REPORT OF
THE WORKING GROUP ON
MINERAL
EXPLORATION AND DEVELOPMENT
(Other than Coal and Lignite)

FOR
THE TWELFTH FIVE YEAR PLAN

FISCAL MEASURES,
INFRASTRUCTURE DEVELOPMENT
AND ENVIRONMENT

Vol. IV

GOVERNMENT OF INDIA
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1. Sub Group I - Mineral Exploration, Technological Gaps in Exploration
2. Sub Group II - Strategy and Growth of Indian Mining Industry
3. Sub Group III - Fiscal Measures, Infrastructure Development & Environment
4. Sub Group IV - Modernization, Automation and Human Resources Development in Mineral Sector

Accordingly, Office Order vide file No. 10(59)/2010-M.5 dated 30.3.2011 was issued by the Ministry of Mines. In this order the composition and terms of reference of Sub Group III on Fiscal Measures, Infrastructure Development & Environment was formulated and the Sub Group III was constituted under the Chairmanship of Smt. Anjali Anand Srivastava, Joint Secretary & Financial Adviser, Ministry of Mines, New Delhi and Dr. Chandramani Sharma, Director, Ministry of Mines as its Member Secretary. The composition of this Sub Group III together with 7 terms of reference, are given under Annexure-I.

The first meeting of the Sub Group III on Fiscal Measures, Infrastructure Development & Environment was held on 27.4.2011 in the Aluminium Hall of the Ministry of Mine at Shastri Bhawan, New Delhi, which was chaired by Smt. Anjali Anand Srivastava, Joint Secretary & Financial Adviser, Ministry of Mines. It was decided to constitute 4 Core Groups of experts to prepare the draft chapters as per the terms of reference. A copy of the minutes is placed as Annexure-II. Apart from the composition of the Sub Group III, it was decided in the meeting that some of the ministries/organizations need to be co-opted into the Sub Group III for adequate deliberation of output. The following ministries and organizations were co-opted into the Sub-Group III.

1. Ministry of Road, Transport and Highways, New Delhi, GoI
Thus, following Core Groups were constituted to meet among themselves to complete the exercise in a time bound manner. Further, Sub Group empowered the Conveners of the four Core Groups to co-opt any Members with adequate expertise from the relevant field, if need be.

Core Group I: FISCAL MEASURES

1. Shri R.N. Meshram, Chief Mineral Economist, IBM, MOM, (Convenor & Coordinator)
2. Joint Secretary, (Custom & Excise), Department of Revenue, M/O Finance, GOI.
3. Representative from FIMI
4. Representative from SBI Capital (Shri Mukul Modi)
5. Kotak Mahindra, (Shri Manish Makharia)
6. Representative from UBS Securities India Pvt. Ltd.
7. Representative from Barclays
8. Secretary General ASSOCHAM/ representative

Core Group II: INFRASTRUCTURE DEVELOPMENT

1. Dr. Chandramani Sharma, Director, MOM- (Convenor & Coordinator)
2. Executive Director (Planning), M/o Railways, New Delhi
3. Joint Secretary (Ports), Ministry of Shipping, New Delhi
4. Dy. Adviser (Minerals), Planning Commission, (Shri R.B. Tyagi)
5. Representative from Ministry of Road, Transport and Highways, GoI
6. Representative from HINDALCO, (Shri U. Kumar)
7. Representative from MSPL
8. Representative from Vedanta

Core Group III: ISSUES CONCERNING ENVIRONEMT, SUSTAINABILITY AND FOREST

1. Shri A.K. Bhandari, Advisor (C-TEMPO)- (Convenor & Coordinator)
2. Director, Ministry of Environment & Forests, New Delhi
3. Dr. Chandramani Sharma, Director, MoM,
4. Dy. Adviser (Minerals), Planning Commission, (Shri R.B. Tyagi)
In order to review the progress of drafting of Sub Group III Report, Chairperson of the Sub Group III took three meeting viz. on 8.6.2011, 22.6.2011 and 18.7.2011 with the Conveners of the Core Groups of Sub Group III and reviewed the progress of drafting of chapters.

In this report as per the terms of reference, present investment, taxation and trade policies have been addressed and issue of inverted duty structure for gold in MIC have been dealt. Different incentives for beneficiation of low grade ores, private sector to set up R&D facilities for developing exploration related technologies, pellitisation for iron ore and recycling etc. have been addressed. On the issue of infrastructure development for mining, requirement of infrastructure for mineral sector has been identified and Government initiative for infrastructure development in the mining sector has been mentioned. The issue of environment, forest, reclamation and rehabilitation including Corporate Social Responsibility (CSR) as per the terms of reference of the Sub Group has been discussed.

Based on the present studies and experience gained from the 11th Five Year Plan documentation, certain strategic recommendations have been formulated and spelt out at the end of each chapter and also separately put as a consolidation as ‘Suggestions and Recommendation’ before chapterisation. These have been recommended to facilitate formulation of plan and policies of Government of India for mineral development. The deliberations, suggestions and recommendations which have gone into this report will provide an outline and direction for the
various agencies to draw up programs to meet the requirements of the 12th Five Year mainly in Indian mineral sector.

All the members of the Sub Group, resource persons and members of the Core Groups deserve thanks and gratitude for their painstaking efforts to formulate suggestions and recommendations for this report within a very strict time frame.

(Dr. Chandramani Sharma)  
Director  
Ministry of Mines  
Member Secretary Sub Group III

(Smt. Anjali Anand Srivastava)  
Joint Secretary & Financial Adviser  
Ministry of Mines  
Chairperson Sub Group III
EXECUTIVE SUMMARY


This report has been prepared by the Sub Group III taking into consideration the terms of reference of the Sub Group. The scheme of chapterisation of the Sub Group III report is as under;

Chapter 1: FISCAL MEASURES

In this Chapter the issue of present investment, taxation and trade policies has been addressed. Mineral exploration which is a high risk venture has also been discussed. Review of investment in mining and exploration has also been brought out in this chapter. Global Practices in Taxation for Mining Sector also form part of this chapter. Access to capital in the global context stating Australian and Canada (Flow through shares) and institutional finance mechanism of New Africa Mining Fund of African Development Bank are discussed in the Chapter. Tax incentives available in different countries for mining sector and incentives available for mining industry in India have been highlighted. Structural changes needed in Indian mineral sector and suggestions for encouraging investment in exploration and mining form the part of the chapter. Fiscal reforms/rationalization required in Indian mineral sector and incentives needed for the Indian Mineral sector form the corner stone of the chapter where the issue of inverted duty structure for gold in MIC have been dealt. Different incentives for beneficiation of low grade ores, private sector to set up R&D facilities for developing exploration related technologies, pellitisation for iron ore and recycling etc. have been addressed. The chapter ended with few recommendations required in the sector during the XIIth Five Year Plan and in the perspective of 10-15 years thereafter.
Chapter 2: INFRASTRUCTURE DEVELOPMENT

In this Chapter the issue of infrastructure development for mining, requirement of infrastructure for mineral sector ore-wise and region-wise has been identified. The initiative taken by different department/ ministries of Government of India for infrastructure development in the mining sector has been mentioned. Public Private Partnership (PPP) in all the three major infrastructure sector namely, rail, road and ports have been highlighted. The Chapter has some general recommendations and some sector specific recommendations required in the sector during the XIIth Five Year Plan and in the perspective of 10-15 years thereafter.

Chapter 3: ENVIRONMENT, FOREST, RECLAMATION & REHABILITATION ISSUES

The issue of environment, forest, reclamation and rehabilitation including Corporate Social Responsibility (CSR) as per the terms of reference of the Sub Group has been discussed. Further, the Chapter is subdivided into 5 more Sub-Chapter as 3.1, 3.2, 3.3, 3.4 and 3.4 as under.

Chapter 3.1: PROBLEMS & CONTRAINTS IN EXPLORATION & EXPLOITATION OF MINERAL RESOURCES IN TRIBAL FOREST AREAS AND TO SUGGEST MEASURES IN HARMONISING MINERAL DEVELOPMENT WITH ENVIRONMENT AND FOREST REGULATION

The Sustainable Development Framework for mining sector and the principles spelt out in the draft SDF document prepared by the Consultant appointed by the Ministry of Mines for adaptation in Indian including likely outcome of SDF for mining sector form the part of the chapter. The constraints and problems encountered in exploration and exploitations of mineral resources in tribal and forest areas have been identified. And possible suggested measures to harmonise mineral development with environment and forest regulation and promote inclusive growth and safeguard the interest of tribals in the areas have been pointed out.
Chapter 3.2: COMPREHENSIVE FRAMEWORK FOR THE MOST SUSTAINABLE USE OF THE COUNTRY’S MINERAL RESOURCES FOR NATIONAL DEVELOPMENT KEEPING IN VIEW OF THE INTEREST OF VARIOUS STAKEHOLDERS

In this chapter for most sustainable use of country’s mineral resources for national development keeping in view the interests of various stakeholders, the technological upgradation has been identified. IBM as regulator within SDF and capacity creation at State and District level and suggestions to formulate comprehensive framework for sustainable use of the mineral resources have been depicted.

Chapter 3.3: RECLAMATION & REHABILITATION NEEDED FOR ABANDONED OR CLOSED MINES

This chapter discusses the key issues of Indian mining sectors, present statues and policies on reclamation and rehabilitation needed for the abandoned and closed mines. Present status of abandoned mines, measures and strategy for Reclamation and Rehabilitation of abandoned mines. The chapter ended with some conclusions and recommendations.

Chapter 3.4: SOCIO-ECONOMIC IMPACT OF MINING ON THE LIFE OF LOCAL INHABITANTS AND TO SUGGEST WAYS AND MEANS FOR IMPROVING THEIR LIVING STANDARD

In this chapter, socio-economic impact of mining on the life of local inhabitants have been addressed. In this context, the specific provisions of in scheduled areas and issues which need policy level clarification have been brought out. Institutional mechanism and funding have been pointed out. The chapter also carries some conclusions and recommendations.

Chapter 3.5: CSR INITIATIVES AND SUGGEST WAYS TO IMPROVE CORPORATE IMAGE IN THE MINING SECTOR
The chapter highlighting the importance of Corporate Social Responsibility (CSR) stated that corporate social responsibility should not be construed as charity but the purpose of business should be understood for the community where it operates. Apart from describing the need for policy and planning at corporate/intuitional level for CSR, the chapter talked about expenditure about CSR activities. In this context, it has been proposed in the chapter that each lessee should contribute at least Rs.5/- per ton for products dispatched for CSR activities outside the lease area for communities nearby. It is also further proposed that Lessees of smaller production in other States of India can take inspiration from Mineral Foundation of Goa (MFG) in this regard. Further, the chapter described about the CSR Programme as part of SDF Mining Plan for which Accreditation Agencies to Prepare SDF. Institutional development and regulatory enforcement and strategy to build image of mining industry has been pointed out. Finally, the chapter ended with some conclusions and recommendations.

As pointed out above, recommendations have been formulated and spelt out at the end of each chapter and they are also separately put as a consolidation as ‘Suggestions and Recommendation’ before chapterisation. These have been recommended to facilitate formulation of plan and policies of Government of India for mineral development. The impact feasibility analysis has also been done for the suggestions and recommendations. Also, implementation agenda for each recommendation has also been part of the report. The deliberations, suggestions and recommendations which have gone into this report will provide a valuable outline and direction for the various agencies to draw up programs to meet the requirements of the 12th Five Year mainly in Indian mineral sector.
# IMPLEMENTATION SCHEDULE

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Recom. No.</th>
<th>Activities involved/ Existing status</th>
<th>Implementing Agency</th>
<th>Time period</th>
<th>Fund requirements (Rs. Cr.)</th>
<th>Scheme</th>
<th>Impact Feasibility Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.12.1</td>
<td>All expenditure incurred prior to commercial production should be eligible for amortization over the minimum mining lease period of 20 years or a lesser period at the option of the lessee</td>
<td>M/o Finance</td>
<td>1 yr.</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>2</td>
<td>1.12.2</td>
<td>For reclamation, the mining companies may be allowed to earmark a percentage of book profits each year to meet rehabilitation cost as per an approved Mine Closure Plan and set it aside as a special reserve in their books. Mine closure expenditure should be considered for tax benefits.</td>
<td>NA</td>
<td>1 yr.</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>3</td>
<td>1.12.3</td>
<td>A concept of Competent Person to certify the mineral resources as per UNFC system may be introduced so that investor is confident of getting returns and at the same time requirement of Stock Exchanges are adhered to as in the case of Toronto Stock Exchange</td>
<td>SEBI/Stock Exchanges to bring a Policy Framework</td>
<td>2 yr.</td>
<td>NA</td>
<td>NA</td>
<td>HFHI</td>
</tr>
<tr>
<td>4</td>
<td>1.12.4</td>
<td>Flow though shares in mining sector</td>
<td>Mechanism to be created by SEBI/ Stock Exchange</td>
<td>2 yrs</td>
<td>NA</td>
<td>NA</td>
<td>HFHI</td>
</tr>
<tr>
<td>5</td>
<td>1.12.5</td>
<td>Exploration bonds in the lines of Infrastructure bonds</td>
<td>Mechanism to be created by SEBI/ Stock Exchange</td>
<td>2 yrs</td>
<td>NA</td>
<td>NA</td>
<td>HFHI</td>
</tr>
<tr>
<td>6</td>
<td>1.12.6</td>
<td>Inverted duty structure for gold in copper concentrates needs to be corrected</td>
<td>M/o Finance</td>
<td>1 yr.</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>7</td>
<td>1.12.7</td>
<td>The excise duty on beneficiated low grade ores should be dispensed with in the interest of promoting and incentivizing</td>
<td>M/o Finance</td>
<td>1 yr.</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
</tbody>
</table>

