, or to holding furnaces at flat aluminum products unit where the molten aluminum can be rolled into various cold-rolled products or casted into aluminum strips.

Technological Collaboration

9.13 The aluminum smelter operates on one of the modern electrolysis technology, namely the AP-18 provided by Aluminum Pechiney, which is being upgraded from time to time. The Company has also adopted the technology provided by Aluminum Pechiney in refinery.

Captive Power Plant

9.14 Aluminum smelter plant and coal based captive thermal power plant at Angul are strategically located. Captive thermal power plant is located approximately 5 kms. away from aluminum smelter plant. The Company has constructed captive thermal power plant adjacent to smelter plant to enable it to access to low cost electric power and minimize transmission losses.

9.15 The location of captive thermal power plant at Angul is also strategic to the coal availability and supply. The Company sources major coal requirement for captive thermal power plant from the Talcher coalfields, located approximately 15 kms. from Angul. The 18.5 kms. captive railway system links captive thermal power plant to the Talcher coalfields, enabling transport of the critical and bulk requirement of coal at relatively low cost.

9.16 The captive thermal power plant commenced operations in 1986. Presently, the captive thermal power plant has an electric power generation capacity of 1080 MW by way of nine turbo-generators, each rated at 120 MW. Another unit of 120 MW capacity is likely to be commissioned by March, 2010. While the captive thermal power plant provides entire electric power requirement of aluminum smelter, it also provides for approximately 35% of the electricity requirement of alumina refinery plant besides supplying some surplus power to State grid occasionally.

Hindustan Copper Limited

9.17 Hindustan Copper Limited(HCL) was incorporated on 9th November,1967, under the Companies Act,1956. It was established as a Govt. of India Enterprise to take over all plants, projects, schemes and studies pertaining to the

exploration and exploitation of copper deposits, including smelting and refining from National Mineral Development Corporation Ltd.

9.18 The Government of India nationalised the only copper producing company in the private sector, Indian Copper Corporation Ltd. at Ghatsila in Jharkhand in March 1972 and handed over its management and ownership to Hindustan Copper Limited.

9.19 The Smelter Plant at Khetri Copper Complex (KCC) in Rajasthan with capacity of 31000 tonnes was dedicated to the nation on 5th February 1975.

9.20 In November 1982, Malanjkhand Copper Project comprising of a large and fully mechanised open pit mine and Concentrator plant was dedicated to the nation.

9.21 The Continuous Cast Copper Rod plant at Taloja Copper Project of Hindustan Copper Ltd. was commissioned in December,1989 with an installed capacity of 60,000 tonnes. The Company has selected Southwire SCR-2000 technology for the plant and using natural gas as fuel.

Sales Performance of HCL

9.22 The Company has achieved total sales of 25,214 MT of copper upto December, 2009. The anticipated sales during 2009-10 would be around 30,000 MT without procurement of copper cathode from outside. If copper cathode is procured from outside (which depends on economics), production of CC Rod and consequent sale would increase accordingly.

Energy Conservation

9.23 HCL continues to give priority for energy conservation measures at various stages of process from mining of ore to extraction of copper metal and other by-products. Recommendations arising out of energy audits done by the consultant (PCRA) appointed earlier have largely been implemented. Energy audit cells that were set up at each of the units are constantly monitoring energy consumption at the mines, plants and townships to achieve overall reduction. Suitable measures are also being initiated to improve power factor further. Installation of high-tech Central Jet Distribution (CJD) burner at ICC Smelter has significantly reduced energy consumption.

Science & Technology/R&D Activities

9.24 Company has collaborated with the Institute of Minerals & Materials Technology (IMMT), Bhubaneswar to develop bio-heap leaching technique at MCP. The project has been approved by the department of Science & Technology (S&T) Govt. of India. Upon successful completion of experimental

trials, the technique can be commercialized to recover copper from low grade sulphur- bearing ore. The project is progressing as per schedule.

- To improve the concentrate grade and recovery at KCC, where the ore has inherent adverse characteristics and mineralogy, bigger capacity floatation cells of 300 cft have been installed in the scavenger and cleaner sections of the concentrator plant with encouraging results.
- An agreement has been signed with M/s. Nuclear Industry Yantai Tongxing Industrial Co. Ltd. China for design, supply, erection and commissioning of 2. Ceramic Vacuum Filters, one each at MCP and KCC for reducing moisture percentage in copper concentrate (11% to 8%) in ore beneficiation plants of MCP and KCC.
- During major shutdown, de-bottlenecking jobs were also taken up at ICC Smelter in 2008-09. New CJD Burner, modified cooling elements and Oxygen enrichment system have been installed which has improved ICC Smelter plant operation as well as Smelter capacity has been enhanced to 20,500 MT per annum.
- Accreditation for ICC's R&D laboratory has been obtained from National Accreditation Board for Testing and Calibration of Laboratories (NABL) for analysis of impurities in copper cathode by optical emission spectrometer.

Computerisation

9.25 Besides regular operations of all on-going applications at Head office, Units and Sales offices of the Company, following specific activities were taken up with reference to IT related Jobs during the period under review:

a) Company has implemented Enterprise Resource Planning (ERP), Oracle 12i ERP solution integrating all functional areas for faster information flow and efficient decision making and gone live on 1st Oct,2008.

b) Centralised data centre has been set up at Head office by installing high-end servers, Data storage area and Wide area communication equipments with high security features by installing Firewall and routers. The operations are smooth and working fine.

c) Data Communication Links with units & sales offices has been commissioned for ERP, Mailing and Internet solutions with Multi-protocol Label Switching Virtual Private Networks (MPLS VPN) circuits linking Head Office and other offices to establish reliable and consistent communication links for smooth flow of data within the organization.

d) Company website (both in English & Hindi version) is re-designed for better content and look.

e) Property return has been computerized through ERP and implemented for Executives.

Pollution Control and Environment Management Efforts

9.26 Air Pollution Control Measures

The ambient air quality is regularly monitored at mines, process plants and residential areas at all units as per pollution control board guidelines/standards. Environmental audits have also been carried out at all plants through an independent outside agency. The agency has given recommendations that would assist the Company to further improve the existing environmental management plans. The environment cell of the Company is in the process of implementing these recommendations in phases taking into account the availability of the funds.

9.27 The range of air quality around the various mines of the Company is well within the standards and limits as prescribed by the pollution control board.

Water Pollution Control Measures

9.28 Effluent treatment facilities installed at the units of the Company have been working satisfactorily during the year and meeting regulatory norms as prescribed by the Pollution Control Boards. Discharged process water is being recycled after treatment thus conserving the water. As water availability is scarce at KCC and operation of the plant is affected due to inadequate availability of water, total recycling of water is practiced.

9.29 For further improvement in water availability and conservation of water resources, consultants were engaged for detailed study at KCC and MCP for suggesting ways and means for increased availability of water from existing resources and identifying new resources. The final reports have been obtained for KCC and MCP and recommendations are under implementation phase wise. A High Rate Tailing Thickener (HRT) has also been installed and commissioned at KCC Concentrator plant for disposal of thickened slurry and also to have better recovery of water from the tailings.

9.30 Solid waste from plants and hospitals are also safely disposed off or stored as per the guidelines prescribed by the pollution control boards.

Afforestation

9.31 Company promotes several environment friendly activities by planting trees, improving housekeeping, cleanliness, hygiene and safety through several programmes round the year. The Company has planted about 657 acres of land

with different types of flora around the mining areas at different units thus maintaining the green environment. Various species are: Acacia nilotica (Babul), Dabergia Sissoo (Shisham), Amaltas, Pipal and Bargad.

Mineral Exploration Corporation Limited

9.32 The Mineral Exploration Corporation Limited (MECL) since its inception in the year 1972 is carrying out mineral exploration activities. MECL is the premier exploration agency in the country and carries out its exploration activities under Promotional programme funded by Government of India and contractual programme on behalf of other agencies including Public & Private Sector and State Governments on agreed terms and conditions. So far, it has added 137443 million tonnes of mineral reserves to National Mineral Inventory (upto 31-12-2009), out of which, Coal accounts for 91659 million tonnes.

9.33 Work on behalf of Ministry of Mines – MECL is continuing its detailed exploration programme of various minerals as per national priorities identified in the Five – Year Plan and potentiality of the prospect. Accordingly, detailed exploration schemes are formulated and after due approval of Standing Committee on Promotional Projects (SCPP) and Ministry of Mines, projects are executed. Since its inception, MECL has carried out detailed exploration for ferrous, non ferrous, precious, industrial and other minerals on behalf of Ministry of Mines and a total of 3787 million tonnes of reserves has been established.

9.34 Work on behalf of Ministry of Coal – MECL is also engaged for regional exploration of coal & lignite on behalf of Ministry of Coal. Schemes of exploration are being finalized by the Core Group of Committee on Energy Minerals and Resources, Group-V of Central Geological Programming Board (CGPB). So far, a total of 40885 million tonnes of Coal and 27275 million tonnes of lignite reserves have been established by MECL on behalf of Ministry of Coal.

9.35 The authorised share capital and paid up equity of the company are Rs. 125.00 crores and Rs. 119.55 crores, respectively. The equity is fully held by Government of India.

9.36 The Company's registered office is at Nagpur in Maharashtra. To facilitate the prompt maintenance of plants and machineries deployed at various projects, three Regional Maintenance Centres at Ranchi, Nagpur and Hyderabad are being operated. Technical guidance to the projects, finalisation of geological reports, close liaisoning with the clients and looking for new business opportunities are being carried out through the Zonal Offices located at Ranchi, Nagpur, Hyderabad and Margherita (Assam). The commercial activities of the Company are being looked after by Business Development and Planning

Division. In addition, two Business Development Centers are in operation at New Delhi and Kolkata.

9.37 In addition to mineral exploration activities, MECL has taken up diversification programme(s) in the field of slim hole drilling for CBM , coal sampling and analysis as a referral agency and supply of ballast stone to Railways.