**Chapter 1: Investment, taxation, trade policies of Mining sector**
beneficiation.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Promotion of creation of private R &amp; D facilitates in mineral based R&amp;D processes incentives in the form of exemption in income tax/service tax.</th>
<th>M/o Finance</th>
<th>2 yr.</th>
<th>NA</th>
<th>NA</th>
<th>LFHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>1.12.9</td>
<td>Iron ore pelletisation industry needs incentives in the form of tax holidays.</td>
<td>M/o Finance</td>
<td>2 yr.</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>10</td>
<td>1.12.10</td>
<td>Since extraction and recycling, of metal is costly, incentives in the form of tax holidays may be considered.</td>
<td>M/o Finance</td>
<td>2 yr.</td>
<td>NA</td>
<td>NA</td>
<td>LFLI</td>
</tr>
<tr>
<td>11</td>
<td>1.12.11</td>
<td>Creation of Techno-Economic Cell in the Ministry of Mines.</td>
<td>Ministry of Mines</td>
<td>During 12th Five Year Plan</td>
<td>Rs. 10 crore With 10 officers/staff to be headed by a Joint Secretary</td>
<td>Tech no-econo mic Polic y Studi es (New)</td>
<td>LFHI</td>
</tr>
</tbody>
</table>

**Chapter II: Infrastructure Development**

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<tr>
<th></th>
<th></th>
<th>Allocation of fund by State Governments of certain amount of their royalty collection for infrastructure development.</th>
<th>State Governments</th>
<th>During XIIth Five Year Plan period</th>
<th>NA</th>
<th>NA</th>
<th>HFHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>2.4.1</td>
<td>Mineral Development Fund should be set up in each major mining State by earmarking 15% of annual royalty</td>
<td>State Governments</td>
<td>During XIIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>HFHI</td>
</tr>
<tr>
<td>13</td>
<td>2.4.2</td>
<td>Enlarge the scope of Mineral Development Corporation (MDC) and State Industrial Development and Investment Corporations (SIDIC) in major mining States.</td>
<td>Existing institutional mechanism to be enlarged by the State Governments</td>
<td>During XIIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>14</td>
<td>2.4.3</td>
<td>Funding of mining infrastructure by MDC and SIDIC</td>
<td>M/o Finance or Mineral Development Fund</td>
<td>During XIIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cluster concept to finance mine-linking infrastructure by mine owners</td>
<td>Mine owners</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
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<td>16</td>
<td>2.4.5</td>
<td>National Highways and the port projects within the existing schemes. The Government of India should encourage more and more projects in Public Private Partnership (PPP) mode in all the above three sectors of infrastructure.</td>
<td>M/o Railway, M/o Road Transport and Highways and M/o of Shipping</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>HFHI</td>
</tr>
<tr>
<td>17</td>
<td>2.4.6</td>
<td>Procedural delay in giving approval of railway projects on PPP may be reduced.</td>
<td>M/o Railway</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>18</td>
<td>2.4.7</td>
<td>The siding policy of railway needs to be liberalized. Expedition of new sidings which can result in increase in iron ore volumes.</td>
<td>M/o Railway</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>19</td>
<td>2.4.8</td>
<td>The capital cost of water and power projects for the SME sector may have to be borne by the State Government through grant from Mineral Development Fund. Alternatively, the Rural Water Supply Scheme of the Central Government could be extended to the mining areas and State Government to make electricity available to the mine sites for SME sector.</td>
<td>M/o Water Resources, M/o Power, State Governments</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>20</td>
<td>2.4.9</td>
<td>Strengthen of power grid in mining belts</td>
<td>M/o Power</td>
<td>During XIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New railway lines in eastern sector as well as Karnataka connecting mine areas to ports to be undertaken to support exports.</td>
<td></td>
<td>M/o Railway During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
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<td>23</td>
<td>2.4.12</td>
<td>Development of dedicated freight corridors for transport of iron ore by railways from the mine-heads to various ports needs to be promoted along with private promoters.</td>
<td></td>
<td>M/o Railway During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>24</td>
<td>2.4.13</td>
<td>Ports should develop additional triplers to augment their receiving capacities.</td>
<td></td>
<td>M/o Shipping During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>25</td>
<td>2.4.14</td>
<td>Additional Stockyards capacity at ports needs to be installed.</td>
<td></td>
<td>M/o Shipping During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>26</td>
<td>2.4.15</td>
<td>The options of floating terminal should be examined and implemented.</td>
<td></td>
<td>M/o Shipping During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>NA</td>
<td>HFLI</td>
</tr>
<tr>
<td>27</td>
<td>2.4.16</td>
<td>New Ports coming up at Gopalpur and Dhamra by consortium of TATA Steel and L&amp;T and another port coming at Ennore should be expedited.</td>
<td></td>
<td>M/o Shipping During XIIth Five Year Plan</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
<tr>
<td>No.</td>
<td>Date</td>
<td>Text</td>
<td>Ministry/Department</td>
<td>Time Frame</td>
<td>Status</td>
<td>Code</td>
<td></td>
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</tr>
<tr>
<td>28</td>
<td>2.4.17</td>
<td>Rolling Stock as during high demand rake availability becomes an issue.</td>
<td>M/o Railway</td>
<td>During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>HFHI</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>2.4.18</td>
<td>Apart from track and signaling improvements, rail freight to be rationalized to retain competitive edge of mineral based industry.</td>
<td>M/o Railway</td>
<td>1 yr.</td>
<td>NA</td>
<td>LFHI</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>2.4.19.1.1</td>
<td>As the iron ore from Bellary-Hospet sector moves to ports namely Chennai, Krishnapatnam, Goa, Karwar, Belekeri and New Mangalore, it is necessary to strengthen and improve railway carrying capacities to all these ports. This can be achieved by doubling of tracks, electrification of routes wherever necessary in addition to ensuring timely availability of wagons and the wagon tippling facility.</td>
<td>M/o Railway</td>
<td>During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>HFHI</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>2.4.19.1.2</td>
<td>In Bellary-Hospet sector, it is recommended that the new port at Ennore which is being developed; efforts be made for speedy development of iron ore berth, mechanical ore loading facility, adequate capacity of stockpile and dredging to accommodate large cape size vessels. The private sector port at Krishnapatnam in Andhra Pradesh and iron ore handling facilities at New Mangalore port on the West Coast should be gradually improved to load additional iron ore expected to move to this port from Bellary-Hospet and other regions in Karnataka</td>
<td>M/o Shipping</td>
<td>During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>LFHI</td>
<td></td>
</tr>
</tbody>
</table>
Efforts to develop an all-weather port at Tadri or Belekeri with a draft of 18 meters as a long-term solution.

Efforts should be made to deepen draft at Mormugao (Goa Port) up to 16.5 m and mechanical handling facilities be installed for rail borne iron ore traffic from Bellary-Hospet sector to Goa Port.

In Bailadila-Vaizag sector, to ensure and sustain the movement of increased tonnage by railway, it is necessary to strengthen the existing railway facilities.

The load carrying capacity of railways for ore transport is to be enhanced keeping in view the movement of bauxite envisaged from Andhra Pradesh quarries.

Construction of new rail line to link Bailadila sectors (Jagdalpur) to Raipur & Gua-Barbil-Badajamda sector needs to be taken up on priority. This will support SAIL, NMDC’s and others mining operations.

| 32 | 2.4.19.2.1 | In Bailadila-Vaizag sector, to ensure and sustain the movement of increased tonnage by railway, it is necessary to strengthen the existing railway facilities. The load carrying capacity of railways for ore transport is to be enhanced keeping in view the movement of bauxite envisaged from Andhra Pradesh quarries. Construction of new rail line to link Bailadila sectors (Jagdalpur) to Raipur & Gua-Barbil-Badajamda sector needs to be taken up on priority. This will support SAIL, NMDC’s and others mining operations. | M/o Railway | During XIIth Five Year Plan period and in the perspective of 10-15 years | NA | NA | HFHI |

| 33 | 2.4.19.2.2 | In Bailadila-Vaizag secto, as NMDC and MMTC are the major suppliers of iron ore from Vizag port, it is necessary to augment the stockpile capacity of this port. Vizag port is facing congestion making the vessel wait sometimes up to 7 days to berth. The port has taken up some berth including General Cargo berth for renovation because of which iron ore which is handled at General Cargo | M/o Shipping | During XIIth Five Year Plan period and in the perspective of 10-15 years | NA | NA | LFHI |
berth does not get berth as other berths are dedicated only for handling coal. The situation is likely to improve once the renovation works are completed.

| 34 | 2.4.19.3.1 | In Orissa-Jharkhand sector, iron ore is transported by railways to steel plants and to the ports of Haldia and Paradip. In order to increase the capacity, several new railway projects have been undertaken in this region viz. Banspani – Daitari, Haridaspur – Paradip, Angul – Sukinda Road, Jharsuguda – Sambalpur, etc. While Banspani-Daitari project is in completion stage (99%), the work has been started in Haridaspur – Paradip, Angul – Sukinda Road. Work in the project Jharsuguda – Sambalpur (doubling) yet to commence. It is, therefore, recommended that these projects be expedited to be completed as soon as possible.

Ministry of Railways should develop product-specific railway freight corridors jointly with rail users – MNCs / private companies / or / PSUs.

| | M/o Railway | During XIIth Five Year Plan period and in the perspective of 10-15 years | NA | NA | HFHI |

| 35 | 2.4.19.3.2 | The road projects in the Orissa-Jharkhand sector undertaken in the mining area namely Rajamunda-Barbil (NH215) - 60 kms, Barbil-Panikoili (NH215) -189 kms, Chandikhole – Paradip (NH5A) - 77 kms, Jamshedpur – Haldia (NH 33, NH6, NH41) – 200 kms, Jaintgarh – Chaibasa – Haldia(NH 75E) -100 kms should be completed as soon.

| | M/o Road Transport and Highways | During XIIth Five Year Plan period and in the perspective of 10-15 years | NA | NA | LFHI |
### In Orissa- Jharkand sector

In Orissa- Jharkand sector, the port facilities needs improvement. In case of Haldia Port high sea loading through barges is strongly recommended.

Paradip Port is a very congested port. The draft needs to be increase for berthing bigger vessels. With the completion of construction project which includes a berth handling ships up to 1,25,000 DWT by PPP mode at Paradip Port, the draft limitation will be removed.

Several new port projects namely Dhamara and POSCO’s captive port are under consideration for quite some time. It is recommended that support should be given by way of separate allotment of rakes for Dhamara port from Eastern India. Also, it is recommended that these projects should be implemented expeditiously to handle additional iron ore from the region in order to reduce freight costs from India to iron ore importing countries.

POSCO’s own port proposed at Jatadhari near Paradip should be developed expeditiously.

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<thead>
<tr>
<th>Year</th>
<th>Section</th>
<th>Details</th>
<th>Ministry/Department</th>
<th>Period</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>2.4.19.3.3</td>
<td>In Orissa- Jharkand sector, the port facilities needs improvement. In case of Haldia Port high sea loading through barges is strongly recommended.</td>
<td>M/o Road Shipping</td>
<td>During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>NA</td>
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### In Goa sector

In Goa sector, railway capacity from Bellary-Hospet to Goa should be suitably increased to meet the growing movement of iron ore. The

<table>
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<th>Year</th>
<th>Section</th>
<th>Details</th>
<th>Ministry/Department</th>
<th>Period</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>2.4.19.4.1</td>
<td>In Goa sector, railway capacity from Bellary-Hospet to Goa should be suitably increased to meet the growing movement of iron ore.</td>
<td>M/o Railway</td>
<td>During XIIth Five Year Plan period and in the</td>
<td>NA</td>
<td>NA</td>
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<td>38</td>
<td>2.4.19.4.2</td>
<td>The main infrastructure at Mormugao port barges, mechanical ore loading facility and transhippers, which should be maintained, replaced and suitably enhanced to take care of growing export demand. The minor port of Panjim handles about 8-9 million tonnes of iron ore annually, mainly through barge loading, and therefore, availability of adequate barges should be ensured.</td>
<td>M/o Shipping</td>
<td>NA</td>
<td>NA</td>
<td>HFHI</td>
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<tr>
<td>39</td>
<td>2.4.20</td>
<td>Handling facilities at major ports viz. Chennai, Tuticorin, Cochin, Mangalore, Kaswa, Kandla, Mumbai, JNPT and Vizag need to be improved for the export of dimensional stones. Road network should also be extended to rural mining belts including decorative &amp; dimensional stone producing centers, thereby providing linkages to highways / expressways. It is recommended that railway stockyards at various places should be created with Inland Container Service System (ICD) in operation. The railway stockyards with potential of handling stones should be equipped with crane facilities of minimum 50 tonnes. From these points, open wagons shall move to</td>
<td>M/o Shipping, M/o Road Transport and Highways, M/o Railway</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
</tr>
</tbody>
</table>
important ports and other destinations where the stone processing units are located.

The Indian dimension stone industry is totally dependent on road transport with practically no support from the railways. Most of the competing countries have vast network of rail transportation supporting their stone industry through which they are able to offer any quantity in any size at very competitive prices in International market. Thus, it is necessary for the Indian stone industry to have proper rail links nearest to the quarrying areas.