Information Technology (IT)

9.38 Geological data processing of 20 exploration blocks explored by MECL, were carried out. This includes 6 nos. of coal, 4 nos. of lignite, 3 nos. of base metal, 2 nos. of iron, 2 nos. of CBM exploration and 1 no. each of manganese ore, limestone and gold exploration. The work includes computerised database creation – both numerical and map database (map database was created using scanning & digitising surface features, contours, geological features & litho-contacts, administrative boundary, mine workings, section line etc. from geological and topographical plans), generation of graphical & numerical outputs etc.

8.39 Digital conversion of analog geophysical logs of 96 boreholes pertaining to lignite blocks and 43 boreholes pertaining to coal block have been done. This converted data and the digital data generated directly from geophysical logging units are brought into uniform format by using in-house developed utility interface. These geophysical logs are then plotted along with exploratory boreholes using indigenously developed software.

Exploration data processing for 2 reports of CBM blocks (North Karanpura & Bokaro on behalf of ONGC) were completed.

Exploration data processing for 1 report of Nandini limestone deposit on behalf of SAIL was completed.

Geological modelling for Shahpur east & Shahpur west blocks, for M/s NMDC was completed. This includes Modeling of coal seams intersected in the boreholes. The 2D plans viz-floor contours, seamfolios, iso-pachytes of overburden and over & inburden geological cross sections etc. were generated from the model.

Maintenance and updation of MECL website were carried out. The following work was done during the period:

a. Assisting in uploading of tenders, “Suppliers Bills Status”, “Career”, “Vigilance”, “Reports for Sale”, RTI, Annual Reports, whenever required.

b. Quarterly updating of information of physical performance since inception.

c. Designing and uploading of latest executive summaries in “Reports for Sale” as desired by Ministry of Mines.

9.40 New IBM Blade Server, LAN, IBM External Storage, Firewall were installed in MECL, CHQ Building. Satisfactory commissioning of these equipments by the party was monitored and technically evaluated by I.T. Centre. The software like SURPAC, GEMCOM, MINEX, GDM etc were upgraded during the year and use of these upgraded version of software in preparation of geological report has resulted in using recent technology particularly in fault modelling.

Business Development Activity

9.41 Through business development group, vigorous efforts are being made to obtain work from both private and public sectors through competitive bidding and a series of technical discussions. As a result during 2009-10 upto December, 2009, a total of 26 number of work orders were received valued at Rs. 13.73 crores.

Diversification Activity

9.42 MECL diversified its activities in the following fields.

i. Deep slim hole drilling for Coal Bed Methane (CBM) studies on behalf of ONGC and other organisations.

ii. Remote sensing and environmental studies.

iii. Coal sampling and analysis.

iv. Supply of ballast stone to SE Railway.

v. Deep drilling for hydrological investigation / evaporites.

Further, MECL plans to enter in the following new areas for its growth & business development :

- Drilling for geo-thermal energy & geo-technical studies.
- Production support drilling for mine services.
- Production well drilling for CBM assessment.
- Drilling for underground coal gasification.
- Lumpsum turnkey project implementation.
- Production mining of minerals and their marketing.
- Services of work over rig.

Manufacturing Unit

9.43 MECL has a well equipped central workshop and manufacturing unit at Nagpur to cater to the needs of drilling and developmental mining projects and to provide engineering support to field operations. It carries out repairing/ overhauling of drilling and mining equipments and light/heavy vehicles. It manufactures TC bits and spares & accessories for coring and non-coring drill machines. Also, it has sophisticated CNC lathe machine for the manufacturing of drill tubulars. During 2009-10, upto December, 2009, a total of 9612 items were manufactured, which include 2672 Nos. of TC bits and 1797 Nos. of other drill accessories and 5143 Nos. threading / re-threading of drill rods & casings.

Coal sampling and analysis

9.44 As a third party agency, MECL continued coal sampling and analysis work on behalf of various coal companies, steel plants, thermal power plants and electricity board. In all, three projects are in operation at different coalfields and a total value of work carried out during the year upto December, 2009 amounting to Rs. 21.16 lakhs.

Bharat Gold Mines Limited (BGML)

9.45 The Bharat Gold Mines Limited (BGML) having registered office at Kolar Gold Fields was incorporated as a public sector company under the Ministry of Mines on Ist April, 1972. It was engaged in mining and production of gold from its captive mines. The company was referred to the Board for Industrial and Financial Reconstruction (BIFR) who gave its verdict in June, 2000 to wind up BGML in public interest. The verdict of BIFR was upheld by Appellate Authority for Industrial and Financial Reconstruction (AAIFR). The company was closed after the Ministry of Labour, accorded permission for closure of BGML w.e.f. Ist March, 2001. After prolonged litigation, the Division Bench of High Court of Karnataka in its order dated 26th September, 2003 has also upheld the winding up/closure orders passed by BIFR/AAIFR and Ministry of Labour. The High Court had made certain recommendations which were considered by the Government.

9.46 The Government, on 27.7.2006, had approved a proposal regarding Special Terminal Benefit Package (STBP) for BGML ex-employees, sale of houses to the ex-employees of BGML at nominal rates, calling of global tender for sale of assets and giving purchase preference to the Employees' Co-operative Society/Society's Company subject to the approval of the High Court of Karnataka (Company Court) and viability of the project. Company Application has been filed in the Hon'ble High Court of Karnataka (Company Court) which is being pursued.

9.47 As per the Government decision, STBP amount had been distributed to the ex-employees of BGML and allotment of the houses at the rates suggested by the High Court of Karnataka(Company Court) are under process. An Inter-Ministerial Group(IMG) was also constituted to oversee the tendering process of BGML. A consultant was appointed for assets valuation of the company, preparation of global tender documents and assisting in global tendering process etc. The Consultant had submitted draft global Tendering documents which were placed by BGML before the Hon'ble High Court of Karnataka (Company Court) for approval.

9.48 The tender documents have been approved by the Company Court on 3.7.2009 with directions to make some amendments. The matter was placed before the IMG whether to amend the tender documents or to file appeal/review. As per the decision taken in the Inter-Ministerial Group (IMG) and advice of the Deptt. Legal Affairs (DLA), review petition was filed by BGML on 20.8.2009 in the Hon'ble Court for consideration of certain amendments to bid documents. The review petition came up for hearing on 11.9.2009. Hon'ble judge refused to re-consider the orders passed by her. As the revision petition has been turned down, BGML, has filed appeal before the Double Bench of the High Court on 20.10.2009.

CHAPTER 10
SCIENCE AND TECHNOLOGY

S & T Projects

10.1 The Science and Technology programme of the Ministry of Mines initiated in 1978 covers the disciplines of geology, exploration, mining, bioleaching, beneficiation rock mechanics and ground control, non-ferrous metallurgy and environmental issues related to mining and metallurgy. Project proposals are entertained from S&T/R&D institutions for applied research in these areas and project grants are given for the purpose, based on scrutiny of a Project Evaluation and Review Committee (PERC) and approval of an inter-ministrial Standing Scientific Advisory Group (SSAG) chaired by Secretary (Mines). During 2009-10, the 5th PERC meeting was held on 2.5.2009 and the following project proposals were scrutinized.

S.No.	Name of the Project	Implementing Agency
1.	Systematic Study of Potential biomarker of occupational health diseases in Mines	National Institute of Miners' Health, Nagpur
2.	Experimental Investigations for determining rock properties using sound level produced during drilling	National Institute of Technology, Karnataka
3.	Development of a protocol for evaluation of veneration hazard potential of mining equipments.	National Institute of Miners' Health, Nagpur
4.	Development of Rapid Analytical procedures for Iron, Manganese and Titanium ores	Jawaharlal Nehru Aluminium Research Design and Development Centre, Nagpur

5.	Thermal Plasma dissociation of molybdenite for the production of molybdenum metal.	Institute of Mineral and Material Technology, Bhubaneswar, Orissa
6.	Establishment of Monitoring Station for Seismic Hazard assessment in the mines of Kolar Gold Fields, Karnataka due to frequent rockburst	National Institute of Rock Mechanics, Kolar, Karnataka

10.2 The 39th SSAG meeting was held on 5.10.2009 during the year 2009-10. In this meeting, the following projects were approved:

S.No.	**Name of Project**	**Implementing Agency**	**Duration**	Approved amount (Rs. In Lakhs)
1	Thermal Plasma dissociation of molybdenite for the projection of molybdenum metal	Institute of Minerals & Material Technology, Bhubaneshwar	36 Months	49.29
2	Development of a protocol for evaluation of veneration hazard potential of mining equipments.	National Institute of Miners'	24 Months	23.00
3	Systematic Study of Potential biomarker of occuptioan health diseases in mines.	National Institute of Miners' Health, Nagpur	36 Months	21.33

The ongoing project titled "Pilot Scale smelting and prefeasibility studies on nickel-chromium –cobalt bearing ores from Nagaland" by National Metallurgical Laboratory, Jamshedpur was given extension for two years with additional cost of Rs. 41.75 Lakhs with due share of Ministry of Mines as Rs. 9.75 Lakhs.

10.3 The 6th PERC was held on 8.2.2010 and the following project proposals were scrutinized.

S.No.	Name of the Project	Implementing Agency
1.	Development of state-of-the-art facilities for in-situ stress measurement by hydrofracture method in porous and fractured rocks	National Institute of Rock Mechanics, Kolar, Karnataka
2.	Study of toxic fumes and development of Carbon nanotubes based sensing device	Central Institute of Mining and Fuel Research, Dhanbad and Amity University, Noida
3.	Recovery of Molybdenum values from low grade Molybdenite ore and secondary Molybdenum sources and synthesis of value added products (Pilot plant-Technology enabling facility)	Non-Ferrous Technology Development Centre, Hyderabad

The next meeting of SSAG is likely to be held in the month of March, 2010

S&T Organizations

10.5 The Ministry of Mines has associated with it the three S&T/R&D institutions namely,

- National Institute of Rock Mechanics, Kolar, Karnataka, (NIRM)
- National Institute of Miners' Health, Nagpur. (NIMH)
- Jawaharlal Nehru Aluminium Research Design and Development Centre, Nagpur, (JNARDDC).