### 40 2.4.21

The Greenfield alumina plants and bauxite mining would require strengthening of infrastructure development of road and rail network. The bauxite mining belts of Chattisgarh and Jharkhand also need improvement in road infrastructure for the brownfield expansion of existing plants. In Andhra Pradesh bauxite deposits would require extension of railway line up to deposits.

| M/o Road Transport and Railways, M/o Railway. | During XIIth Five Year Plan period and in the perspective of 10-15 years | NA | NA | HFHI |

### 41 2.4.22

Bulk handling of limestone and rock phosphate both for domestic consumption, exports and imports is made by rail and road network. Road network is a serious bottleneck in northeastern states where limestone is exported through road network to neighbouring counties. Therefore, efforts should be made to strengthen

| M/o Road Transport and Railways, M/o Railway. | During XIIth Five Year Plan period and in the perspective of 10-15 years | NA | NA | LFHI |
the existing road and rail network connecting mines to the consuming centres.

| 42 | 2.4.23 | Rule 45 of the MCDR, 1988 has been notified on 9.2.11 with a view to allow end-to-end accounting of the minerals. Rule 45 largely covered the area of accounting of mineral production and movement of minerals legally mined. With the implementation of the provisions of Rule 45, increasing the efficiency in accounting minerals, State Government may find it easy to isolate and monitor areas of illegal mining effectively. This requires implementation of Rule 45 by developing uniform ore accounting software with interface to Railways, Ports and Customs. The software for registration and concessions MIS should be developed preferably by NIC. | IBM, Ministry of Mines | During Twelfth Five Year Plan | Rs. 50 crore | Capacity Building of State Government (New) | HFHI |

**Chapter 3: Environment, Forest, Reclamation & Rehabilitation issues**

**Chapter 3.1: Problems & Constraints in Exploration & Exploitation of Mineral Resources in Tribal Forest Areas and to suggest measures in Harmonizing Mineral Development with Environment and Forest regulation**

| 43 | 3.1.4.1 | Categorisation of mineral reserves and resources at the State levels, into high and low risk groups based on environmental and social sensitivities. | State Governments | During XIth Five Year Plan period | NA | NA | LFHI |
| 44 | 3.1.4.2 | Over a map of all the mining leases in the country, overlay environmental and social sensitivities using available databases covering at least subjects like protected area (PAs), dense forests, and schedule areas to begin with | State Governments | During XIth Five Year Plan period | NA | NA | LFHI |
Through such an overlay, identify mine leases that fall into the high and low risk categories. Provide this categorisation, as well as its associated risks for each new lease area as well as those that are already in operation.

<table>
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<tr>
<th>45</th>
<th>3.1.4.3</th>
<th>Initially, for operational mining leases, the categorisation would be more focussed on impacts rather than risks, and would include elements like pollution levels, water quality, health indicators in the area etc which would indicate potential and ongoing impacts of the mining activity.</th>
</tr>
</thead>
</table>
|    |        | State Government  
|    |        | During XIIth Five Year Plan period  
|    |        | NA | NA | LFHI |

Classify as No-Go zones areas that are statutorily declared as prohibited or protected zones under various central, state and local government regulations and international conventions. Exclude these No-Go areas from mining considerations.

<table>
<thead>
<tr>
<th>46</th>
<th>3.1.4.4</th>
<th>Classify as No-Go zones areas that are statutorily declared as prohibited or protected zones under various central, state and local government regulations and international conventions. Exclude these No-Go areas from mining considerations.</th>
</tr>
</thead>
</table>
|    |        | Central Government, State and Local Government  
|    |        | During XIIth Five Year Plan period  
|    |        | NA | NA | HFHI |

Consultation and stakeholder engagement especially in Schedule V areas. This will address some of the issues of ensuring local stake in control, use and management of such areas and resources.

<table>
<thead>
<tr>
<th>47</th>
<th>3.1.4.5</th>
<th>Consultation and stakeholder engagement especially in Schedule V areas. This will address some of the issues of ensuring local stake in control, use and management of such areas and resources.</th>
</tr>
</thead>
</table>
|    |        | State Government  
|    |        | During XIIth Five Year Plan period  
|    |        | NA | NA | LFHI |

Benefit-sharing: The mining companies should share the benefit of mining with the mine affected people. Consultation and stakeholder engagement together with benefit sharing would address issues of consent of the indigenous communities on project impacts on common resources, cultural practices, economic opportunities and adequate compensation.

<table>
<thead>
<tr>
<th>48</th>
<th>3.1.4.6</th>
<th>Benefit-sharing: The mining companies should share the benefit of mining with the mine affected people. Consultation and stakeholder engagement together with benefit sharing would address issues of consent of the indigenous communities on project impacts on common resources, cultural practices, economic opportunities and adequate compensation.</th>
</tr>
</thead>
</table>
|    |        | State Government, Mining Companies  
|    |        | During XIIth Five Year Plan period  
<p>|    |        | NA | NA | LFHI |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th>Frameworks for understanding more comprehensively, potential environmental impacts – safeguards, management, mitigation, indicators.</th>
<th>Central Government, State Government, Mining Companies</th>
<th>During XIIth Five Year Plan period</th>
<th>NA</th>
<th>NA</th>
<th>LFHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>3.1.4.8</td>
<td>Strategic area-based approach to conserve natural resources and address pollution related issues</td>
<td>Central Government, State Government,</td>
<td>During XIIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
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<tr>
<td>51</td>
<td>3.1.4.9</td>
<td>Put in place institutional structures and mechanisms at central, state and district levels to address different issues concerning consultation and stakeholder engagement, benefit sharing, environmental impact and conservation of natural resources</td>
<td>Central Government, State Government,</td>
<td>During XIIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
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<tr>
<td>52</td>
<td>3.1.4.10</td>
<td>Develop a sectoral regulator to comprehensively address social and environmental concerns through statutory interventions and approvals at mine as well as regional (watershed) levels, with the intention that such regulator would function under the overarching supervision of the Environmental Regulator in the Ministry of Environment and Forest.</td>
<td>IBM, Ministry of Mines</td>
<td>During XIIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>HFHI</td>
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<tr>
<th></th>
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<th>Conduct detailed studies of the extent of mineral reserves and their reassessment in the light of revised threshold values.</th>
<th>IBM, Ministry of Mines</th>
<th>During XIIth Five Year Plan period</th>
<th>NA</th>
<th>NA</th>
<th>LFLI</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>3.2.5.2</td>
<td>The proportion of land already leased out, and within that, what proportion has been exploited, needs to be undertaken, to the degree possible (first level through</td>
<td>IBM, Ministry of Mines</td>
<td>During XIIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td>HFHI</td>
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<tr>
<td>No.</td>
<td>Section</td>
<td>Description</td>
<td>Responsible Agency/Institution</td>
<td>Period</td>
<td>NA</td>
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<tr>
<td>55</td>
<td>3.2.5.3</td>
<td>Consolidation of state databases for the whole country, based on minerals, irrespective of go/no go areas.</td>
<td>IBM, Ministry of Mines</td>
<td>During XIIth Five Year Plan period</td>
<td>NA</td>
<td>NA</td>
<td></td>
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<tr>
<td>56</td>
<td>3.2.5.4</td>
<td>Sustainable use of minerals and re-use potential (Recycle). Cost benefits analysis on conservation strategies to reduce energy consumption as well as CO2 emissions.</td>
<td>Scientific Organizations dealing with Minerals</td>
<td>During XIIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
<td>NA</td>
<td>LFHI</td>
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</table>
## Chapter-3.3 Reclamation & Rehabilitation Needed for Abandoned or Closed Mines

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
<th>Description</th>
<th>Responsible Authority</th>
<th>Time Period</th>
<th>Notes</th>
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<tbody>
<tr>
<td>57</td>
<td>3.3.1</td>
<td>There are about 82 abandoned mining sites as per IBM, out of that sizable numbers of sites are of erstwhile PSU (33) and corporate sector (22). It is proposed that studies have to be taken up for their resource appraisal, environmental and socioeconomic impacts due abandoned mines along with concerned State Government and Pollution Control Boards, Ground Water agencies with assistance of respective Central or State PSU, Forest Dept.</td>
<td>IBM, Ministry of Mines</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
</tr>
<tr>
<td>58</td>
<td>3.3.2</td>
<td>Possibility of backfilling of fully exhausted voids shall be explored by utilisation of waste within feasible distance from working mines in vicinity in consultation with forest department where it is necessary. Safety aspects of such reclamation should be studied in advance</td>
<td>IBM, Ministry of Mines</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
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<td>59</td>
<td>3.3.3</td>
<td>Accordingly, plan of rehabilitation in the form of Project document shall be worked out, so as to facilitate State Government to implement the plan of rehabilitation for enabling it to bring it to eco-friendly shape.</td>
<td>IBM, Ministry of Mines</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
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<tr>
<td>60</td>
<td>3.3.4</td>
<td>Further unlocking remnant mineral in such sites, notification for leases should be issued by State Government and after unlocking the residual values; the area should be reclaimed by the new holder of lease.</td>
<td>State Governments</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
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<td>Some relaxation on EC/FC for such sites for faster reclamation should be provided and such initiatives by the lessees should be incentivised. Those who have excellent track records in previous operations should be given preference in allocation of leases</td>
<td>IBM, Ministry of Mines</td>
<td>During XIth Five Year Plan period</td>
<td>Funding mechanism should be explored through Planning Commission.</td>
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<td>61</td>
<td>3.3.4.5</td>
<td>The financial implication of such small abandoned mines, where there are no takers, should be calculated and funding mechanism should be explored through Planning Commission.</td>
<td>IBM, Ministry of Mines</td>
<td>During XIth Five Year Plan period</td>
<td>Funding mechanism should be explored through Planning Commission in due course.</td>
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<td>62</td>
<td>3.3.4.6</td>
<td>Escrow fund for mine closure should be done in case of current practice of financial assurances. Incentivise the good work of the lessee and penalize the defaulters</td>
<td>IBM, Ministry of Mines</td>
<td>During XIth Five Year Plan period</td>
<td>NA</td>
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<tr>
<td><strong>Chapter-3.4: Socio-Economic Impact of Mining on the Life of Local Inhabitants and to Suggest Ways and Means for Improving their Living Standard</strong></td>
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<td>63</td>
<td>3.4.5.1</td>
<td>The concept of single window clearance for forest and environment should be introduced.</td>
<td>Ministry of Environment and Forest</td>
<td>During XIth Five Year Plan period and in the perspective of 10-15 years</td>
<td>NA</td>
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<td>64</td>
<td>3.4.5.2</td>
<td>A study needs to be carried out on sensitivities and risks, demand and supply for granting the lease.</td>
<td>State Governments</td>
<td>2 Years</td>
<td>NA</td>
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<td>65</td>
<td>3.4.5.3</td>
<td>Policy on compensatory afforestation needs to be</td>
<td>State Governments</td>
<td>During XIth Five</td>
<td>NA</td>
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</table>
revisited considering the position of land banks available with the State for compensatory afforestation.

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<thead>
<tr>
<th>Chapter-3.5 CSR Initiatives and Suggest Ways to Improve Corporate Image in the Mining Sector</th>
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measures. The project report shall be prepared by District Mineral Foundation (DMF) in terms of SDF for local area development, and ensure execution. DMF shall execute such programmers/projects. Necessary Funds utilization shall be made as per proposed MMDR.

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<tbody>
<tr>
<td>69</td>
<td>3.5.8.4</td>
<td>CSR activities should be made component of terms in lease deed conditions for PL and ML. CSR activities should start from award of Prospecting Licence</td>
<td>Mining Companies</td>
<td>During XIIth Five Year Plan period</td>
</tr>
<tr>
<td>70</td>
<td>3.5.8.5</td>
<td>The present state of Mining Plan document is comprehensive, multidisciplinary covers also Conceptual plan, Environment Management plan, Progressive closure plan, outlines of socioeconomic aspects of region. It is proposed to introduce the separate part in document dealing with base line data generation, Social Impact Assessment (SIA) and action plan for CSR activities linked production capacities for further implementation.</td>
<td>IBM, Ministry of Mines</td>
<td>During XIIth Five Year Plan period</td>
</tr>
<tr>
<td>71</td>
<td>3.5.8.6</td>
<td>For institutional development, the lessee should make in house and outside faculty programmes for executive development for carrying out CSR activities.</td>
<td>Lessee</td>
<td>During XIIth Five Year Plan period</td>
</tr>
<tr>
<td>72</td>
<td>3.5.8.7</td>
<td>Since RR and CSR issues are integral part of Sustainable development in mineral districts, implementation of the proposal regarding monitoring of environmental parameters and community development as per approved</td>
<td>Indigenous Communities, State Government, Central Government</td>
<td>During XIIth Five Year Plan period</td>
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<tr>
<td>Document No.</td>
<td>Section</td>
<td>Activity Description</td>
<td>Responsible Body</td>
<td>Time Frame</td>
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<tr>
<td>73 3.5.8.8</td>
<td>IBM and State Directorates</td>
<td>Should develop capacity building in monitoring and suggesting proper CSR activities in the vicinity of mining area. IBM and State Directorate should establish “Sustainable Mineral Development Cell “ to plan, monitor and review RR and CSR activities centrally with corporate and PSU sector and also work out guidelines, plan of action for mines in private sector particularly for small mining sector.</td>
<td>IBM and State DGM</td>
<td>During XIIth Five Year Plan period</td>
</tr>
<tr>
<td>74 3.5.8.9</td>
<td>IBM and DGM</td>
<td>Shall develop a system of reporting in regard to RR and CSR activities, commissioned through proposed SDF at National and state level by introducing quarterly/annual return and made mandatory as per provision of draft new MMDR Act 2011.</td>
<td>IBM and State DGM</td>
<td>During XIIth Five Year Plan period</td>
</tr>
<tr>
<td>75 3.5.8.10</td>
<td>While reporting, it requires due verification of implementation from respective department/agencies. Corporate sectors are solely responsible for reporting it. IBM shall monitor R&amp;R and CSR through regional offices in various mining belt by sample checkup or audits for physical verification.</td>
<td>IBM, Ministry of Mines</td>
<td>During XIIth Five Year Plan period</td>
<td>NA NA HFHI</td>
</tr>
<tr>
<td>76 3.5.8.11</td>
<td>Each Corporate sector, should submit the survey report by five years to know efficacy and compatibility of implementation proposals and address prospects and</td>
<td>Corporate Sector</td>
<td>During XIIth Five Year Plan period</td>
<td>NA NA HFHI</td>
</tr>
<tr>
<td>77</td>
<td>3.5.8.12</td>
<td>Initiatives for Improving the Image of Mining Industry: Promotional campaign for environmental and social performance, Recognition through a national awards, Display of Showcases, articles in mass media on positive impacts and development with statistics, conducting mass media programme on sustainable mining and its outputs, achieving zero waste mining, value additions. Endorsement to Green Mining initiatives, awareness to curb illegal practices, participation of stakeholders in MEMC week celebrations.</td>
<td>Central Government, State Government, Mining Companies, Public / Corporate Sector</td>
<td>During XIIth Five Year Plan period</td>
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Scheme-wise Requirement of Fund during XII\textsuperscript{th} Five Year Plan (2012-17)