10.6 Secretary (Mines) presides over the General Body and Governing Council of these institutions. In addition to S&T Project Plan grants, non-Plan grants are also received. During 2009-10, the following non-Plan grants were made:

Institution	Amount Released (in Rupees) till January, 2010	Purpose/Remarks
National Institute of Rock Mechanics, Kolar,	Nil	
National Institute of Miners' Health, Nagpur	75 lakhs	Salary& Wages and arrears as a result of revision of pay according to 6th CPC
Jawaharlal Nehru Aluminium Research Design and Development Centre, Nagpur	204.16 lakhs	Salary& Wages and arrears as a result of revision of pay according to 6th CPC

10.7 The S&T/R&D activities of the 3 Grant-in-aid institutions under the Ministry are as given in the following paragraphs.

National Institute of Rock Mechanics (NIRM),

10.8 The National Institute of Rock Mechanics (NIRM), a premier centre for research in applied and basic rock mechanics was registered under the Societies Registration Act. in July, 1998 with headquarters in Kolar, Karnataka. It has been carrying out quality research work and extending its R&D support to the mining, hydroelectric and civil construction projects including tunneling. NIRM integrates theory and practice to provide specialised services of rock mechanics/rock engineering.

10.9 The Institute has the ISO-9001: 2008 accreditation for its R&D services in the following broad disciplines: Engineering Geology, Engineering Geophysics, Geotechnical Engineering, Fracture Mechanics & Materials Testing, Engineering Seismology, Numerical Modelling, Rock Blasting & Excavation Engineering, Mine Design & Ground Control, Microseismics & Automation, Engineering, and Dimensional Stone Technology.

10.10 NIRM has the following human resources under its control:-

Sl.No	Posts	Sanctioned Strength	Existing Strength
1.	Director	1	1
2.	Sceintists – (GroupIV)	44	39
3.	Scientific Staff – (Group III)	18	17
4.	Technical Staff – (Group II)	7	17
5.	Supporting Staff – (GroupI)	3	3
6.	Administrative Staff	13	9
	Total	**86**	**76**

10.11 The Budgetary position of NIRM is as follows:-

Particulars	**RE 2008-09**	**Actual 2008-09**	**BE 2009-10**	**RE 2009-10**	**BE 2010-11**
Recurring Expenditure	492.06	395.57	637.38	630.30	604.05
Non-Recurring Expenditure	47.00	0.0	250.00	0.0	0.0
Total	539.06	395.57	887.38	630.30	604.95

10.12 NIRM has signed MOUs with three industry majors for taking up different projects including DPR preparations for new upcoming projects.

National Institute of Miners' Health (NIMH)

10.13 National Institute of Miners' Health (NIMH) was established in 1990 at Kolar Gold Fields for promotion of occupational health and hygiene in mining and mineral based industry. A camp office was established at Nagpur in 2002. The main objectives of the Institute include:

- Promotion of health and prevention of disease among subjects employed in mines and mineral based industries.
- Research & development to ensure safe and healthy extraction of the country's mineral wealth.
- Assessment of health hazards in the work environment of mines and allied industries for regulatory and remedial measures.
- Develop human resources in the field of occupational health, hygiene and safety.

10.14 The Institute is providing technical support services in health surveillance, workplace airborne dust monitoring, noise measurements, vibration studies, ergonomics etc to the mines and other industries.

Facilities available

10.15 The institute has state of art infrastructure, equipments and trained manpower to conduct :-

- Initial and periodic medical examinations as per Mines Rules, 1955.
- Clinical investigations like routine hematological tests, blood biochemistry, etc.
- Audiometry, Spirometry, electrocardiography.
- Computerized vision screening.
- Personal exposure assessment for noise, dust and vibration.
- Risk assessment of work environment for dust, noise and vibration.
- Determination of dust for free silica (using FTIR) in airborne Respirable dust, heavy metals (using AAS) etc.
- HRD activities in mine related health and hygiene issues.

Major activities undertaken (Projects)

10.16 National Institute of Miners' Health conducts applied research in the field of occupational health and hygiene persons employed in mining and mineral based Industry. Pursuing the vision of "Safe Mines and Healthy Miners" with the mission "Indian mining and mineral industry free from occupational diseases, the Institute with its limited resources, has carried out following work in the year 2009-10:

Workplace Monitoring in Mines

10.17 The Institute carried out equipment vibration analysis and health risk assessment due to exposure to Whole Body Vibration (WBV) in three Limestone mines.

10.18 The RMS acceleration values and duration of exposure indicate that 8(50 %) out of 16 operators of HEMM were free from risk of adverse health effect, while 7(44 %) were at possible risk while only 1(6 %) was likely to have health risk. The risk analysis was done as per ISO 2631-1:1997.

Medical Examination

10.19 Periodical medical examination (PME) was conducted for 83 employees in two limestone mines. 20.4% workers were found abnormal in lung function tests while 6% had Noise Induced Hearing Loss (NIHL). 12% worker showed sugar in urine indicating diabetes and 9.6% had hypertension. No case of pneumoconiosis was detected.

Projects in Hand

10.20 The Institute is presently implementing the following project.

- "Development of a protocol for evaluation of vibration hazard potential of mining equipment": S & T Project of Ministry of Mines.
- "Systematic study of potential biomarkers of occupational diseases in miners": S & T Project of Ministry of Mines.
- "Intervention study in Coal, Bauxite and Zinc Mines": S & T Project of Ministry of Mines.
- Dust, Noise and Vibration studies at Panchpatmali Bauxite Mines of NALCO.

The Jawaharlal Nehru Aluminium Research Development and Design Centre, (JNARDDC), Nagpur

10.21 JNARDDC is a "Centre of Excellence" set up in 1989 as a joint venture of Ministry of Mines, Govt. of India and UNDP with a view to provide major R&D support for the emerging modern aluminium industry in India. Besides being an Autonomous Body of Ministry of Mines, it is registered under Societies Registration Act, 1860 & Bombay Public Trust Act, 1950.

10.22 The objective of the Centre is to assimilate the technology available in the country and abroad for the production of alumina & aluminum including aluminium alloys as well as develop technical know-how for the basic engineering process and downstream areas and to provide training to the personnel employed in the Indian aluminium industries.

10.23 The centre also provides technological support for setting up Alumina refinery in the country. In the process the Centre caters R&D needs of both Primary and Secondary Producers.

Major activities

10.24 The Centre has 12 (twelve) ongoing projects of various external parties / industry from NALCO-Bhubaneswar, CNF Casting-Faridabad, Manishri Refractories & Ceramics Pvt. Ltd. (MRCPL)-Cuttack, DRDO/DMRL-Hyderabad etc.

10.25 JNARDDC successfully completed the project awarded by Hindustan Dorr Oliver, Mumbai and Outotech, Australia w.r.t settling test for the ANRAK alumina plant likely to come up in Andhra Pradesh. The Centre carried out characterization of bauxite and technological evaluation of the same from Philippines in an assignment awarded by Asia Pacific Holding Company, Hong Kong and testing work was carried out for Petroleum Coke Industries Co, Ahmadi, Kuwait. Projects are also under negotiation with international companies such as RUSAL-VAMI Russia, CISRO-Australia etc.

10.26 The Scientists of the Centre presented/published 14 technical papers in international & national seminars/journals in 2008-09. JNARDDC is also providing Training on “Aluminium Technology” for NALCO Operators.

Science & Technology Projects

10.27 The Centre has undertaken the following Science & Technology Projects approved by the SSAG, Ministry of Mines.

1) Bauxite Technical Data Bank Phase-III, Western Ghat Deposits.

2) Preparation & Certification of Aluminium Alloy Reference Materials .

3) Simulation and Computer aided die design for complex profiles of Aluminium Extrudes.

4) Development of Friction Stir Welding Technique for Aluminium-Steel Joint.

5) Management of Bauxite Residue / red mud (AP-7, Bench scale studies for Development of Glass Ceramics).

6) Management of Bauxite Residue / red mud (AP-7, Development of light weight aggregates- Foam Products).

Visit of Foreign Delegates

10.28 In Nov’ 2009 two senior officials of the Bahrain Economic Development Board (EDB), an Autonomous Government agency visited JNARDDC for using the consultancy services of the Centre in assisting them to establish an Aluminium Centre of Excellence in their country. They also expressed their interest for creating a long term customer relationship with JNARDDC.

Asia Pacific Partnership on Clean Development and Climate (AP-7)

10.29 JNARDDC, being the nodal agency from India has undertaken the Project for management of bauxite residue (red mud) in the seven nations Asia Pacific Partnership on Clean Development and Climate (AP-7). It involves the countries of USA, Australia, China, Japan, India, Canada and Korea.

10.30 In this regard, JNARDDC alongwith CISRO (Commonwealth Scientific and Industrial Research Organization of Australia) jointly organized a technical workshop on management of bauxite residue on 2nd & 3rd December, 2009 at Nagpur. The meeting reviewed the progress of the projects and was attended by several foreign delegates from Australia. The workshop was inaugurated by Ms. Sue Kruse , Chairperson of APP Task force, Australian Government Department of Resources, Energy & Tourism. The participants included Mr. Michael Ison from the Australian Aluminium Council, Mr. Christian Wagner of the International Aluminium Institute (IAI), Scientists and senior officials of CSIRO, Australia, Alcoa World Alumina, NALCO-Bhubaneswar, Manishri Refractories & Ceramics (P) Ltd, Cuttack and JNARDDC Scientists.

Finances

10.31 An internal revenue of Rs.175.01 lakhs was generated in 2008-09 which is the highest internal revenue generated by the Centre in the last 15 years.

Non-Ferrous Technology Development Centre

10.32 During 2009-10, a Registered society, the Non-Ferrous Technology Development Centre (NFTDC), Hyderabad came under the purview of the Ministry of Mines by virtue of the fact that in place of the Scientific Advisor, DRDO, Secretary (Mines) was designated as the Chairman of the Governing Body. The NFTDC is a non-grant institution and is an example of a consortium approach with the Defence Metallurgical Research Laboratory (DMRL) acting as a nodal laboratory and four leading public sector enterprises, namely, National Aluminium Co. (NALCO), Bharat Aluminium Co. (BALCO), Hindustan Zinc Ltd. (HZL) and Hindustan Copper Ltd. (HCL), functioning as industry members of the consortium. While the nodal laboratory, DMRL, provides extensive facilities and R&D support, the industry members contribute by way of corpus fund, deputation of industry personnel and, most importantly, defining the market-oriented product development. NFTDC is financially self supporting and conducts the following S&T/R&D activities:

High Heat Transfer Elements (HTEs) for Front Wall Applications (International ITER and National Fusion Programmes)

10.33 NFTDC has successfully developed advanced high strength – high conductivity alloys and also designed, developed and fabricated high heat

transfer elements for Neutral Beam Applications. Further, Cu alloy – tungsten and Cu – Graphite tiles are also being developed for diverter systems.

Nickel Aluminium Bronze (NAB) based Materials, Components and Systems

10.34 NFTDC has scaled NAB to pilot plant level and has progressed to develop a host of advanced components and systems for marine, architectural (sculpture), machinery and manufacturing sectors.

High Energy – High Velocity Plasma Systems for Advanced Materials Processing and Surface Engineering Solutions

10.35 The centre has successfully conducted many R & D projects for material layer coatings and functionally graded materials for many applications such as high pressure casting die coatings, turbine components, high velocity erosion protections etc.

CHAPTER 11
SUSTAINABLE DEVELOPMENT FRAMEWORK

11.1 The Mining sector in India has shown tremendous scope for growth keeping in view the fact that the country has sizeable potential for mineral wealth and demand from manufacturing sector continues to expand. It is however recognized that mining, unless properly regulated can have serious adverse environmental and social consequences. On one hand, mining disturbs the soil, water and ecological regimes and on the other hand, unless accompanied by proactive measures to promote inclusiveness through social, education, health and other interventions, it can lead to alienation of the local population, and assume socially unacceptable dimensions. This has necessitated fresh thinking on policy approaches and systems that ensure that Mining is done in a way that causes least damage to the natural resources such as air, water, soil, biomass, and also benefits local communities in the most appropriate way.

11.2 One of the greatest challenges facing the mining sector today is integrating economic activity with environment integrity, social concerns and effective governance systems. The goal of that integration can be seen as more sustainable development. This requires a robust framework based on an agreed set of broad principles, an understanding of the key challenges facing the sector at different levels and in different regions and the action needed to meet or overcome them; a process for responding to these challenges for protecting the rights and interest of all involved, ability to set priorities, ensure that action is taken at appropriate levels, and an integrated set of institutional and policy instruments to ensure minimum standards of compliance as well as responsible voluntary actions. It also requires variable measures to evaluate progress and enable consistent improvements.

11.3 A High Level Committee which was set up under the chairmanship of Shri Anwarul Hoda, Member, Planning Commission in the year 2005, to review the National Mineral Policy recommended that apart from introducing best practices in implementation of environment management, there was also a need to take into account the global trends in sustainable development. The High Level Committee specifically studied the impact of mineral development with the need to develop principles in mining, best practices, and reporting standards which may be measured objectively. The Committee held that some of the challenges facing the Indian mining sector to develop in a sustainable manner would be to identify the appropriate use of land within a Land Planning framework through a democratic decision making process on the basis of integrated assessment of

ecological, environmental, economical and social impact. The High Level Committee also held that mining should contribute to economic, social and cultural well-being of indigenous host population and local communities by creating stakeholder interest in mining operations for the Project affected Persons (PAP).

11.4 In their assessment the High Level Committee delved quite extensively into the Sustainable Development Framework (SDF) modelled by the International Council of Mining and Metals (ICMM)/ International Union for the Conservation of Nature and Natural Resources (IUCN). The High Level Committee recommended development of an SDF specially tailored to the Indian context. The said SDF, it was envisaged, would be composed of principles, reporting initiatives and good practice guidelines for the three sectors of Indian Mining i.e. SME, Captive and large stand alone sectors. Such a SDF would be applicable to mining operations in India, and would be monitored through a regulatory mechanism. The recommendations of High Level Committee have been accepted by the Government.

11.5 The National Mineral Policy, 2008, which gave effect to the High Level Committee recommendations recognized the fact that extraction of minerals closely impacts other natural resources like land, water, air and forest and that areas in which minerals occur often have other resources presenting a choice of utilisation of the resources. The Mineral Policy holds that it is necessary to take a comprehensive view to facilitate the choice or order of land use keeping in view the needs of development as well as needs of protecting the forests, environment and ecology. Both aspects have to be properly coordinated to facilitate and ensure a sustainable development of mineral resources in harmony with environment. In doing so the Policy lays emphasis on the need to address issues pertaining to prevention and mitigation of environmental problems like land degradation in opencast mining and land subsidence in underground mining, deforestation, atmospheric pollution, pollution of rivers and streams, soil erosion due disposal of solid wastes like overburden and so on, all affecting the ecological balance of the area. The Policy enunciates that guiding principle shall be that a miner shall leave the mining area in better ecological shape than miner found it.

11.6 The Policy stipulates that as far as possible, reclamation and afforestation will proceed concurrently with mineral extraction. The Mineral Policy recognizes the significance of Rehabilitation and Resettlement of local host populations and enunciates that apart from compensation as an important aspect of the Sustainable Development Framework, models of stakeholder interest for the local host populations in the mining operation shall be encouraged. A mechanism will be evolved which would actually improve the living standards of the affected population and ensure for them a sustainable income above the

poverty line. The Policy also lays stress on effective mine closure that not only addresses restoration of ecology and regeneration of bio mass but also takes into account the socio-economic aspects of such closure.

11.7 The existing Mining regulations i.e, the Mineral Concession Rules, 1960 and the Mineral Conservation and Development Rules, 1988, stipulate that mining operations are required to be done as per an approved Mining Plan and after extraction of minerals the mines are required to be reclaimed as per an approved Mine Closure Plan. The Mine Closure Plan is required to comprise a Progressive Mine Closure Plan prepared for the five yearly periods of the successive mining schemes and a Final Mine Closure plan. Mine Closure Plan are expected to address issues relating to environment protection including on air, water and land protection, management of top soil and overburden reclamation and rehabilitation of lands, control on ground vibration, surface subsidence and restoration of flora. These plans are approved by the Indian Bureau of Mines and, in case of 23 minerals the powers have been delegated to the State Governments.

11.8 An issue that poses a challenge to the mining Industry is that of abandoned mines. In the 14th meeting of Indian Bureau of Mines Advisory Board held at Bangalore on 22nd March 2003, on the issue of closed or abandoned Mines, the Indian Bureau of Mines was advised to prepare a National Level Inventory of disused/abandoned or orphaned mines and to evolve an action plan for their restoration in consultation with the State Governments. The Indian Bureau of Mines, accordingly, identified 297 mine sites for reclamation /rehabilitation/ restoration, and has prepared a comprehensive project proposal for a total of 106 abandoned mine sites (36 sites held earlier by PSUs and 70 sites held by private sector). The 106 mining sites were shortlisted on the basis of the fact that in these sites, there was significant alteration in landscape, unused pits and shafts, non-usability of land due to loss of soil, abandoned tailing dumps, change in ground water regime, contaminated soil, sediments, subsidence, changes in vegetation etc. Even out of these sites, since interest had been shown for reopening of mining activities in 16 mining sites (due to improved market conditions, availability of technology for beneficiation/ ore recovery etc), reclamation and rehabilitation was required only for 90 mines. As per the latest assessment, the total estimated cost of reclamation of the 90 mining sites covering an area of 428.62 ha, would work out to Rs. 64.2 crores.

11.9 In accordance with the reconstitution of the Central Geological Programming Board, a Committee (Committee no. XII on Geosience for Sustainable Development) has been constituted to facilitate integration of geoscience into policy making for environmental issues and to transmit the concepts to potential interest groups including policy makers, non-governmental

environmental agencies and general public, and to help develop a framework and methodology for promoting sustainable development strategies (including optimum land use) through best use of geoscientific data gathered in the course of survey and exploration by GSI and other geoscientific organizations in the country. The Committee will also assist nodal agencies concerned by developing new areas for geoscientific data collection, particularly spatial data such as geomorphology to help them analyse ecosystem functions and make informed planning decisions. Two meetings of the Committee No.XII (Geoscience for Sustainable Development) have been held on 12th August, 2009 and 18.1.2010 and major recommendations include:

(i) Joint study by GSI and CGWB of (i) Trace elements in Groundwater, (ii) Variation of temperature in Groundwater, (iii) Geogenic part of the minerals in the Groundwater, (iv) Offshore aquifers below the seabed, (v) and resistivity and deep seismic surveys.

(ii) use of Hyperspectral mapping of clay minerals rich in Potassium and other elements for use in agriculture on specific request in a limited area as a pilot project.

(iii) Creation of National Geological Congress proposed which is to be funded by the Government and will cater to the annual meetings.

(iv) Climate change studies etc.

11.10 The Ministry constituted a Committee under the chairmanship of Special Secretary (Mines) on 4th March, 2009 for overseeing the preparation of Sustainable Development Framework for the Indian Mining sector. The committee includes representatives of Ministry of Environment of Forest, Indian Bureau of Mines, Geological Survey of India, Federation of Indian Mineral Industries National Environment Engineering Research Institute. (NEERI). In order to prepare a draft Sustainable Development Framework, the Ministry invited bids for consultancy from known experts in the field, and after a process of evaluation has selected M/s ERM India Private Limited as the consultant for preparing the draft Sustainable Framework Development document. The effective date for the commencement of the contract for preparation of the draft Sustainable Framework Development document is 10th December 2009, and it is expected that the consultant would be able to complete the exercise of preparing a draft Sustainable Framework Development in a period of six months. The Ministry has parallely initiated consultations with Civil Rights Groups and NGOs in this matter, and invited comments of the public on its website.

11.11 As per the Terms of Reference for the consultant, the draft Sustainable Development Framework would cover the following aspects among other, with regard to all non-coal, non-fuel minerals (both major and minor minerals):

- Factors and parameters influencing sustainable and scientific mining (and indicators thereof).
- Broad criteria beyond which mining may not be deemed sufficiently sustainable and for scientifically manageable.
- Systemic measures needed to be taken or built in to increase sustainability of mining operations considering its entire life cycle inter-alia:-

  a) Ensuring minimal adverse impact on quality of life of the local communities.

  b) Protecting interests of affected persons including host populations.

  c) Create new opportunities for socio-economic development including for sustainable livelihoods.

  d) Mineral conservation (both in terms of mining technologies/practices and mineral beneficiation).

  e) Reduction in waste generation and related waste management practices.

  f) Minimizing and mitigating adverse environmental impacts particularly on surface as well as ground water (both in terms of its quality and availability as resource), air, ambient noise and land.

  g) Ensuring minimal ecological disturbance, in terms of bio-diversity, flora, fauna and habitat.

  h) Promoting restoration and reclamation activities so as to make optimal use of mined out land for the benefit of the local communities.