**A: Geological Survey of India (GSI)**

1. Survey and Mapping
2. Mineral Exploration
3. Information Dissemination
4. Specialized Investigation
5. Research & Development and other Exploration
6. Human Resource Development
7. Modernization and Replacement (S&T support system)

**B: Indian Bureau of Mines (IBM)**

1. Inspection of Mines for Scientific and Systematic Mining, Mining Conservation and Mines Environment
2. Mineral Beneficiation Studies- utilization of low grade and sub grade ores and analysis of environmental samples
3. Technological up gradation and modernization
4. Collection, processing, dissemination of data on mines and minerals through various publication
5. Management of Solid Waste from Mining in India
6. Computerized online register on Mining Tenement System
7. Capacity Building of State Governments (New Scheme proposed)

**C: Ministry**

1. Grants-in-aid for S&T
2. Grants-in-aid for IEC
3. Techno-Economic Policy Studies (New Scheme proposed)
4. Grants-in-aid for Promotional Exploration
5. Grants-in-aid for ICT

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<tr>
<th>Sl. No.</th>
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<th>Item</th>
<th>Fund (Rs. cr.)</th>
<th>Implementation Agency</th>
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<td>B7</td>
<td>Capacity Building of State Governments (New Scheme)</td>
<td>Develop and implement ore accounting software by NIC (Recommendation No. 2.4.23)</td>
<td>50</td>
<td>IBM, Ministry of Mines</td>
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*With 10 officers/ staff to be headed by a Joint Secretary*
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SUGGESTIONS AND RECOMMENDATIONS

**0.1.0 Recommendations on investment, taxation, trade policies of Mining sector**

0.1.12.1 All expenditure incurred prior to commercial production including the expenditure incurred on site and deposit acquisition should be eligible for amortization over the minimum mining lease period of 20 years or a lesser period at the option of the lessee. [LFHI]

0.1.12.2 For reclamation of mined out area, the mining companies may be allowed to earmark a percentage of book profits each year to meet rehabilitation as per approved Mine Closure Plan and set it aside as a special reserve in their books. Mine closure expenditure should be considered for tax benefits [HFHI]

0.1.12.3 The mineral exploration activity being high risk venture need special treatment. SEBI and Stock Exchanges need to come out with a policy framework so that investment in mining/mineral exploration is increased. For this a concept of Competent Person to
certify the mineral resources as per UNFC system may be introduced so that investor is confident of getting returns and at the same time requirement of Stock Exchanges are adhered to as in the case of Toronto Stock Exchange. [HFHI]

0.1.12.4 “Flow-through–shares” mechanism may be introduced in Indian mineral sector so that venture capital can flow in exploration activities. [HFHI]

0.1.12.5 Exploration bonds on the lines of Infrastructure bonds may be introduced. [HFHI]

0.1.12.6 Inverted duty structure for gold in copper concentrates needs to be corrected. [LFHI]

0.1.12.7 The excise duty on beneficiated low grade ores should be dispensed with in the interest of promoting and incentivizing beneficiation. [LFHI]

0.1.12.8 To promote creation of private R & D facilitates in mineral based R&D processes incentives in the form of exemption in income tax/service tax should be considered. [LFHI]

0.1.12.9 Iron ore pelletisation industry needs incentives in the form of tax holidays. [LFHI]

0.1.12.10 Since extraction and recycling, particularly of energy critical metals, base metals, rare earth metal is costly, incentives in the form of tax holidays may be considered to encourage the activity. [LFLI]

0.1.12.11 It is recommended that a Techno-Economic Cell in the Ministry of Mines may be set up with requisite manpower for analysis of the issues related to taxes, tariff structure and trade policies in the mining sector. The manpower requirement for creation of such Cell in the Ministry would be a minimum of 10 officers/staff to be headed by a Joint Secretary level officer with a budgetary support of Rs. 10 crore during the XIIth Five Year Plan. [LFHI]
0.2.0 Suggestions and Recommendations on Infrastructure Development in Indian Mineral Sector

General Recommendations

0.2.4.1 India produces as many as 90 minerals and most of the mines are located in interior and tribal areas. The mining companies develop infrastructure commensurate to their requirements. However, so far the development of general infrastructure like all-weather roads, which can withstand movement of heavy vehicles, is woefully lacking in such mining belts. The general road conditions in mining belts otherwise also is extremely bad. State Governments do not spend funds for providing linking infrastructure to mining areas. It is, therefore, considered necessary that State Governments should allot a certain amount out of their royalty collection for providing roads and other basic amenities like power, telecommunications, etc. at par with industrial estates. It is, therefore, essential that adequate attention is given on infrastructure development in mining areas by Central and State Government. Government should provide special emphasis on development of roads in Northeast region looking to large potential for export of limestone. [HFHI]

0.2.4.2 Development of high quality roads connecting priority sector mines (iron ore, bauxite, dimensional stones and limestone) to loading stations are urgently required and State Governments should earmark revenue from their royalty earnings for such infrastructure development in mining sector. In order to undertake the task of building the infrastructure in mining areas, it is recommended that Mineral Development Fund (MDF) should be set up in each State having stake in major mining activity by earmarking 15% of the annual royalty collections for the fund. [HFHI]

0.2.4.3 For planning and promoting the development of mine-related infrastructure, it would be necessary to put in place an appropriate institutional framework. In the major mining States, we already have mineral development corporations and State Industrial Development and Investment Corporations. It would be necessary to enlarge the mandate of these corporations to include planning, promotion and financing of mining infrastructure. [LFHI]

0.2.4.4 These corporations should take up funding for the mining infrastructure projects by inter alia promoting and implementing entities in the form of JVs/SPVs. In appropriate cases these
institutions could meet their bridge financing and/or Viability Gap Funding (VGF) from the Scheme of the Ministry of Finance or from out of the Mineral Development Fund and further tie up loans from the financial institutions as well as from the India Infrastructure Finance Company Ltd. (IIFCL). It is also recommended that consideration should be given to an alternative arrangement whereby allocations would be made to the Ministry of Mines to enable it to allocate funds directly for undertaking mining infrastructure projects. In order to facilitate such an arrangement the Ministry of Mines would have to set up a small-specialized body in the form of a corporate entity for appraising projects, routing funds and providing the requisite expertise.

[LFHI]

0.2.4.5 Though the large mines tend to construct their own mine-linking infrastructure, it may so happen that investment in mine sector is so high that it may go beyond the reach of even the larger mines. What is therefore, needed is the “cluster concept” so that trunk facilities are constructed with financial participation of all the mines—whether small or big, in a particular area. In so far financing of ‘cluster concept’ projects is concerned the capital outlay can be shared by the individual mines in proportion to the ultimate production level for which their mine is planned. In case at a subsequent date, any mine proposes to augment its production level he will be called upon to make extra financial contribution proportionate to its increased production capacity but since the infrastructural facilities would have already been constructed by then, the money contributed by him would get distributed among the original contributors in proportion to their original investment. This concept can also be applied in all the infrastructure development, be it railways, road network, water supply arrangements and power supply arrangements.

[LFHI]

0.2.4.6 Government of India has taken up projects in PPP mode in railway projects, National Highways and the port projects within the existing schemes. The Government of India should encourage more and more projects in Public Private Partnership (PPP) mode in all the above three sectors of infrastructure. [HFHI]

0.2.4.7 Private sector industries in mining have offered to construct additional lines and to run private rakes on PPP basis. However, all the 16 Zones of Railway in India have procedural delay
in giving approval due to which the implementation is hampered. In view of this, a kind of single window clearance is required for obtaining clearances. [LFHI]

0.2.4.8 The siding policy of railway needs to be liberalized. As of now railway is taking deposit of Rs. 5.00 crore for private siding in the mining industries and Rs.10.00 for private siding in the Steel Industry. There are so many applications pending with Railways from various companies for development of siding. However, railways needs to develop a single window system of approval to expedite new sidings which can result in increase in iron ore volumes. [LFHI]

0.2.4.9 The capital cost of water and power projects (to access the main grid) for the SME sector may have to be borne by the State Government through outright grants from the Mineral Development Fund. If the Rural Water Supply Scheme of the Central Government could be extended to the mining areas to meet the water supply requirement of the small/medium size mines, it would alleviate the strain on the resources of the MDFs. Similarly, a conscious decision could be taken by the State Government to make electricity available to the mine sites, especially for small and medium size mines. [LFHI]

0.2.4.10 Power supply grid system in the country needs to be strengthened, particularly that located in mining belts of India. [LFHI]

0.2.4.11 New railway lines in the eastern sector as well as in Karnataka connecting mining areas to ports will have to be undertaken to support exports and for reducing cost structure of various steel plants. [LFHI]

0.2.4.12 Development of dedicated freight corridors for transport of iron ore by railways from the mine-heads to various ports needs to be promoted along with private promoters. [LFHI]

0.2.4.13 Ports should invest in additional tipplers to augment their receiving capacities. [LFHI]
0.2.4.14 Additional stockyard capacity at ports needs to be installed. [LFHI]

0.2.4.15 Considering high cost of construction of ports, dredging, etc. alternatives such as
floating terminals, which will facilitate loading of larger ships outside the port, should be examined and implemented. [HFLI]

0.2.4.16 New ports coming up at Gopalpur (located between Paradip and Vaizag) and Dhamra (located south of Haldia and north of Paradip) in Orissa by a consortium of TATA Steel and L&T and another port coming up at Ennore, all on East Coast should be expedited. These mega ports will hopefully have sophisticated mechanized handling plants and deep draft berths to handle super cargo. [LFHI]

0.2.4.17 Besides the issue of adding railway lines including new lines and doubling lines, another issue that needs focus is the issue of rolling stock. It is observed that during high demand rake availability becomes an issue. As we target larger volumes of mineral movement in future, railways need to ensure that adequate rakes are made available in the iron-ore circuits. The loadability of wagons also needs to be improved so that larger volumes can be carried. The quality of rakes for transportation of ore also needs improvement. High axel wagon load type of wagons which can load upto 90 mt. and can run faster is the need of the hour. In fact, railways have developed new BOXHN wagons which need to be introduced more and more into the iron ore circuits. [HFHI]

0.2.4.18 Apart from track and signaling improvements, rail freight tariffs to be rationalized to retain competitive edge of mineral based industry. [LFHI]

**Sector Specific Recommendations**

0.2.4.19 **Iron Ore:**

Iron ore plays on important role in the development in the nation. The production of iron ore in the country was 219 million tonnes in 2009-10. As per the National Steel policy 2005, projections of domestic consumption for iron ore are at 200 million tonnes by 2020 and for exports are at 100 million tonnes by 2020. Thus, total future demand (both domestic and exports) is projected at 300 million tonnes by 2020. The movement of iron ore will continue to be mostly by rail and therefore development of railway infrastructure to handle iron ore has to be suitably
augmented. The total traffic projections for the steel sector by 2019-20 include 230 million tonnes by railways and 100 million tonnes by road.

In a globally integrated economy, minimization of the overall cost of transportation of iron ore becomes an important factor for maintaining the competitive edge in both the domestic and overseas markets. The Indian steel plants and iron ore mines therefore need to be integrated with the ongoing programmes of National Highway development and also with the proposed rural road development schemes.

0.2.4.19.1 **Bellary-Hospet Sector:** In Bellary-Hospet Sector, the existing iron ore production of about 43 million tonnes in 2009-10 and is expected to go more than 79 million tonnes by 2016-17. In order to meet the infrastructure requirements for the increase in production/demand in iron ore both for domestic and export market, following infrastructure will need to be created/augmented.

0.2.4.19.1.1 **Railways:** As the iron ore from this sector moves to ports namely Chennai, Krishnapatnam, Goa, Karwar, Belekeri and New Mangalore, it is necessary to strengthen and improve railway carrying capacities to all these ports. This can be achieved by doubling of tracks, other measures to increase line capacity on these sections and electrification of routes wherever necessary in addition to ensuring timely availability of wagons. Simultaneously, however, the wagon tippling facility also needs to be augmented. A substantial portion of iron ore is transported by road from mine-heads to the loading stations. In addition to being costlier, it also puts a lot of strain on the road network and therefore, it would be desirable to provide suitable rail linkages to some of these large mines. [HFHI]

0.2.4.19.1.2 **Ports:** There has been a decision to close down Chennai port for export of iron ore due to environmental reasons. It is therefore, necessary to develop alternative port /ports to handle the current exports from Chennai as well as to meet future export demands. In this connection, a new port at Ennore, north of Chennai is being developed. It is recommended that efforts be made for speedy development of iron ore berth, mechanical ore loading facility, adequate capacity of stockpile and dredging to accommodate large cape size vessels. The ship loading facilities at Ennore should match with other iron ore loading ports of the World to make Indian iron ore competitive in the global market.
As part of hinterland of Bellary-Hospet Sector, a private sector port at Krishnapatnam in Andhra Pradesh is being developed. Iron ore loading facilities in this port should be suitably designed to handle part of the cargo, which is expected to move from Bellary-Hospet area through this port.

Iron ore handling facilities at New Mangalore port on the West Coast should be gradually improved to load additional iron ore expected to move to this port from Bellary-Hospet and other regions in Karnataka. In case of new Mangalore port, conversion of metre gauge railway line would also be required.

It would also be worthwhile to make expeditious efforts to develop an all–weather port at Tadri or Belekeri with a draft of 18 meters as a long-term solution. The port should have mechanical ore handling facilities and storage space to accommodate minimum of 5 million tonnes of cargo.