- Systems to devise measurable indicators of sustainable development and draft contours of Sustainable Mining Management System.
- The regulatory and other mechanisms to ensure that the systemic measures are in place and are working.
- Consultative mechanisms with stakeholder groups right from pre-mining stages (including exploration) through the life cycle and upto post closure stages to ensure that the stakeholder groups involvement and participation in identifying and addressing the sustainability issues, in developing the broad contours of the approaches to the sustainable management of all the activities including formulation of the measureable indicators and monitoring mechanisms for the purpose.

- A system of public disclosure of mining related activities and environmental parameters including indicators and mechanisms to facilitate formal and informal sustainability audits.
- Measures to ensure industry acceptance and adoption of the SDF including indicators for benchmarking the nature and extent of SDF adoption.
- Roll out mechanism for adoption of the SDF at the grassroots level including the training, publicity, conducting workshops, handholding etc and time frames for the Roll-out.

Conservation of Minerals

11.12 Minerals are finite and depleting resources. It is essential that all out effort is made to stretch out the available resources for as long as they can last. The NMP 2008 lays stress on conservation, as a concept leading to augmentation of reserve base, through better mining, beneficiation and utilization of low grade ore and rejects and recovery of associated minerals. The NMP 2008 has laid specific stress to make the regulatory environment conducive to private investment in mineral exploration, prospecting and transparency in seamless grant of mineral concessions, with security of tenure.

11.13 The statutes have provided for all aspects of conservation, which are being implemented by IBM, through study of exploration and prospecting reports submitted to IBM; inspections for mining plan approval for grant of leases, by inspection of working mines; through mineral beneficiation studies, drawal of samples from reject and waste dumps for study and also through maintenance of inventory of minerals at IBM.

11.14 The efforts mainly comprise of complete exploration for minerals, systematic mining of minerals to ensure full economic extraction of the minerals with use of available technology, use of latest beneficiation techniques to ensure optimum recovery of the value from the ores, upgradation of low grade ores and minerals if they cannot be blended and used with the high grade mineral, minimum generation of mineral rejects, proper stacking of mineral rejects for their future upgradation when technology becomes available. Review of the available technology in exploration, mining, beneficiation and metal extraction technology is undertaken from time to time, to set the threshold value of minerals for which exploration must be done and mineral inventories maintained in internationally understood formats.

Threshold Values of Minerals

11.15 During mining operations three mineral fractions are generated, these are in the decreasing order of tenor / grade or concentration viz. (i) marketable or saleable grade fraction (ii) sub grade ore (iii) mineral waste. The sub grade ores

are those mineral materials which can not be sold in a particular region, at a particular period and at that stage of technological development, but can be made saleable in the future, through advancement of beneficiation and utilization techniques.

11.16 The threshold value is a component to mineral conservation as it decides the lower limit of sub-grade ore in a mineral deposit. The threshold value of a specific mineral decides the mining waste as distinct from utilizable/marketable fraction of ore zone.

11.17 This value is of dynamic point. 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 & 18 of MCDR, 1988. Under this provision the lessee is required to stack and preserve unsaleable sub-grade ore, which are generated during mining.

11.18 During the year 1989-90 the IBM pioneered to fix up the threshold values of 13 minerals. Considering the present advancement of ore beneficiation techniques as well as changing scenario of the consumption pattern of different minerals, IBM took the lead to review and revise earlier fixed threshold value of 13 minerals, and to expand the perspective of this review by including the additional 10 minerals which are produced in bulk quantity and are of importance to the national economy. Thus total of 23 minerals, namely 1. Iron Ore (Hematite/Magnetite) 2. Manganese Ore 3.Chromite 4.Graphite 5.Bauxite 6.Limestone 7.Dolomite 8. Magnesite 9.Kyanite 10.Sillimanite 11.Apatite 12.Rock Phosphate 13.Fluorite 14.Gypsum 15.Wollastonite 16.Talc/Steatite/Soapstone 17.Barytes 18.Base metals (Cu, Pb, Zn, Ni, Sb), 19.Gold 20.Ilmenite 21.Chinaclay 22.Fireclay 23.Bentonite, were under consideration.

11.19 In exercise of the powers conferred on Controller General, IBM under Rule 54 of the Mineral Conservation and Development Rules 1988 and in consultation with State governments and with previous approval of the Central Government, in the interest of systematic development of mineral deposits and conservation of minerals, IBM has notified new the threshold values of 12 minerals vide Notification No.T-45031/CGBM/2007 (PF) dated 16.10.2009.

Conservation for Sustainable Mining

Mine closure

11.20 Mines abandoned or closed without taking necessary measures can have serious environmental and social consequences. In India, abandonment of a mine, after completion of its useful life, has always been regulated under the provisions of Rule 23 of MCDR 1988, requiring a lessee to give notice of intention to abandon operations and submit plans and section setting forth the

measures intended to be taken for protection of the abandoned mine, before surrender of lease. Since April 2003, this Rule has been strengthened to provide for preparatory works to be progressively undertaken for closure of the mine from the opening stage itself. The introduction of Rule 23A now requires the lessee to submit a **Progressive Mine Closure Plan** (PMCP) as a part of the mining plan, approved for grant of the mining lease.

The PMCP includes proposals for backfilling/reclamation/dump stabilization/afforestation etc. which are carried out simultaneously with the progressing mining operations in such a way, that the mine site is ready for rehabilitation at the time of abandonment/closure. The Rule also provides for submission of a **Final Mine Closure Plan** (FMCP) to be submitted for approval atleast one year before the ceasure of mining operations.

This was for completion of all the PMCP measures and prepare the mine for taking up and completing the final mine closure requirements, once the operations ceased. The lessee can ask for acceptance of surrender of mining lease, once closure work was completed satisfactorily and produced a certificate to that effect from the Indian Bureau of Mines, to the state government (Rule 29A,MCR 1960). To ensure that the lessee completes the work of mine closure as approved for his mine, the Rule 23F also provides for submission of a valid **Financial Assurance** in the form of an encashable bank guarantee. As on November 2009, financial bank guarantees for a value of Rs 252,6531728 have been collected and certificates under Rule 29A of MCR 1960 have been issued for 45 cases of partial/full surrender of lease. The amendment to the MMDR Act proposes to include provisions for setting up a mineral fund for improvement of local infrastructure for the socio-economic purposes, maintenance of community assets and human resource development of local populations for creating jobs.

R & D in Mineral Beneficiation

11.21 The Ore Dressing Division of Indian Bureau of Mines has been engaged in carrying out R&D studies in the field of mineral beneficiation since its inception in 1960. The Ore Dressing Division of Indian Bureau of Mines is carrying out R&D studies for development of beneficiation process flow sheet/process know-how of low grade ores and minerals in Laboratory and Pilot Plant scale to generate process data / parameters for design of commercial concentrates. The major sponsors of the investigation are Public Sector Undertakings, Central and State Governments as well as many private mining companies and consultancy firms.

11.22 Since 1960, nearly 2700 reports of investigations have been brought out by Ore Dressing Division for various types of ores and minerals, the major sponsors being Public Sector Undertakings, Central and State Governments as well as many private mining companies. IBM also carried out investigations for many foreign agencies from China, Bhutan, Senegal, South Africa etc.

11.23 On many occasions data generated through O.D. investigations by IBM have compared well with those generated at reputed foreign laboratories like Lurgi (Germany), BRGN (France), Metkem (Canada), BGRIMM (China) etc., which has increased confidence in this field, apart from achieving international credibility.

Corporate Social Responsibility for Sustainable Mining

11.24 Minerals of a region are a valuable resource and measure of the potential for economic and industrial growth. Most of the minerals are located either in tribal areas or in forest areas or both, and hence any mining associated activity would have to address issues relating to the impact on the environment and socio-economic life of the tribals. Many initiatives have been taken by the industry voluntarily as part of Corporate Social Responsibility (CSR).

11.25 Indian Mining Industry is becoming increasingly aware of its corporate responsibility towards the society. There is a considerable expectation both from the Government and the society that mining industry accepts its role in the development of socio- economic status in the rural and tribal areas. A number of mining companies have taken the responsibility by amalgamating environmental concerns and community development in their corporate policy.

11.26 The Federation of Indian Mineral Industries (FIMI), has instituted four Environment Awards, two Corporate Social Responsibility Awards and one Excellence Award which are given annually. The Ministry of Mines is represented on the committee making the recommendations for the CSR award.

Corporate Social Responsibilities of NALCO

11.27 NALCO has attempted to address the problems of rehabilitation of displaced families with adequate compensation, housing and employment to the extent feasible. Creation of infrastructure in the surrounding villages for communication, education, health care and drinking water gets priority in the periphery development plans of the Company. Community participation in innovative farming, pisciculture, social forestry and sanitation programmes apart, encouragement to sports, art, culture and literature are all a part of NALCO's involvement as a responsible corporate citizen. As a policy, NALCO has been allocating 1% of its net profit of the year for peripheral development activities of the succeeding year. Out of this allocable fund; 40% is for Damanjodi (Mines and Refinery) sector; 40% is for Angul (Smelter)sector; and 20% is for Bhubaneswar & rest of Orissa.

11.28 The CSR activities of the Company mostly cover the peripheral villages of smelter & power complex, Angul and mines & refinery complex, Damonjodi and the district head quarters of Angul and Koraput. The Govt. of Orissa has

constituted Rehabilitation and Peripheral Development Advisory Committee(RPDAC) for Damonjodi and Angul separately under the chairmanship of concerned Revenue Divisional Commissioner(RDC). The RPDAC finalizes the annual peripheral development projects and its estimates. The RPDAC also decides the projects to be executed by the District Administration and by NALCO.

11.29 During the current financial year (i.e. 2009- 10), the total allocation for CSR activities by the NALCO is Rs. 1272.27 Lakhs. Out of this, as per Company's policy, an amount of Rs. 508.91 Lakhs each for mines & refinery complex, Damanjodi and smelter & power complex, Angul has been allocated and conveyed for finalization for projects in the RPDAC meeting.

11.30 NALCO is also considering to establish a Corporate Social Responsibility Foundation for taking up various peripheral development activities over and above the activities being undertaken through RPDACs. The company has approved in principle for allocation of another 1% of its profit to be spent by this Foundation.

Corporate Social Responsibility of HCL

11.31 HCL is engaged in various CSR activities such as promotion of community development and improving health care infrastructure and increasing environmental consciousness. The Company has adopted five villages within the vicinity of project sites for undertaking CSR activities.

11.32 Initiatives undertaken by the Company are as under:

- Training Centers – Sewing and Embroidery opened to form Self Help Groups (SHG's).
- Regular Health Check-up Camps & Mobile dispensary.
- Referral Linkage for Marketing of local produce.
- Plantation Projects (Jatropha Plantation) and increasing green cover by plantation involving local people.
- Vermi-compost - Production of organic manure.
- Water Recharge Programs/Practices.

11.33 Expenditure on CSR activities during the year 2007-08, 2008-09 & 2009-10 has been Rs.1.95 lakhs, Rs.44.67 lakhs & Rs.9.95 lakhs respectively.

CHAPTER 12
WELFARE MEASURES

Welfare of Scheduled Castes (SCs), Scheduled Tribes (STs), Women and other weaker sections

12.1 The Ministry of Mines, its attached office, subordinate office and the Public Sector Undertakings under its administrative control, have always strived to fulfill Government's commitment for upliftment of weaker sections of society.

12.2 PSUs under the Ministry identify and implement a number of programmes in the peripheral areas of their units/ locations. These include community education programmes, facilitating availability of drinking water, repair and development of approach roads of surrounding areas, arranging health awareness programmes, and medical camps in rural areas for upliftment of the community in and around their townships as part of their social responsibility.

12.3 For the welfare of persons with disabilities in the Ministry, due attention was given to Section 33 of the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation), Act, 1995, which provides that every appropriate Government shall appoint in every establishment such percentage of vacancies not less than three per cent for persons or class of persons with disability, of which one per cent each shall be reserved for persons suffering from (i) blindness or low vision; (ii) hearing impairment; and (iii) locomotor disability or cerebral palsy; in the posts identified for each disability.

Redressal of Public Grievances

12.4 In pursuance of the instructions and guidelines issued on 1st March, 1988 by the Department of Administrative Reforms & Public Grievances (DAR&PG) to strengthen the internal grievance redressal machinery in each Ministry/ Department of the Central Government, the Joint Secretary of the Ministry of Mines has been designated as the nodal officer of Grievances and has been vested with authority in respect of all matters pertaining to the grievances received in the Ministry, for appropriate corrective measures.

12.5 The Ministry of Mines has, under its administrative control, one attached office, one subordinate office, three Public Sector Undertakings and three autonomous bodies. The Chief Executives of the PSUs, the Heads of the Attached/Subordinate offices and the autonomous bodies have been entrusted with the responsibility of strengthening the grievance redressal machinery by designating senior level officers to look after the job and to report directly to the respective Chief Executive/ Head. Quarterly reports about the grievances received and disposed of are submitted by these Undertakings, Attached office,

Subordinate Office and the autonomous bodies to the Ministry. During the year 2009-2010, 105 grievances in respect of GSI, IBM, MECL, NALCO and JNARDDC were received; out of which 51 cases have been disposed off.

12.6 The Department of Administrative Reforms & Public Grievances (DAR&PG) has developed the Centralised Public Grievances Redressal & Monitoring System (CPGRAMS) launched for prompt and effective redressal of grievances of citizens. The system is a single window grievance portal for the Ministries/ Departments/Organisations to record and receive the grievances online and redress them indicating actions at different levels. The portal also facilitates receiving of grievances lodged online through Internet by the citizens from any location.

The system enables the Departments/ Organisations to settle grievances online and the system eliminates/ reduces correspondence and curtails time for settling grievance. The Joint Secretary (Mines) reviews the pending cases of Public Grievances on quarterly basis. The grievance cases are also being reviewed by Secretary (Mines) in Quarterly Performance Review Meetings of these Organisations.

12.7 In order to obviate the tendency of Government employees to seek outside help for redressal of grievances relating to normal service matters, the Government issued instructions in December, 1988 for designating Staff Grievance Officers in the Central Ministries/ Departments and their attached and subordinate offices to deal effectively and adequately with the grievances relating to service matters, like fair promotion, proper medical facilities, granting timely pensionary benefits, etc. The Ministry and the attached/ subordinate offices including the PSUs under its administrative control have accordingly designated such Staff Grievance Officers.

Right to Information Act (RTI), 2005

12.8 Consequent to the enactment of the Right to Information Act, 2005, the Ministry of Mines, Attached/ Subordinate Offices and Public Sector Undertakings (PSUs) under the charge of this Ministry had appointed Central Public Information Officers (CPIO) and Appellate Authorities. The Ministry has also set up a Facilitation Counter for applicants and constituted a 'Public Information Cell' for processing of the requests and their monitoring in the Ministry. The Ministry alongwith its Attached/ Subordinate Offices and PSUs has been receiving various requests under RTI Act, which are properly and timely responded to. In 2009-2010 (1.4.2009-31.12.2009), 302 applications were received in Ministry of Mines, which were timely responded. 19 appeals were also received from the applicants against the decision of the CPIOs and 18 appeals were disposed off by the concerned Appellate Authorities within the stipulated time frame. In case of 2nd appeal before the Central Information Commission (CIC). necessary/

required comments of the Ministry were sent to CIC. The details of pending/disposal of RTI applications, appeals and second appeals are given at **Annexure 12.1, Annexure 12.2** and **Annexure 12.3**, respectively.

Table 12.1
Employment of SC/ST/Ex-SM/PWD/LDP/Minorities in the Company as on 31.12.2009

GROUP	TOTAL NO OF EMPLOYEES	SC	ST	EX-SM	PWD	LDP	MINORITY
Exectutives	1835	222	121	09	08	23	73
Non-Executives	5484	946	1181	26	62	1910	198
Trainees	165	20	08	03	03	113	05
TOTAL	7484	1188	1310	38	73	2046	276

SC-Scheduled Cast, ST-Scheduled Tribe, Ex-SM-Ex-serviceman, PWD-Person with Disability, LDP-Land displaced persons

N.B.: It may be noted that every third employee of the organization belongs to SC or ST community.

Table 12.2
The Group wise strength of female employees as on 31.12.2009 vis-a-vis the total strength of HCL is given below:-

Group	Total Strength	No. Of female Employees	% Female Employees to total strength
GROUP-A	720	32	4.44
GROUP-B	121	6	4.96
GROUP-C	3617	140	3.87
GROUP-D	895	131	14.63
Total	5353	309	5.77

Table 12.3
The employment of personnel as on 31.12.2009 in Hindustan Copper Limited is given below

Group	Manpower	SC	ST	Land Displaced Person	Minorties	OBC	Female
A	720	82	21	-	35	53	32
B	121	17	9	-	3	20	6
C	3617	597	502	203	44	30	131
D	895	179	129	205	44	30	131
Total	5353	875	661	408	323	666	309

12.9 The retired employees of the Company and their spouse are extended medical treatment at the Company's own Hospitals at the Projects. Retired / VR separated employees along with their spouse can also avail the facility of Group Medical Insurance Scheme at their option on payment of requisite premium. The benefits offered under the scheme include hospitalization coverage on all India basis for Rs.2 lakh plus reimbursement of domiciliary expenses limited to Rs.4000/- in a year for self and spouse. Company also extends support to 'Mahila Samity' and other institutions /NGOs in their endeavour to run 'Health camps' for the local population.

12.10 In the townships of the Company located at Khetri, Malanjkhand and Ghatsila as well as in other places of work, the employees of different caste, creed, religion, live together and celebrate all religious festivals with pomp and gaiety.

Implementation of the Persons with Disability Act,1985

12.11 During last few years, there has been limited recruitment in the Company.

12.12 Therefore, there was hardly any scope of fresh inductions of physically challenged persons. In addition, the mining operations of the Company being hazardous in nature, the scope of engagement of physically challenged persons is limited. The number of physically challenged persons employed in the Company as on 31.12.2009 is as under:-

Table 13.4

Group	Number of physically Challenged persons
A	2
B	0
C	34
D	21
Total	**57**

Human Resource Development

12.13 Training and Development of all levels of employees is given due priority by the Company to increase effectiveness. Special emphasis was given to organization building and shaping right attitudes, team building and work culture besides preparing employees to understand the trends in fast changing technology/switching over to latest technology for achieving higher results in production, productivity and profitability.

Redressal of Public Grievances Machinery

12.14 With a view to redress the grievance/complaints of the members of public, Complaint Officers have been appointed at Corporate Office as well as in all the Projects/ Offices of the Company who have been authorized to meet the members of the public who have any grievance/complaint. Notice to this effect has been displayed on the prominent places wherein the members of public have been requested to meet the concerned Complaint Officers with regard to their complaint/grievance. Complaint boxes have been placed at prominent places in all the units/offices of the Company where the members of public can put their complaint in writing. These boxes are opened by the Competent Officers periodically and if there are any complaint/grievance, necessary remedial action is taken. SC/ST Grievance Cells have been constituted in all the units/offices of the Company to redress the grievance of SC/ST employees as also other members of the public belonging to weaker sections of the society. Grievance/Complaints received from the women employees as also members of the public are given immediate attention with a view to redress their grievance.

12.15 All complaints so received are registered in the web-site of HCL and accordingly disposed off. These are being regularly monitored. Except two pending public grievances, which are under examination, all public grievances received during the period April to December 2009, were disposed off

12.16 A link to Public Grievances Site on Govt. of India www.pgportal.gov.in is provided in company's website www.hindustancopper.com main page as 'public grievance' in other information section at the bottom. Public grievances can be lodged through this link on main page of company's website www.hindustancopper.com.