The above project is critically dependent on the construction of railway line between Hubbli and Ankola – a distance of 172 kms, involving a gradient 1 to 150 metres. The construction of this railway line will reduce the lead from Bellary-Hospet by 200 kms. This line together with the development of port is expected to increase and make iron ore exports competitive in the world market. Construction of Hubli-Ankola railway line will also give the hinterland access to the Konkan railways and whole of Karnataka coastline. These railway lines and the port projects deserve to be taken up on fast track.

Efforts should be made to deepen draft at Mormugao (Goa Port) upto 16.5 m and mechanical handling facilities be installed for rail borne iron ore traffic from Bellary-Hospet sector to Goa Port.

Obulavarpalle- Krishnapatnam port Rail line project which is at different stages of construction needs to be expedited. [LFHI]

0.2.4.19.2 Bailadila-Vaizag Sector: The major iron ore producer in this sector is NMDC, the production was 22 million tonnes in 2008-09, which is expected to go upto 32.7 million tonnes by 2012 and more than 42 million tonnes by 2022. About 8 million tonnes out of this is expected to be moved by slurry pipelines and the balance by railways, both for domestic and export demand. By 2012 rail and road movement is expected to cover 22.8 million tonnes and 1.9
million tonnes respectively. Therefore, construction of a new railway line to link Bailadila Sector (Jagdalpur) to Raipur needs to be taken up on priority.

0.2.4.19.2.1 Railway: A dedicated railway line exists between Bailadila and Vaizag port, which carries the iron ore for exports and for domestic consumption of Vishakapatnam Steel Plant, ESSAR, ISPAT Industries and Vikram Ispat, etc. To ensure and sustain the movement of increased tonnage by railway, it is necessary to strengthen the existing railway facilities. Similarly, to meet the iron ore demand of other steel units in Chhattisgarh area immediate action is recommended to establish/improve the rail/road facilities in the region.

The load carrying capacity of railways for ore transport is to be enhanced keeping in view the movement of bauxite envisaged from Andhra Pradesh quarries. For ensuring steady power supply, the power grid system in these belts also needs to be strengthened.

Construction of new rail line to link Bailadila sectors (Jagdalpur) to Raipur & Gua-Barbil-Badajamda sector needs to be taken up on priority. This will support SAIL, NMDC’s and others mining operations. [HFHI]

0.2.4.19.2.2 Port: As NMDC and MMTC are the major suppliers of iron ore from Vizag port, it is necessary to augment the stockpile capacity of this port. Vizag port is facing congestion making the vessel wait sometimes upto 7 days to berth. The port has taken up some berth including General Cargo berth for renovation because of which iron ore which is handled at General Cargo berth does not get berth as other berths are dedicated only for handling coal. The situation is likely to improve once the renovation works are completed. [LFHI]

0.2.4.19.3 Orissa / Jharkhand – Haldia / Paradip Sector:

About 30% of India’s iron ore resources are located in the states of Orissa and Jharkhand. The combined production from these two states was about 102 million tonnes during 2009-10, out of the total all India production of 219 million tonnes during the same period. It is, therefore, evident that infrastructure facilities in this region are of utmost importance both from the point of view of domestic trading and exports. Since, this Orissa/Jharkhand belt supplies iron ore to several domestic steel industries, the internal movement of iron ore both by road and rail is
substantial. The prospects of growth of iron ore mining in this region is expected to be high in view of several new steel plants of POSCO, TATA and Mittal Steel being proposed.

0.2.4.19.3.1 **Railway:** From iron ore mining areas of Barajamda, Barbil, Banspani, etc., the iron ore is transported by railways to steel plants and to the ports of Haldia and Paradip. In order to increase the capacity, several new railway projects have been undertaken in this region viz. Banspani – Daitari, Haridaspur – Paradip, Angul – Sukinda Road, Jharsuguda – Sambalpur, etc. While Banspani-Daitari project is in completion stage (99%), the work has been started in Haridaspur – Paradip, Angul – Sukinda Road. Work in the project Jharsuguda – Sambalpur (doubling) yet to commence. It is, therefore, recommended that these projects be expedited to be completed as soon as possible. The expeditious construction of Daitari – Banspani rail line which is in quite advanced stage will reduce distance between iron ore mines to the port by 313 kms.

It is, therefore, recommended that Ministry of Railways should develop product- specific railway freight corridors jointly with rail users – MNCs / private companies / or / PSUs. A similar project is under consideration at an estimated cost of Rs.560 crores i.e. Haridaspur – Paradip railway line project in which POSCO is likely to contribute Rs. 27 crore initially for its 10% stake. This will provide a dedicated rail corridor connecting its steel plant with Paradip port in consortium with PSUs and private companies like Jindals, SAIL and MSPL Mining Company. This project is being developed by Special Purpose Vehicle (SPV) led by Rail Vikas Nigam Ltd. This new railway corridor will be an alternative to the Cuttack railway line which will reduce the distance and time of transportation of raw materials like iron ore and coal from Orissa’s Keonjhar and Angul districts to the plant site. [HFHI]

0.2.4.19.3.2 **Road:** In the absence of adequate rail capacity in this sector, a large quantity of iron ore is moved by roads. In view of the growing demand of iron ore, it is recommended that all the road projects undertaken in the mining area should be completed as soon as possible. Some of the road routes critical to Indian mining sector in this region are:

(i) Rajamunda-Barbil (NH215) - 60 kms
(ii) Barbil-Panikoili (NH215) -189 kms
(iii) Chandikhole – Paradip (NH5A) - 77 kms
(iv) Jamshedpur – Haldia (NH 33, NH6, NH41) – 200 kms
(v) Jaintgarh – Chaibasa – Haldia(NH 75E) -100 kms
0.2.4.19.3.3 **Port:** Two major ports that handled the iron ore exports from this sector are Haldia and Paradip. During 2009-10, the quantity exported was about 7.4 million tonnes and 12.27 million tonnes from Haldia and Paradip respectively. At present Haldia can handle a ship of about 90,000 DWT while Paradip can load a vessel of about 70,000 DWT due to draft limitations. The draft of Haldia port is very low as 6.5 meter. Vessel more than 20,00 MT cannot be loaded. Dredging is required. Though Dredging Corporation of India is doing dredging regularly, due to the very nature of the port it is not serving the purpose. Hence in case of Haldia Port high sea loading through barges is strongly recommended. Simultaneously Gangasagar which is the end of 24 paraganas should be developed as a ship loading point.

Paradip Port is a very congested port. The draft needs to be increase for berthing bigger vessels. With the completion of construction project which includes a berth handling ships up to 1,25,000 DWT by PPP mode at Paradip Port, the draft limitation will be removed.

In view of the increase in demand of iron ore loading in these ports, immediate action is required for completion of Paradip Port through PPP and deepening of Haldia Port and turning basin and construction of iron ore berth to receive bigger ships.

Several new port projects namely Dhamara and POSCO’s captive port are under consideration for quite some time. In fact Dhamara port has state of art facilities and has a capacity of 10 million tonnes per annum which will be expanded further. It s recommended that support should be given by way of separate allotment of rakes for Dhamara port from Eastern India. Also, it is recommended that these projects should be implemented expeditiously to handle additional iron ore from the region in order to reduce freight costs from India to iron ore importing countries.

POSCO’s own port proposed at Jatadhari near Paradip should be developed expeditiously.

[LFHI]

0.2.4.19.3.4 **Goa Sector:** Total iron ore production in 2009-10 from this region was 39 million tonnes. In addition to local production, considerable quantities of iron ore are moved from
Karnataka region through Mormugao port. In 2009-10, total quantity of iron ore handled at Goa (Panjim+Mormugao port) was 53.7 million tonnes.

0.2.4.19.4.1 Railway: The Goan iron ore mines are located close to rivers and therefore the iron ore movement within Goa is mostly by barges to Mormugao and Panjim ports. However, iron ore from Bellary Hospet is moved by railways and exported through Mormugao. The iron ore is brought to river loading point of Sanverdam from where the ore is loaded into barges and transported to the port. In order to avoid double handling, a project to handle wagons directly at the port is underway and should be completed immediately. Likewise the railway capacity from Bellary-Hospet to Goa should be suitably increased to meet the growing movement of iron ore. The early completion of doubling of Hospet-Vasco line which has been recently sanctioned will help the iron ore industry in Karnataka and Goa. [LFHI]

0.2.4.19.4.2 Port: At Mormugao port (berth no. 9), the aggregate assessed loading capacity is 7.5 million tonnes per annum, can handle ships from 30,000 to 275,000 DWT capacity. The total handling capacity was 24.30 million tonnes for iron ore and other ores and 5.00 million tonnes for coal/coke in 2008-09. The ships are partly loaded up to the permissible draft and fully loaded at anchorage with the help of transhippers. The port also loads large cape size vessels directly from barges with the help of transhippers. The main infrastructure at Mormugao port is therefore barges, mechanical ore loading facility and transhippers, which should be maintained, replaced and suitably enhanced to take care of growing export demand. The minor port of Panjim handles about 8-9 million tonnes of iron ore annually, mainly through barge loading, and therefore, availability of adequate barges should be ensured. [HFHI]

0.2.4.20 Dimensional & Decorative Stones:

Handling facilities at major ports viz. Chennai, Tuticorin, Cochin, Mangalore, Kaswa, Kandla, Mumbai, JNPT and Vizag need to be improved for the export of dimensional stones.

Road network should also be extended to rural mining belts including decorative & dimensional stone producing centers, thereby providing linkages to highways / expressways.

It is recommended that railway stockyards at various places should be created with Inland Container Service System (ICD) in operation. The railway stockyards with potential of handling stones should be equipped with crane facilities of minimum 50 tonnes. From these points, open
wagons shall move to important ports and other destinations where the stone processing units are located.

The Indian dimension stone industry is totally dependent on road transport with practically no support from the railways. Most of the competing countries have vast network of rail transportation supporting their stone industry through which they are able to offer any quantity in any size at very competitive prices in International market. Thus, it is necessary for the Indian stone industry to have proper rail links nearest to the quarrying areas. [LFHI]

0.2.4.21 Bauxite & Alumina:

The Greenfield alumina plants and bauxite mining would require strengthening of infrastructure development of road and rail network. The bauxite mining belts of Chattisgarh and Jharkhand also need improvement in road infrastructure for the brownfield expansion of existing plants. In Andhra Pradesh bauxite deposits would require extension of railway line up to deposits. [HFHI]

0.2.4.22 Limestone and other industrial minerals

Bulk handling of limestone and rock phosphate both for domestic consumption, exports and imports is made by rail and road network. Road network is a serious bottleneck in northeastern states where limestone is exported through road network to neighbouring counties. Therefore, efforts should be made to strengthen the existing road and rail network connecting mines to the consuming centres. [LFHI]

2.4.23 Control on Illegal Mining relating to Infrastructure

Rule 45 of the MCDR, 1988 has been notified on 9.2.11 with a view to allow end-to-end accounting of the minerals. Rule 45 largely covered the area of accounting of mineral production and movement of minerals legally mined. With the implementation of the provisions of Rule 45, increasing the efficiency in accounting minerals, State Government may find it easy to isolate and monitor areas of illegal mining effectively. This requires implementation of Rule 45 by developing uniform ore accounting software with interface to Railways, Ports and Customs. The software for registration and concessions MIS should be developed preferably by NIC. A fund
requirement of Rs. 50 crore for the purpose for its implementation during Twelfth Five Year Plan. [HFHI]

0.3.0 Suggestions and Recommendations on Environment, Forest, Reclamation & Rehabilitation Issues

0.3.1 Suggestions on measures to harmonise mineral development with environment and forest regulation and promote inclusive growth and safeguard the interest of tribals in the areas

0.3.1.4.1 Categorisation of mineral reserves and resources at the State levels, into high and low risk areas for purpose of investment in exploration based on environmental and social sensitivities. [LFHI]

0.3.1.4.2 Over a map of all the mining leases in the country, overlay environmental and social sensitivities using available databases covering at least subjects like protected area (PAs), dense forests, and schedule areas to begin with. Through such an overlay, identify mine leases that fall into the high and low risk categories. Provide this categorisation, as well as its associated risks for each new lease area as well as those that are already in operation. [LFHI]

0.3.1.4.3 Initially, for operational mining leases, the categorisation would be more focussed on impacts rather than risks, and would include elements like pollution levels, water quality, health indicators in the area etc which would indicate potential and ongoing impacts of the mining activity, [LFHI]

0.3.1.4.4 Classify as No-Go zones areas that are statutorily declared as prohibited or protected zones under various central, state and local government regulations and international conventions. Exclude these No-Go areas from mining considerations [LFHI]

0.3.1.4.5 Consultation and stakeholder engagement especially in Schedule V areas. This will address some of the issues of ensuring local stake in control, use and management of such areas and resources. [LFHI]

0.3.1.4.6 Benefit-sharing: The mining companies should share the benefit of mining with the mine affected people. Consultation and stakeholder engagement together with benefit sharing would address issues of consent of the indigenous communities on project
impacts on common resources, cultural practices, economic opportunities and adequate compensation. [LFHI]

0.3.1.4.7 Frameworks for understanding more comprehensively, potential environmental impacts – safeguards, management, mitigation, indicators. [LFHI]

0.3.1.4.8 Strategic area-based approach to conserve natural resources and address pollution related issues. [LFHI]

0.3.1.4.9 Put in place institutional structures and mechanisms at central, state and district levels to address different issues concerning consultation and stakeholder engagement, benefit sharing, environmental impact and conservation of natural resources. [LFHI]

0.3.1.4.10 Develop a sectoral regulator to comprehensively address social and environmental concerns through statutory interventions and approvals at mine as well as regional (watershed) level, with the intention that such regulator would function under the overarching supervision of the Environmental Regulator in the Ministry of Environment and Forest. [HFHI]
0.3.2. **Suggestions to formulate comprehensive framework for sustainable use of the mineral resources**

For the development of a “comprehensive framework to take informed decisions for the most sustainable use of the country’s mineral resources, the following issues are recommended.