Mineral Exploration Corporation Limited

Welfare of Tribal and Minorities

12.17 MECL gives due importance to meet the socio- economic needs of the SC & ST communities. During the year 2009-10 under its Scholarship Scheme for the employees' children, 4 scholarships (2 for executives & 2 for non-executives) has been reserved fo SC/ST communities. In addition, scholarships renewed in the year 2008-09 for SC/ST children will also be considered for renewal during 2009-10 as per rules.

Perspective Plan For Women Welfare Weaker Section

12.18 MECL endeavours for improving the socio-economic status of women and weaker section and provides training to develop new skills for their career development.

12.19 In order to avoid sexual harassment of women at work places, a Grievance Committee on 'Sexual Harassment' on women at work place has already been constituted and is functioning in the Company.

12.20 MECL gives equal status to its women employees and the Service Rules, etc. are uniformly made applicable. Various facilities are provided as per law to women employees whenever required.

Citizen Charter

12.21 Chief Manager (P&A), MECL, has been appointed as Nodal Officer under Citizen Charter.

Redressal of Public Grievance

12.22 Two public grievance cases relating to service matters were received through CPGRAM website during the period from 1-4-09 to 31-12-09 and the same were replied through letter & website.

Right to Information Act (RTI)

12.23 On enactment of Right to Information Act, 2005, MECL nominated Information Officer and Appellate Authority as per the requirement of the RTI Act, 2005. The cases are being dealt as per requirement under RTI Act.

Employment

12.24 The category wise employment position as on 31-12-2009 in the company is given below :

Table 13.5
Employment of Personel

Group	Total No. of employees	SC	ST	OBC	Minorities	Women
A	**248**	**44**	**16**	**13**	**12**	**09**
B	**38**	**06**	**01**	**02**	**05**	**01**
C	**1590**	**222**	**113**	**84**	**124**	**30**
D	**77**	**17**	**04**	**04**	**08**	**10**
Total	**1953**	**289**	**134**	**103**	**149**	**50**

Geological Survey of India

Welfare measure for SC, ST and physically handicapped.

12.25 Govt. policies formulated for welfare for SC/ST and OBC employees in a matter of recruitment and promotion are being followed. The Liaison Officers have been nominated in each Region / Wings to ensure proper compliance in matter of representation of SC/ST and OBC the details of employment of SC, ST,OBC, Woman and physically handicapped in GSI is given in **Table 13.6**.

Table 13.6
Sanctioned and Filled up Strength in GSI as on 1.1.2010.

Class	Sanctioned strength	Total No. Employees in position	SC	ST	OBC	No. of Women	PH
GROUP-A	3327	1600	218	58	95	123	01
GROUP-B	0493	244	58	25	08	34	-
GROUP-B (NG)		640	153	63	02	73	06

AND							
GROUP-C	5600	3967	795	408	202	353	34
GROUP-D	2000	2244	520	247	202	262	31
TOTAL	11420	8695	1744	801	509	845	72

12.26 Reservation for persons with disabilities as per Govt. policies are being followed in case of direct recruitment and promotion.

12.27 Grievance Officers have been nominated in Regions / Wings to deal with the public grievances.

Indian Bureau of Mines

Perspective Plan for Women welfare

12.28 Indian Bureau of Mines work on principle of equal opportunity to all and based on this, out of a total strength of employees, women employees constitute about 12.47 percent. Training is imparted to women employees in the field of technical as well as administrative matters.

12.29 Women employees are also actively participating in various cultural and extracurricular activities organized by IBM from time to time.

12.30 A Committee has already been constituted in IBM for the purpose of CCS Rules, 1964 to redress the complaints made by the victims of sexual harassment at work place in a time bound manner.

Table 13.7
Employment position in IBM as on 31.12.2009

Group	Total No. of employees in position	Numbers of				
		SC	ST	OBV	Women	Minorities
A	**151**	**38**	**15**	**07**	**12**	**10**
B(Gaz)	**155**	**20**	**13**	**02**	**07**	**06**
B (NG)	**57**	**08**	**04**	**01**	**08**	**12**

C	**535**	**108**	**45**	**29**	**26**	**93**
D	**273**	**97**	**27**	**24**	**11**	**25**
Total	**1171**	**271**	**104**	**63**	**64**	**146**

Reservation of Vacancies for persons with Disabilities

12.31 IBM is strictly following the various instructions of the Government from time to time regarding reservation of vacancies for persons with physical disabilities. As on 31.12.2009, 18 physically handicapped persons were under employment in IBM, of which 03 are visually handicapped, 01 is hearing impaired and 14 are orthopaedically handicapped.

Redressal of Public Grievances

12.32 At the beginning of the year, 01 grievance case was pending. During the year 2009-10 (upto December 2009), 06 cases were received, 05 cases were disposed off and 01 cases were under process. Online facility for Registration for Public Grievances has already been provided by linking IBM website with the Grievance Portal of DoPT "Central PGRAMS".

Vigilance Cases

12.33 During the year 2009-10 (upto December, 2009), 56 complaints were received. After examination, 9 complaints were brought to their logical conclusion and 47 complaints are still under investigation. Vigilance Awareness Week was observed from 3-7 November, 2009 in the Ministry and also in PSUs and Subordinate Offices of Ministry of Mines. During the Week, Essay Competition related to vigilance activities was conducted in the Ministry.

Right to Information Act, 2005

12.49 Consequent to the enactment of the Right to Information Act, 2005, IBM has been receiving various requests under RTI Act which are timely responded. During the year 2009-10 (upto December 2009), 123 applications were received and disposed off within the stipulated time frame. Out of this, 31 applications for information were rejected. Similarly, in 25 first appeals, orders were issued in all the cases within the stipulated time.

CHAPTER 13
PROGRESSIVE USE OF HINDI

Introduction

13.1 The Hindi section functioning in the Ministry of Mines is responsible for ensuring compliance of the Official Languages Act, the rules made thereunder and the administrative instructions regarding use of Hindi in the Ministry of Mines and in the Attached / Subordinate office and PSU' s under its administrative control.

Compliance of Section 3(3) of Official Languages (OL) Act, 1963

13.2 Section 3(3) of Official Languages Act, 1963 has been complied with fully during the period under report and all the documents covered under this section have been issued bilingually. The position of the same is being monitored through the quarterly meetings of the Official Language Implementation Committee chaired by Joint Secretary.

Hindi Training

13.3 Under Hindi Teaching Scheme of Ministry of Home Affairs, Deptt. of Official Language, the officers/employees of Ministry of Mines are nominated for training in Hindi Language (Prabodh, Praveen & Pragya), Hindi stenography and Hindi typing. One employee has been nominated under Hindi Teaching Scheme.

Hindi Salahakar Samiti

13.4 Hindi Salahakar Samiti is a high powered Committee which reviews the progress of Hindi in the Ministry and in the Attached / Subordinate Office/ PSUs under its administrative control. It also recommends effective measures to increase the use of Hindi and for removing the difficulties faced in ensuring the compliance of Official Language Policy. Hindi Salahkar Samiti is being reconstituted.

Meetings of Official Language Implementation Committee

13.5 The Official Language Implementation Committee has been constituted in the Ministry headed by the Joint Secretary. All Officers of the rank of Section Officer and above up to the rank of Director are members of the Committee. The Quarterly Hindi Progress Reports received from the Sections of the Ministry are reviewed in the meetings of the Committee and remedial measures are suggested to remove the shortcomings. The quarterly meetings of the Committee are held regularly.

Official Language Inspection

13.6 In order to assess the progress made in the use of Hindi in Attached / subordinate office / public sector undertakings under the administrative control of the Ministry of Mines, JS(M&R) who is head of Official Language Implementation Committee inspected office of GSI Bhopal, DS(M) inspected office of IBM Dehradoon & AD(OL) inspected HCL, Kolkata, Nalco Bhuneshwar and Angul. The shortcomings detected during the course of inspection were brought to the notice of the concerned offices and measures for overcoming the shortcomings were also suggested.

Offices notified during the year who have acquired working knowledge of Hindi

13.7 Following offices were notified in pursuance of Sub-rule (4) of rule 10 of the official Language (Use for official purpose of the Union)Rules, 1976, whereof more than 80% staff have acquired the working knowledge of Hindi :

- Indian Bureau of Mines, Ore Dressing Laboratory, Ajmer.
- GSI, Operation Maharashtra (East), Nagpur.
- GSI, Operation Sikkim Unit, Gangtok.
- GSI, Operation Arunachal Pradesh, North East Region, Itanagar
- GSI, Tripura-Mizoram Division, Agartala
- GSI, Airborne Mineral Survey and Exploration Wing, Nagpur
- GSI Airborne Mineral Survey and Exploration Wing, Jaipur

Hindi Translation of website of the Ministry

13.8 The website of the Ministry serves as a vital link with the masses. Hence, during the year, the website was translated into Hindi and now it is available in bilingual form. The task involved translation of voluminous material pertaining to the working of the ministry, Right to information act, National mineral policy, information about the indian mineral sectors, latest status of the Revision Petitions, online status of PL/ML and public Grievances cases.

Measures for Implementation of Official Language Policy

13.9 It is the policy of the Government to propagate the use of Hindi through inspiration and incentive. In order to inspire and encourage the officers/employees of the Ministry to do their work in Hindi, various Cash Award Schemes of the Department of Official Language such as Hindi Noting and Drafting Scheme, Hindi Dictation Scheme and Hindi Typing/stenography incentive allowance Scheme have been implemented.

Inspection of Parliamentary Committee of Official Language

13.10 The third sub-committee of Parliamentary Committee of Official Languages inspected Gelogical Survery of India,Camp Office, New Delhi on 20 January,2010.

Hindi Workshops

13.11 In order to encourage officials/employees to perform their official work in Hindi, Hindi workshops are organized at regular intervals.

Hindi Fortnight

13.12 With a view to create a conducive atmosphere for the progressive use of Hindi in the Ministry, every year on occasion of Hindi Divas, Hindi fortnight is organized. This year Hindi fortnight was observed from 14-28 Sept., 2009. Various Hindi competitions i.e. Hindi essay writing competition, Hindi Noting-Drafting competition, Hindi translation, Hindi Sulekh and dictation and Quiz competition, were held during Hindi fortnight. In all seven competitions were held. The winners of the competitions were given cash award and certificate by Joint Secretary (M) on 16.11.2009.