0.3.2.5.1 Conduct detailed studies of the extent of mineral reserves and their reassessment in the light of revised threshold values. [LFLI]

0.3.2.5.2 The proportion of land already leased out, and within that, what proportion has been exploited, needs to be undertaken, to the degree possible (first level through remote sensing). [HFHI]

0.3.2.5.3 Consolidation of state data bases for the whole country, based on minerals, irrespective of go/no go areas. [LFHI]

0.3.2.5.4 Sustainable use of minerals and re-use potential (Recycle). Cost benefits analysis on conservation strategies to reduce energy consumption as well as CO2 emissions. [LFHI]

**0.3.3 Suggestions and Recommendations on reclamation & rehabilitation needed for Abandoned or closed Mines:**

0.3.3.4.1 There are about 82 abandoned mining sites as per IBM’s website, out of that sizable numbers of sites are of erstwhile PSU (33) and corporate sector(22). It is proposed that studies have to be taken up for their resource appraisal, environmental and socioeconomic impacts due abandoned mines along with concerned State Govt. and Pollution Control Boards, Ground Water agencies with assistance of respective Central or State PSU, Forest D ept. [LFHI]

0.3.3.4.2 Possibility of backfilling of fully exhausted voids shall be explored by utilization of waste within feasible distance from working mines in vicinity in consultation with forest department where it is necessary. Safety aspects of such reclamation should be studied in advance. [LFLI]
0.3.3.4.3 Accordingly, plan of rehabilitation in the form of Project document shall be worked out, so as to facilitate State Govt. to implement the plan of rehabilitation for enabling it to bring it to eco-friendly shape. [LFHI]

0.3.3.4.4 Further unlocking remnant mineral in such sites, notification for leases should be issued by State Govt. and after unlocking the residual values; the area should be reclaimed by the new holder of lease. Some relaxation on EC/FC for such sites for faster reclamation should be provided and such initiatives by the lessees should be incentivised. Those who have excellent track records in previous operations should be given preference in allocation of leases. [LFHI]

0.3.3.4.5 The financial implication of such small abandoned mines, where there are no takers, should be calculated and funding mechanism should be explored through Planning Commission. [LFHI]

0.3.3.4.6 Escrow fund for mine closure should be done in case of current practice of financial assurances. Incentivise the good work of the lessee and penalize the defaulters. [HFHI]

**0.3.4 Suggestions and recommendations on Socio-economic impact of Mining on the life of local inhabitants**

0.3.4.5.1 The concept of single window clearance for forest and environment should be introduced. [LFHI]

0.3.4.5.2 A study needs to be carried out on sensitivities and risks, demand and supply for granting the lease. [HFHI]

0.3.4.5.3 Policy on compensatory afforestation needs to be revisited considering the position of land banks available with the State for compensatory afforestation. [LFHI]

**0.3.5. Suggestions and Recommendations on CSR**

0.3.5.8.1 Each Lessee/public/corporate sector shall establish Sustainable Development Cell in the organisation for conceptualisation, planning, monitoring of sustainable
development with mineral resource management. Accordingly, lessee shall carry out detailed appraisals region-wise/sector wise to work out long term and short-term strategies for Corporate Social Responsibility (CSR). These strategies shall include preparatory action for conceptualisation of mining activity, impacts on socioeconomic structure and action plan for improving the quality of life of the communities nearby. [LFLI]

0.3.5.8.2 Each company shall publish document on CSR policy framework, fund flows and targeted achievement and quinquennial reviews should be submitted by five years to know efficacy and compatibility of implementation of proposals and address prospects and constraints demonstrated through socioeconomic parameters. [LFHI]

0.3.5.8.3 The base line studies shall be commissioned in consultation with State DGMs /other agencies in mining areas to assess socio-economic impacts of mining and nature and extent of ameliorative measures. The project report shall be prepared by District Mineral Foundation (DMF) in terms of SDF for local area development, and ensure execution. DMF shall execute such programmers/projects. Necessary Funds utilization shall be made as per proposed MMDR. [HFHI]

0.3.5.8.4 CSR activities should be made component of terms in lease deed conditions for PL and ML. CSR activities should start from award of Prospecting Licence. [HFLI]

0.3.5.8.5 The present state of Mining Plan document is comprehensive, multidisciplinary covers also Conceptual plan, Environment Management plan, Progressive closure plan, outlines of socioeconomic aspects of region. It is proposed to introduce the separate part in document dealing with base line data generation, Social Impact Assessment(SIA) and action plan for CSR activities linked production capacities for further implementation. [HFLI]

0.3.5.8.6 For institutional development, the lessee should make in house and outside faculty programmes for executive development for carrying out CSR activities. [LFHI]

0.3.5.8.7 Since RR and CSR issues are integral part of Sustainable development in mineral districts, implementation of the proposal regarding monitoring of environmental parameters and community development as per approved document shall involve interaction and consultation if considered necessary. [LFHI]

0.3.5.8.8 IBM and State Directorates should develop capacity building in monitoring and suggesting proper CSR activities in the vicinity of mining area. IBM and State
Directorate should establish “Sustainable Mineral Development Cell“ to plan, monitor and review RR and CSR activities centrally with corporate and PSU sector and also work out guidelines, plan of action for mines in private sector particularly for small mining sector. [HFHI]

0.3.5.8.9 IBM and DGM shall develop a system of reporting in regard to RR and CSR activities, commissioned through proposed SDF at National and state level by introducing quarterly/annual return and made mandatory as per provision of draft new MMDR Act 2011. [LFHI]

0.3.5.8.10 While reporting, it requires due verification of implementation from respective department/agencies. Corporate sectors are solely responsible for reporting it. IBM shall monitor R&R and CSR through regional offices in various mining belt by sample checkup or audits for physical verification. [HFHI]

0.3.5.8.11 Each Corporate sector, should submit the survey report by five years to know efficacy and compatibility of implementation proposals and address prospects and constraints demonstrated through socioeconomic parameters. [HFHI]

0.3.5.8.12 Initiatives for Improving the Image of Mining Industry: Promotional campaign for environmental and social performance, Recognition through a national award, Display of Showcases, articles in mass media on positive impacts and development with statistics, conducting mass media programme on sustainable mining and its outputs, achieving zero waste mining, value additions. Endorsement to Green Mining initiatives, awareness to curb illegal practices, participation of stakeholders in MEMC week celebrations. [HFHI]
CHAPTER 1
FISCAL MEASURES

(Item 1 of the Terms of Reference for Sub Group III)

Terms of Reference

“To examine the present investment, taxation and trade policies for the mining sector and to review the actual realization of private investment (including Foreign Direct Investments) and suggest structural changes in a way that enable high risk venture capital to flow into the sector along with state-of-the-art-technology and project investment during the XIIth Five Year Plan and in the perspective of 10-15 years thereafter.”

1.1.0 INVESTMENT, TAXATION, TRADE POLICIES OF MINING SECTOR

1.1.1 FDI Policy for Mineral sector (Non-fuel & non-atomic)

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.

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 Government of India 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 to Foreign Direct Investment in 1993 after the announcement of the National Mineral Policy 1993.

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.

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 (exploration, mining, mineral processing and metallurgy) for all non-atomic and non-fuel minerals have now been fully opened upto 100% through the automatic route including diamonds and precious stones.

The data on FDI in the mining sector for the last three years and in the current year upto February, 2011 are as follows:-

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>28.32</td>
<td>49.55</td>
<td>158.71</td>
<td>82.99</td>
</tr>
</tbody>
</table>

Source: DIPP

1.1.2 Levies and taxes on minerals under various Acts and Rules
A number of taxes are applicable to mining sector. These are detailed in this section.

1.1.2.1 Mines and Minerals Development and Regulation (MMDR) Act 1957: various charges/levies

(a) *Reconnaissance Permit fee:* This is applicable to reconnaissance permits and is to be paid annually at the rates fixed by the State Government being not less than Rs.5/- and not more than Rs.20/- per sq.km. Application for a reconnaissance permit is to be accompanied by a non-refundable fee at the rate of Rs.5/- per sq.km.

(b) *Prospecting fee:* This is applicable to prospecting licences and is payable in advance at the rates fixed by the State Government being not less than Re.1/- and not more than Rs.10/- per hectare. Application fee for a prospecting licence is to be paid as per Schedule – II of MCR 1960 and is payable at Rs.250/- for first square km. and Rs.50/- for each additional sq.km.
(c) **Fees in connection with mining lease:** Application fee for a mining lease is Rs.2500/-.
In addition, a deposit of Rs.1000/- is required to be made to meet preliminary expenses in connection with the grant.

(d) **Surface rent:** This is payable at a rate not exceeding the land revenue, as may be specified by the State Government and may vary from State to State. The rate of surface rent in West Bengal is Rs.45/- per acre per annum whereas it is Rs.2/- per acre in Madhya Pradesh. In Maharashtra, the rate varies in villages from 1 paisa to 2 paisa per sq. m. of non-agricultural area (NAA) used for mining and 20 paise per sq. m. in municipal areas.

(e) **Security deposit:** This deposit for the observance of terms and conditions is required to be made before execution of the reconnaissance permit/prospecting licence/mining lease at the rate of Rs.20/- per sq.km for a reconnaissance permit, Rs. 2500/- per sq.km for a prospecting licence and Rs.10,000/- for a mining lease.

(f) **Dead rent:** The rates of dead rent are as specified in the Third Schedule to the MMDR Act, 1957. The rates are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Low value</th>
<th>Medium value</th>
<th>High value</th>
<th>Precious Metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; year of lease</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; &amp; 4&lt;sup&gt;th&lt;/sup&gt; year of lease</td>
<td>500</td>
<td>1000</td>
<td>1500</td>
<td>2000</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt; year onwards</td>
<td>1000</td>
<td>2000</td>
<td>3000</td>
<td>4000</td>
</tr>
</tbody>
</table>

(g) **Royalty:** Rates of royalty on minerals are specified in the Second Schedule to the MMDR Act, 1957. In India, royalty on major minerals is charged on both unit-of-production basis and on ad valorem basis. The unit of production rates is applicable to 8 minerals (excluding coal, lignite and sand for stowing) and ad valorem rates on the rest of the major minerals. At present, the unit of production rates is varying from Rs.20/- to Rs. 880/- per tonne while the ad valorem rates are varying from 0.5 to 25 per cent.
Analysis of table -1 reveals that the royalty collection in respect of all the states except Maharashtra increased in 2009-10 over that of 2008-09.

(h) *Mine Closure Charges*: Scheme of mine closure was promulgated by the Central Government on 10 April, 2003 under the Mineral Conservation and Development (Amendment) Rules, 2003. According to this, every mining unit has to submit a progressive mine closure plan and final mine closure plan. The former plan has to be submitted within 180 days from the date of commencement of such rules and the latter one year prior to the proposed closure of the mine.

Financial assurance has to be furnished by every lease holder as follows:

II. A category mines: Rs.25000/- per hectare and minimum Rs.2 lakhs
III. B category mines: Rs.15000/- per hectare and minimum Rs.1 lakhs

(i) *Stamp duty : (or transaction fee)*: The rates of Stamp Duty for mining leases for a period of 20 to 100 years for selected states are given in table – 1 below:

<table>
<thead>
<tr>
<th>Table-1: Rates of Stamp duty in various states</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Bihar/ Jharkhand</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>State</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>Gujarat</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Karnataka</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Madhya Pradesh/ Chhattisgarh</td>
</tr>
<tr>
<td>Rajasthan</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>State</th>
<th>Tenancy Period</th>
<th>Rent Range</th>
<th>Rent Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>More than Rs.50,000 and part thereof</td>
<td>7% of amount considered or 5 times of the amount as average annual rent received.</td>
</tr>
<tr>
<td></td>
<td>30-100</td>
<td>Rs.5000- Rs.50,000</td>
<td>5% of amount considered or 8 times of the amount as average annual rent received.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 50,000</td>
<td>7% of amount considered or 8 times of the amount as average annual rent received.</td>
</tr>
<tr>
<td>Gujarart</td>
<td>10-30</td>
<td></td>
<td>8% for Rs.100 or part thereof of amount considered or two times of the amount as average annual rent received. Same as above for 1/5&lt;sup&gt;th&lt;/sup&gt; of the whole amount of rents which would be paid or delivered in respect of the first 50 years of the lease.</td>
</tr>
<tr>
<td>Karnataka</td>
<td>10-30</td>
<td></td>
<td>10% Rs.50 for every Rs.500 or 3 times of the amount as average annual rent reserved.</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>Indefinite</td>
<td>Rs.1000 – Rs.50,000</td>
<td>30% for Rs.500 or part thereof amount considered or equal to the amount of every annual rent paid for the first 10 years.</td>
</tr>
<tr>
<td></td>
<td>term</td>
<td></td>
<td>50% of every 500 or part thereof amount considered or 1/5&lt;sup&gt;th&lt;/sup&gt; of the whole amount of</td>
</tr>
<tr>
<td>In perpetuity</td>
<td>Rs.1,000 – Rs.50,000</td>
<td>30% for every Rs.500 or part thereof amount considered or $\frac{1}{5}$ of the whole amount of rent to be paid in respect of the first 50 years of the lease.</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>More than 5000</td>
<td>50% for every Rs.500 or part thereof of amount considered or $\frac{1}{5}$th of the while amount of rent to be paid in respect of the first 50 years of the lease.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Uttar Pradesh | 20-30               | Rs.900 – Rs.1000  
More than Rs.1000  
| 125% | 62.5% of amount considered or 6 times of the amount as average annual rent received. |
|               | Rs.900 – Rs.1000    | 125%  
More than Rs.1000  
| 62.5% of amount considered or 10 times of the amount as average annual rent received. |

### 1.1.2.2 Forest (Conservation) Act 1980 and/or Indian Forest Act:

(a) *Forest product tax and forest passes/taxes*: Tax levied on forest produce removed from forest areas and rate of forest passes, varies from State to State. For example, it is generally Rs.5/- per trip and 8 to 12% of royalty in Dandeli area of Karnataka.

(b) *Compensatory taxes/levies*: Compensatory afforestation charges differ from State to State and range from Rs.25,000/- to Rs.60,000/- per hectare of forest land diverted for mining. In the State of Bihar/Jharkhand, the Bihar Restoration and Improvement of Degraded Forest Land Taxation Ordinance, 1992 is in force. The rates vary with respect to mechanized, non-mechanised and underground mines and range upto Rs.55 lakh per hectare. Rates also differ on the basis of forest density and range from Rs.6 lakh to Rs.125 lakh per hectare.
The Compensatory afforestation and other charges in various states are given in table -2:

Table-2: Compensatory afforestation and other charges

<table>
<thead>
<tr>
<th>State</th>
<th>Compensatory Afforestation Charges (Rs./per hectare)</th>
<th>Other charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orissa</td>
<td>Rs.23450/-</td>
<td>Rs.36255/-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>per sq. km</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Fencing over safety zone)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Regeneration of safety zone)</td>
</tr>
<tr>
<td>Jharkhand/Bihar</td>
<td>Rs. 19790/-</td>
<td>Rs. 122680/-</td>
</tr>
<tr>
<td></td>
<td>(the lessee has to make the land available for compensatory afforestation and the cost for availing such land has to be borne by the lessee)</td>
<td>per km</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Fencing over safety zone)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Regeneration of safety zone)</td>
</tr>
<tr>
<td>Goa</td>
<td>Rs. 44430/-</td>
<td></td>
</tr>
<tr>
<td>Karnataka</td>
<td>Rs.59650/-</td>
<td>Rs.66500/-</td>
</tr>
<tr>
<td></td>
<td>Rs.1000/-</td>
<td>per km</td>
</tr>
<tr>
<td></td>
<td>(Lease rentals)</td>
<td>(Fencing over safety zone)</td>
</tr>
<tr>
<td></td>
<td>Rs.187.50/-</td>
<td>(Regeneration of safety zone)</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>Rs. 36700/-</td>
<td>Rs. 26000/-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>per hectare (penal)</td>
</tr>
</tbody>
</table>
Cost of forest land in form of “pratyasha shulk” is being charged at the rate of Rs.90,000/- to Rs.1,300,000/-.

In other states the rate of Compensatory Afforestation Charges ranges between Rs.35,000/- to Rs.50,000/- per hectare for forest land diverted for mining.

(i) **Transit fees**: Rs.18.68 per trip in Karnataka (other states also impose similar charges)

   Rs.7/- per tonne for transit pass to forest department (Madhya Pradesh).

(ii) **Clearing of jungle**: Rs.100/- per hectare.

(iii) **Land development work**: Rs.500/- per hectare.

(iv) **No of plants to be planted**: Rs.400 per hectare (cost of each plant: Rs.10/-).

(v) **Fire protection works**:

   Outer line: Rs.250/- per km

   Inner line: Rs.100/- per km

(vi) **Other miscellaneous charges**: Rs.300/- per sq.km

(vii) **Security guard charges for safety zone area**: Rs.2000/- per guard for each 60 hectares of safety zone.

(viii) **Net Present Value (NPV)**: In its judgment dated 9th May, 2008 the Supreme Court had directed that in addition to the payment of compensatory afforestation charges, “the user agency shall also pay the net present value of forest land diverted for non-forest purposes”. The present value is to be recovered at the rate of Rs.4.39 lakhs per hectare to Rs.10.43 lakhs per hectare of forest land depending upon the quantity and density of the land in question converted for non-forest use.
1.1.2.3. Environment (Protection) Act, 1986:

i) The Water (Prevention and Control of Pollution) Act, 1974

ii) The Air (Prevention and Control of Pollution) Act, 1981

State Water/Air Pollution Consent Fee: It is the fee payable for obtaining consent to establish the industry. In Rajasthan the Water Pollution Consent Fee is charged at Rs.2000 at prospecting stage (Rs.3000 at mining stage) on a project with investment upto Rs.65 lakh. The rates increase in stages and projects of Rs.200 crore and above are levied Rs.50,000 at prospecting stage and Rs.75,000 at mining stage. Similar rates are levied as Air Pollution Consent Fee as well. To start operations, 50% of fees at prospecting stage are charged additionally. In the state of Bihar/Jharkhand, the rates of Water Pollution Consent Fees vary from Rs.1,500 to Rs.7,500 and that of Air Pollution Consent Fee vary from Rs.1,000 to Rs.10,000.

1.1.2.4. Labour Welfare Fund Act/ Labour Welfare Cess Act: The prevailing rates in the respective Welfare Cess Acts in respect of the six minerals, namely mica, limestone, dolomite, iron ore, manganese ore and chrome ore are as detailed below:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Mode of collection and rate of cess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mica</td>
<td>On all exports of mica, the cess is prescribed as customs duty not exceeding 4.5%. At present this rate has been fixed at 3.5%.</td>
</tr>
<tr>
<td>Iron ore</td>
<td>Duty of customs where iron ore is exported or duty of excise where iron ore is sold/otherwise disposed of to metallurgical industry, etc from a mine at the rate not exceeding Rs.1 per tonne. The cess collected at Rs. 1 per tonne.</td>
</tr>
<tr>
<td>Manganese</td>
<td>Duty of customs where manganese ore is exported or duty of excise where ore is sold to metallurgical industry, etc. from a mine at such rate not exceeding Rs.6 per tonne. The cess is presently collected at Rs.2 per tonne.</td>
</tr>
<tr>
<td>Chromite</td>
<td>Duty of customs where chromite is exported or duty of excise where ore is exported or sold to metallurgical industry, etc. from a mine at the rate not exceeding Rs.3 per tonne. The cess is presently collected at Rs.3 per tonne.</td>
</tr>
</tbody>
</table>
sold from a mine to metallurgical industry at such rate not exceeding Rs.6 per tonne. The cess is presently collected at Rs.4 per tonne.

| Limestone & Dolomite | Duty of excise(i) as is sold or otherwise disposed of, (ii) as is used by the owner of such mine for any purpose for manufacture of cement, iron & steel, ferro—alloys, alloy steel, chemicals, sugar, paper, fertilizers, refractories, etc. or other articles or goods, at the rate not exceeding Rs.1 per tonne. The cess is at present collected at Rs.0.50 per tonne. |

1.1.2.5 **Income Tax Act, 1961:**

Various taxes applicable to mining sector are as follows:

**(a) Direct Taxes**

The taxes and incentives under the Income Tax Act applicable to industries in general and to mineral specific sectors are as under:

(a) *Corporate tax*: The current rates of corporate income tax are:

   (i)  *Indian Company*: @ 35% of taxable income plus a surcharge of 10% of the tax is levied

   (ii)  *Foreign company*: @ 48% of taxable income. Foreign companies are exempt from payment of surcharge.

(b) *Withholding tax*: The current rate is 20% in respect of dividends and interest while rate is 30% on fees and salaries paid to foreign consultants. The rates agreed upon in the bilateral treaties prevail over those in the Act.

(c) *Taxes on Capital Gains*: Long term capital gains attract concessional tax liabilities at a flat rate of 20% with indexation or 10% without indexation for Indian companies and 10% for foreign companies. This concessional tax rate does not apply to short term capital gains.
(d) **Minimum Alternate Tax (MAT)**: Where the total taxable income of a company is less than 30% of its book profits, the company is liable to pay income tax on 7.5% of its book profits.

(e) **Service tax**: Service tax is leviable on certain taxable services at 5% rate.

(b) **Indirect Taxes**

(i) **Customs duty**: Basic customs duty is levied on most minerals is 10% for mineral specified in Chapter 25. For certain minerals the preferential rate is reduced to 5%. It is 5% for mineral specified in Chapter 26, which has now been reduced to 2%.

Additional Duty on Customs is equal to the excise duty leviable. Special duty is leviable at 5% of the value of goods and is presently exempted. Special Additional Duty is chargeable at 4% ad valorem. The surcharge is levied at 10% of the duty chargeable as specified in the First Schedule and notifications in force. It is in addition to any duties of customs. Capital goods for mining attract a basic duty of 7.5%, 10% surcharge, 4% special additional duty and 16% countervailing duty.

(ii) Excise duty is now replaced with a single rate or Central Value Added Tax (CENVAT) of 10% ad valorem in addition to Special Excise Duty. Minerals are exempted from the whole of the duty of excise leviable thereon, their finished form being excisable items. However, marble slabs and tiles attract excise duty at the rate of Rs.30/- per sq. metre subject to a maximum of 16% ad valorem.

Beneficiated/intermediate products are subjected to levying to central excise duty when they are marketed. The intermediate products include mineral concentrates, cement clinkers, etc. The central excise rates for these intermediate products namely concentrates of iron ore, manganese ore(including ferruginous concentrates), copper ore, nickel ore, cobalt ores, aluminium ores, lead and zinc ores, tin ores, chromium ore, tungsten ores, uranium or thorium ores, niobium, tantalum, vanadium and zirconium ores and precious metals are replaced by a single rate of CENVAT at 10%.
(iii) **Sales Tax**: The Central sales tax is charged at the rate of 4% for goods covered by declaration in Form ‘C’. In other cases General Sales Tax of the State is charged. The State Sales Tax rate varies from 5% to 16% with or without surcharge on sales tax, turnover tax, additional tax etc. Standing Monitoring Committee of Seven State Finance Ministers recently set out that all the states fully implement the uniform minimum floor rate of 4% for minerals and discontinue sales tax based incentives.

(iv) **Export Tariff**: The export tariff is being levied on the following minerals as per details given below:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Rate of Duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Sillimanite</td>
<td>20%</td>
</tr>
<tr>
<td>(b) Kyanite</td>
<td>Rs.40 per tone</td>
</tr>
<tr>
<td>(c) Barytes</td>
<td>Rs.50 per tone</td>
</tr>
<tr>
<td>(d) Granite (including black granite/</td>
<td>15%</td>
</tr>
<tr>
<td>Porphyry and basalt, all sorts</td>
<td></td>
</tr>
<tr>
<td>(e) Mica (including fabricated mica)</td>
<td>40%</td>
</tr>
<tr>
<td>(f) Steatite(talc)</td>
<td>20%</td>
</tr>
<tr>
<td>(g) Iron ore and conc. Non-agglomerated</td>
<td>30%</td>
</tr>
<tr>
<td>(h) Iron ore and conc. Agglomerated</td>
<td>30%</td>
</tr>
<tr>
<td>(i) Manganese ore</td>
<td>Rs.20 per tone</td>
</tr>
<tr>
<td>(j) Chromium ore and conc. all sorts</td>
<td>Rs 3000 per tone</td>
</tr>
<tr>
<td>(k) Manganese dioxide</td>
<td>20%</td>
</tr>
</tbody>
</table>

However, for iron ore (lumps and fines) actual duty is 20% and the pellets are exempted.

1.1.2.6 **Other Taxes**

(a) **Municipal/octroi/Toll Tax/Entry Tax**: The rates vary even within a state.

(b) **Real Estate Tax**: Rates vary from state to state.

(c) **Road Tax**: This tax varies from State to State. It is generally Rs.5000/- per year per truck and Rs.35000 for truck trailer of 35 tonne capacity.

(d) **Village Panchayat Levies**: The rates vary widely.
(e) *Taxes on change in land use:* The rates vary from state to state under surface rent.

(f) *Water rent:* Water rate is charged at the rate as may be specified by the State Government in the lease and varies from state to state.

### 1.1.2.7 Miscellaneous

#### 1.1.2.7.1 *Corporate Social Responsibility charges:*

Recently the State of Orissa has started levying 5% of the turnover as CSR charges for the development of local areas in addition to what the mining industry has been doing of its own.

Thus it will be seen the mining industry is subjected to heavy taxation.

#### 1.1.2.7.2 *Taxes to be subsumed with GST*

However, with the introduction of GST, the following Central Taxes presently applicable will be subsumed under the Goods and Services Tax:

(i) Central Excise Duty

(ii) Additional Excise Duty

(iii) Service Tax

(iv) Additional Customs Duty, commonly known as Countervailing Duty (CVD).

(v) Special Additional Duty of Customs – 4% (SAD)

(vi) Surcharges; and

(vii) Cesses

Similarly, the State Taxes and levies would be to begin with subsumed under GST:

(i) VAT/Sales Tax

(ii) State Cesses and Surcharges in so far as they relate to supply of goods and services.