Publication of 'Khan Sampada'

13.13 Ministry of Mines has been publishing its quarterly house journal 'Khan Sampada' since 1998. Articles pertaining to technical subjects, propagation of Hindi and literary topics are published in the said journal.

Translation Work

13.14 During the period all translation work and Hindi typing work relating to Standing Committee, CAG audit paras, Cabinet Note, Minister's speech, citizen charter of the ministry and M.O.U for International Cooperation in the field of mines & mineral with various countries was attended to with full efficiency and dedication. Besides these, the Hindi translation and typing work of day-to-day material received from the various Sections of the Ministry, Parliament Questions and other important material received during Parliament Session were also attended to.

Geological Survey of India

13.15 The Geological Survey of India occupies a prestigious position amongst the Geological Surveys of the world. This is a premier scientific and technical organization of the country. In this organization the scientific and drilling work relating to all geological streams specifically is carried out. In spite of being a scientific and technical organization all out efforts are being made to do the scientific, technical and administrative work in Hindi to the maximum with a view

to implement the official language policy of the Government in this organization. The following are the main achievements of Geological Survey of India while promoting and encouraging Hindi as an official language.

Printing of Annual Programme (Red book-2009) in Hindi & English.

13.16 An annual programme is issued every year by this organization on the basis of which the scientific and technical activities of the organization are conducted. The regional offices prepare this programme after discussion with the Department of National Geology & Mining Department as well many central organizations. The Central Geological Programming Board finalizes them after necessary deliberation. All these proposals submitted by the regional offices were printed as **Annual Programme (Red book, 2009)** in Hindi and English.

Publication of scientific books & Hindi Magazines

13.17 The Geological Survey of India has been bringing out the scientific and technical books in Hindi from time to time since last several years to make common people aware of its scientific and technical activities. The Central Region, Nagpur has prepared the Hindi version of an English book titled '**Geology & Mineral Resources of Maharashtra**" in a book form during the year 2009. The Operation U.P.& Uttrakhand (Uttrakhand Unit) of Northern Region brought out one Scientific Project Report in Hindi titled **"Uttrakhand Rajya Ki Nadi Ghati Priyojnaon mein Bhartiya Bhuvaiganik Sarvekshan ka Yogdan"** in November, 2009. The Operation Uttar Pradesh &Uttrakhand has prepared the Hindi version of **"Geology & Mineral Resources of the States of India, Miscellaneous Publication No.30"** which is under printing. The abstracts of Technical Investigation reports in Hindi were also brought out by the Operation Bihar & Jharkhand, Patna, during the year 2009. The latest issues of **Narmada, Chetna,** and **Dhauli**, the Hindi in-house magazines of Central Region, Training Institute, and Operation Orissa respectively were also brought out. Besides this the Central Headquarters also started to bring out an in-house Hindi magazine '**Bhoomanthan**' with its first issue in September, 2009.

Translation work

13.18 The following English scientific material was got translated into Hindi by the Central Headquarter and subordinate offices:-

(1) Vision of Geological Survey of India

(2) Annual Plan 2009-10 of Geological Survey of India

(3) Material for Annual Report of Ministry of Mines (Chapter-8)

(4) Compilation of Abstracts of Scientific Reports in Hindi by the Remote Sensing & Aerial Surveys, Western Zone, Jaipur.

Implementation of Hindi Incentive Schemes

13.19 The Hindi Incentive Scheme of Government of India for doing their official work originally in Hindi by the officers and staff has been implemented in the Central Headquarter as well as in the subordinate offices. Forty officers and staff were awarded under this scheme in the year 2009. Eight Lower Division Clerks/Stenographers were also sanctioned Hindi Incentive Allowances for doing Hindi typing work in addition to the English Typing work. Similarly three scientific officers of the organisation were paid Rs.5135/-, Rs.3845/- and Rs.2564/- respectively as honorarium for doing scientific & technical translation work in Hindi. In addition to this five employees were also sanctioned a special honorarium @ Rs.1200/- each for translation of scientific reports from English to Hindi. No doubt such incentives will motivate the other officers also for doing their official work in Hindi.

Inspection of Subordinate Offices.

13.20 In order to assess the progress made in use of Hindi in the subordinate offices of the Geological Survey of India, the Dy. Director (Official Language) inspected the four subordinate offices which include Operation Jammu & Kashmir at Jammu, Operation U.P.& Uttrakhand (Unit Office), Dehradoon and Operation Punjab, Haryana & Himachal Pradesh, Chandigarh under Northern Region and Operation Andhra Pradesh, Hyderabad . The necessary inspection reports were sent to the above offices for necessary action.

Hindi workshops

13.21 As per directives of the Department of Official Language a special Hindi workshop was organized exclusively for all Heads of Departments, Rajbhasa Officers, Hindi Officers and Translators on 5th March, 2009 in Central Headquarter, Kolkata. The participants were apprised of the various provisions of Official Language Act, Official Language Rules and important orders on Official Language. The Southern Region, Hyderabad arranged a three days Regional level Hindi workshop in June, 2009 specially for the Ministerial employees working in Southern Regional Office, Operation Tamilnadu, Kerala & Pondichery, Chennai, Operation Karnataka & Goa, Bangalore and Kerala Unit, Thiruvannathapuram. In addition to this Hindi workshops were also organised at Regional Offices & Operational Units at Lucknow, Jammu, Faridabad, Dehradoon, Delhi, Bangalore, Itanagar, Nagpur and Jaipur and Training Institute, Hyderabad. More than 450 officers and staff were imparted training for writing noting and drafting in Hindi. A special training course of Unicode Hindi software was organised in June, 2009 at the level of Remote Sensing & Aerial Survey Office, Bangalore. The staff and officers working in Operation Karnataka & Goa Office, Bangalore also participated in this training course.

Hindi Fortnight

13.22 With a view to awaken the staff and officers to do their official work in Hindi and increase the progressive use of the official language in the organization a Hindi Fortnight was celebrated by the Geological Survey of India, CHQ and its subordinate offices from 14th to 29th September, 2009. During this period various competitions i.e. Hindi Essay competition, Hindi Noting & Drafting competition, Hindi debate, Hindi typing competition and Administrative terminology competition were organized.

The Central Headquarter, Kolkata, Central Regional Office, Nagpur and Operation Arunachal Pradesh Office, Itanagar have also been entrusted with the chairman-ship of Town Official Language Implementation Committee. The Geological Survey of India, Central Headquarter, Kolkata arranged four Inter Departmental Hindi Competitions on 22nd/23rd/28th October & 03rd November, 2009. The competitors from twenty six Central offices including Geological Survey of India located at Kolkata actively participated in these competitors. The Central Regional Office, Nagpur also brought out a Hindi in-house magazine 'Rajbhasa Darpan' at the level of Nagpur Town Official Implementation Committee in the year 2009. The Central Regional Office and Operation Arunachal Pradesh Office organised several Hindi programmes actively at the level of Town Official Language Implementation Committee. Besides this the above offices also organised two successful half yearly meetings of the Town Official Language Implementation Committees of the respective towns.

Review of Quarterly Progress Reports.

13.23 There are six regional offices, three Wing Headquarters, one Training Institute and one Liaison Office at New Delhi directly under the administrative control of the Central Headquarter. The quarterly progress reports of these offices were reviewed at the level of Central Headquarter. The discrepancies found in the quarterly progress reports during review were brought to the notice of all the above offices. A copy of each of the review report was also endorsed to the Ministry for information.

Indian Bureau of Mines

13.24 Hindi Fortnight was observed at Head Quarters and at all regional offices of IBM during 01-14 September 2009. Messages received from Honb'le Home Minister and Minister of Mines, Government of India were read out in a function organized to observe Hindi Day on 14 September 2009. During the fortnight, various competitions were conducted to encourage the implementation of Official Language and prizes were distributed to the winners.

13.25 Fifteen officials of IBM attended Pragya Classes held under the Hindi Teaching Scheme from 19/01/2009 at IBM Headquarters. Besides, 15 Stenographers are undergoing Hindi stenography training for one year since 9/02/2009, and 04 Lower Division Clerks are undergoing Hindi typing training since August 2009.

13.26 A two-day Hindi Workshop was organized at IBM Headquarters on 24-25 November 2009, in which 12 administrative staff participated.

13.27 Two quarterly meetings of the Departmental Official Language Implementation Committee were held under the chairmanship of Shri C.S. Gundewar, Controller General, IBM on 21/07/2009 and 02/09/2009 and the shortcomings detected during the meetings were brought to the notice of concerned Division/ Office for rectification.

13.28 Shri R.K. Sinha, Controller of Mines & Rajabhasha Adhikari inspected South Zonal / Regional Office and Regional Ore Dressing Laboratory, Banglore on 26/09/2009 and Regional Office, Bhubaneswar on 20/11/2009 and reviewed the progress of implementation of Hindi in these offices.

National Aluminium Company Limited

13.29 As per the Official Language Act-1963 and Official Language Rules-1976, the implementation of Hindi is being done in NALCO. All the papers coming under Section 3(3) of Official Language Act, 618 papers were issued in Hindi and English. 572 letters were received from 'A', 'B', 'C' region in Hindi and 478 answers were sent in Hindi only. From NALCO, 11052 letters were issued in Hindi to different regions of the country. Under Hindi Teaching Scheme, 47 employees have passed Pragya examination and they have been awarded incentive and cash award. Twelve meetings of Official Language Implementation Committee of NALCO corporate office, Bhubaneswar, NALCO smelter & power complex, Angul and NALCO mines & refinery complex, Damanjodi were held during the year. Six Hindi workshops were organized and 170 employees were trained in Hindi. For purchase of Hindi books Rs. 16,193/- has been spent. During month of September, 2009 Hindi Week and Hindi Day were observed and many competitions were organized among employees and students. The meeting of the Town Official Language Implementation Committee of Angul was held at Angul sector. Hindi language software was loaded in office computers for day-to-day official work in Hindi.