(iii) Entry tax not in lieu of Octroi.
### 1.1.2.7.3. Fees/Deposits suggested in MMDR Bill 2011

In the draft MMDR Bill 2011, the fees, deposits etc., being levied will be as follows:

<table>
<thead>
<tr>
<th>Type of concession</th>
<th>Type of charges</th>
<th>Present rate</th>
<th>Suggested rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reconnaissance permit</td>
<td>Non-refundable fee</td>
<td>Rs.5/- per sq.km</td>
<td>Not less than Rs.50/-Sq.km and not more than Rs.500/-sq.km</td>
</tr>
<tr>
<td></td>
<td>Permit Fee</td>
<td>Not less than Rs.5/sq.km and not more than Rs.20/-sq.km</td>
<td>Not less than Rs.25/sq.km and not more than Rs.100/sq.km</td>
</tr>
<tr>
<td></td>
<td>Security Deposit</td>
<td>Rs.20/sq.km</td>
<td>Not less than Rs.50/sq.km and not more than Rs.500/sq.km</td>
</tr>
<tr>
<td>LAPL</td>
<td>Non-refundable fee</td>
<td>--</td>
<td>Rs.500/sq.km</td>
</tr>
<tr>
<td></td>
<td>Licence Fee</td>
<td>--</td>
<td>Not less than Rs.100/sq.km and not more than Rs.500/sq.km</td>
</tr>
<tr>
<td></td>
<td>Security Deposit</td>
<td>--</td>
<td>Rs.100/per sq.km</td>
</tr>
<tr>
<td>Prospecting Licence</td>
<td>Prospecting fee</td>
<td>Not less than Rs.1/hectare and not more than Rs.10/hectare.</td>
<td>Not exceeding Rs.50/hectare</td>
</tr>
<tr>
<td></td>
<td>Security Deposit</td>
<td>Rs.2500/sq.km.</td>
<td>Equal to licence fee (Rs.10,000/sq.km)</td>
</tr>
<tr>
<td>Mining Lease</td>
<td>Application fee - Grant or renewal</td>
<td>Rs.2500/-</td>
<td>Rs.2500/-</td>
</tr>
<tr>
<td></td>
<td>Preliminary Expenses</td>
<td>Rs.1000/-</td>
<td>Rs.1000/-</td>
</tr>
<tr>
<td></td>
<td>Mining Plan</td>
<td>Rs.1000/sq.km</td>
<td>Rs.5000/sq.km</td>
</tr>
<tr>
<td></td>
<td>Competency Examination</td>
<td>--</td>
<td>Rs.1000</td>
</tr>
<tr>
<td></td>
<td>Application towards lapsing lease</td>
<td>Rs.200/-</td>
<td>Rs.1000/-</td>
</tr>
<tr>
<td>Security deposit for observation of terms and conditions</td>
<td>Rs.10,000/-</td>
<td>Rs.1 lakh/hectare</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Penalty for contravention of Conditions</td>
<td>Rs.5000/-</td>
<td>Rs.5000/-</td>
<td></td>
</tr>
</tbody>
</table>

1.1.3. Comparison of taxes in India and in selected countries: Comparison of international system and rates of calculating royalty – Three systems of calculating royalty are prevalent in the world. These are (a) Quantity based or rate per tonne, (b) Ad valorem or percentage of revenue and (c) Profit based or percentage of profit.

Quantity based royalty also known as specific rate royalty is charged on the basis of a unit of quantity such as weight e.g. $ or Rupees per MT. This system is easy to administer, but is inefficient in fiscal terms as the collection of royalty revenue is a function of the quantity extracted and rising prices do not get reflected in the receipts. It is generally used for low value and high volume minerals. An ad valorem or value-based royalty is calculated by applying a percentage rate to the gross sale value. This is usually ‘ex-mine’ or pit head value (sale realisation) less allowable expenditure. In the profit-based system royalty is a percentage of the net profit earned by the mineral producer. This system is usually project-based and profit is calculated by obtaining all project revenues and deducting from them all project costs. A pure profit based royalty is more equitable and has less effect on exploration and mining company investment decisions than the other two systems described above. However, the major disadvantages of the system are uncertainty in yield and problems in administration.

Indian Mining companies and manufacturers are living in a rapidly globalizing world and they have to compete with their foreign counterparts not only in the external markets but in the domestic markets as well. In such a situation, it would not be wise to set a royalty rate, which is out of tune with the rates in other countries. Furthermore, India has to compete with other mineral producing countries in attracting FDI in mining. One of the factors that mining companies take into account for their investment decisions is certainly the fiscal regime and the rate of royalty in particular.
The table–3 below gives the comparative picture of the royalty rates prevailing in India and in other countries. Three of the countries with major or significant mining activity, i.e. Canada, Chile, and South Africa do not levy any royalty at all. In Australia each of the seven states have their own royalty rates. In all the states the rates are predominantly in ad valorem terms, largely in the range of 2.5 to 5%. In few cases in the major mining states of Western Australia, the rate is 7.5% for some important minerals such as iron ore lumps, manganese, bauxite, diamonds and precious stones. The state of Northern Territories as an exception has a uniform rate of royalty of 18% for all products.

Table – 3: International Comparison of royalty rates

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Australia</th>
<th>China</th>
<th>Brazil</th>
<th>Indonesia</th>
<th>Uzbekistan</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos</td>
<td>5% of realized value</td>
<td>2-4% of sale value</td>
<td>N.A.</td>
<td>-</td>
<td>3% of sale price</td>
<td>Rs.880/-/per tonne for chrysotile &amp; 15% of sale value for Amphibole.</td>
</tr>
<tr>
<td>China clay</td>
<td>5% of realized value</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>7.9% of sale value</td>
<td>8% for crude &amp; 10% for processed.</td>
</tr>
<tr>
<td>Copper</td>
<td>5% of realized value</td>
<td>2% of sale value</td>
<td>2% of net invoice value</td>
<td>4% of sale value</td>
<td>7.9% of sale price</td>
<td>4.2% of LME metal price</td>
</tr>
<tr>
<td>Chromite</td>
<td>5% of realized value</td>
<td>N.A.</td>
<td>N.A.</td>
<td>3.5% of sale value</td>
<td>N.A.</td>
<td>10% of sale value</td>
</tr>
<tr>
<td>Bauxite</td>
<td>7.5% of sale value</td>
<td>2-4% of sale value</td>
<td>N.A.</td>
<td>3.25% of sale value</td>
<td>N.A.</td>
<td>0.5% linked to LME price for metallurgical grade &amp; 20% of</td>
</tr>
<tr>
<td>Mineral</td>
<td>Royalty Rate</td>
<td>Interpretation</td>
<td>Net Invoice Value</td>
<td>Sale Price</td>
<td>Royalty Rate</td>
<td>Interpretation</td>
</tr>
<tr>
<td>------------</td>
<td>--------------</td>
<td>-----------------------------------------</td>
<td>-------------------</td>
<td>------------</td>
<td>--------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Diamond</td>
<td>7.5% of realized value</td>
<td>Industrial -25 of sale value, Gem 4% of sale value</td>
<td>N.A.</td>
<td>6.5% of sale value</td>
<td>24% of sale price</td>
<td>11.5% of sale value</td>
</tr>
<tr>
<td>Gold</td>
<td>1.25% of realized value</td>
<td>4% of sale value, 1% of net invoice value</td>
<td>3.75% of sale value</td>
<td>2.8% of sale price</td>
<td>2% of London Bullion Market Association price for primary &amp; 3.3% for by-product gold.</td>
<td></td>
</tr>
<tr>
<td>Graphite</td>
<td>5% of realized value</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>6% of sale price</td>
<td>Tonnage basis</td>
</tr>
<tr>
<td>Iron Ore</td>
<td>5% to 7.5% of realized value depending on grade</td>
<td>N.A.</td>
<td>N.A.</td>
<td>3% of sale price</td>
<td>3% of gross value</td>
<td>10% of sale price</td>
</tr>
<tr>
<td>Magnesite</td>
<td>5% of realized value</td>
<td>20-4% of sale value</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>3% of sale price</td>
</tr>
</tbody>
</table>

Two Asian countries, namely, China and Indonesia have significant mining activity. In China, the royalty rates are predominantly 2%. Some of the major exceptions being gold and
precious stones which are charged at the rate of 4%. In Indonesia, the rates are mostly in the range of 3-5%, except for diamond which is 6.5%. In Central Asia, Kazakhstan and Uzbekistan are two important mineral rich countries. In Kazakhstan for important minerals the rates are established through negotiations & contracts for each single mine depending upon the project economic. In Uzbekistan, the rates are generally very low, except for copper (7.9%), diamond (24%), tungsten concentrate (8%) and kaolin (7.9%). African countries generally have low royalties except for diamond and precious stones in which it is generally 10%.

1.2.0 Mineral Exploration: A High Risk Venture

The results of exploration provide the information required to evaluate the potential profitability of developing or expanding mineral operation at a particular site or area. However, as only a small proportion of investment in mineral exploration leads to the discovery of mineral deposits that can be economically developed, exploration is a risk activity.

A number of factors play an important role in influencing mineral exploration expenditure. Typically the most important factor underlying the funds available globally for mineral exploration is the prevailing price of mineral commodities. Higher prices tend to encourage exploration, while lower prices do the opposite.

The geological prospectivity of a region plays a critical role in determining mineral exploration expenditure at the regional level. The higher the perceived chances of discovering mineral deposit that can be economically developed the more exploration expenditure that an economy is likely to receive. Governments have the ability to influence the perception of prospecting through the collection and provision of precompetitive geo-scientific information.

Economy specific factors such as government policies and regulations, the transparency of approval processes, the perceived level of political risk, the availability of skilled geologists and service contractors, the quality of infrastructure and environmental and social considerations are also important determinants of the direction of exploration expenditure.
And therefore, it is seen that mineral exploration companies may be unwilling to undertake mineral exploration in regions with high geological prospectively during period of high prices if other economy specific factors are considered to be unfavorable.

1.3.0 Review of Investment in Mining and Exploration

The world non-ferrous exploration budget was estimated at $12.1 billion in 2010. Against this the exploration budget of India was negligible.

During 2010, the exploration budget of top ten countries accounted for 69% of total of total world exploration. The share of these countries was as follows.

<table>
<thead>
<tr>
<th>Country</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>19%</td>
</tr>
<tr>
<td>Australia</td>
<td>12%</td>
</tr>
<tr>
<td>United States</td>
<td>8%</td>
</tr>
<tr>
<td>Mexico</td>
<td>6%</td>
</tr>
<tr>
<td>Peru</td>
<td>5%</td>
</tr>
<tr>
<td>Chile</td>
<td>5%</td>
</tr>
<tr>
<td>Russia</td>
<td>4%</td>
</tr>
<tr>
<td>China</td>
<td>4%</td>
</tr>
<tr>
<td>Brazil</td>
<td>3%</td>
</tr>
<tr>
<td>Argentina</td>
<td>3%</td>
</tr>
<tr>
<td>Other 113 countries</td>
<td>31%</td>
</tr>
</tbody>
</table>

In spite of economic liberalization in 1991 and various measures like 100% FDI in mining and exploration, there has not been any private sector investment in India’s exploration and mining fields. Since both exploration and mining are high risk ventures, in general there is not much of the investment. After liberalization more than 400 Reconnaissance Permits have been granted covering 4,97,474 sq.km area. The total expenditure incurred by way of exploration in these Reconnaissance Permits is placed at Rs.2571 million since 1993. Out of these Reconnaissance Permits only a few have been converted into mining leases. During the last four years, a total of 464 Prospecting Licences have been granted. But exploration expenditure is negligible by these PL holders in the world context. However, at the same time, analysis of exploration activities in some of the areas in the last two decades also indicates that there is great potential for new finds. Bhukia gold deposits in Rajasthan, the diamond discovery...
by Rio Tinto in Madhya Pradesh, gold discovery by Pebble Creek in Uttarakhand supports this view. The negligible growth in exploration expenditure can be attributed to the following four main reasons.

(i) Uncertainty about getting next concession.
(ii) Inordinate delays in grants/ approval
(iii) Absence of incentives in the tax regime
(iv) Inaccessibility to funds.

The first two aspects are beyond the scope of this Core group but need to be highlighted. In furtherance of the recommendation of the Hoda Committee, the Ministry of Mines has constituted Central Empowered Committee which looks into the aspects of speedy disposal of applications for mineral concessions. The draft MMDR Bill, 2011 has looked into the aspects of seamless transition of mineral concessions.

The other two aspects i.e. taxation and fund availability play major role in accelerating the exploration activities. Presently in India, the tax burden on the mineral sector acts as a discouraging factor when compared to the risk factor involved. At the same time many of the developing and developed countries have offered a number of tax incentives to the mineral sector. Similarly raising funds for exploration and mining in India is considered a tough job whereas in many countries financial institutions and stock exchanges have played a leading role in making available funds to exploration and mining companies. A critical analysis of policy framework, tax structure and incentives and mechanism of fund raising being adopted in leading countries like Australia and Canada is therefore necessary so that structural changes in the taxation and fund raising in Indian mineral sector can be suggested.

1.4.0 Global Practices in Taxation for Mining Sector

1.4.1. Canada

Canada’s tax regimes for mining are some of the most competitive in the world and reflect the realities of provincial ownership and royalties, high risk, and capital intensive, as well
as a conscious decision by Government to encourage this industrial activity. In Canada, companies are subjected to taxes at three levels; federal, provincial or territorial and municipal. While this seems complicated it ensures that all levels of government benefit when a mine enters production.

**Tax Rates in Canada are:**

<table>
<thead>
<tr>
<th></th>
<th>Corporate Income Tax</th>
<th>16.5% in 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td></td>
<td>15.0% in 2012</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Corporate income tax</th>
<th>Rates vary from 10 to 16%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provincial/territorial</td>
<td>Mining taxes (generally Profit based)</td>
<td>Rates vary from 10 to 18%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Municipal Taxes</th>
<th>Property Tax</th>
<th>Variable</th>
</tr>
</thead>
</table>

Since 2003, Canada’s Federal Corporate income tax rate has dropped from 29.12% to 16.5% in 2011 and will become the lowest in G-7 countries in 2012 at 15%.

1.4.2 Australia:

Australia has a 200 nautical mile EEZ Mineral resources located in Australia’s offshore areas beyond three nautical miles are the responsibility of the Australian Government. Only oil and gas are produced offshore in Australia. The Australian Government’s company income tax and crude oil excise tax applies to all jurisdictions in Australia.

(a) **Company income tax**: It is levied at a rate of 30 percent. The treatment of business expenditure for companies in the mining sector is generally the same as in other industries. Special treatment is given to certain capital expenditure (for example, immediate deductions are allowable for exploration and mine site rehabilitation costs) and resource taxation payments are deductible.

(b) **Crude oil excise tax**: It is an output based royalty levied at a rate that increases with crude oil and condensate production; the first 30 million barrel of production is exempt from the excise. Oil and gas resource taxation in areas under the jurisdiction of the Australian
Government includes (i) Ad valorem royalty (ii) Production sharing contract (iii) Resource rent royalty (iv) Petroleum resource rent tax.

(c) **Uranium resources in the Northern Territory**

Uranium resources located in the Northern Territory are also the responsibility of the Australian Government. The Ranger uranium mine in the Northern territory is subject to a 5.5 percent ad valorem royalty.

(d) **State and Territory government**

Mineral resources located on land or in coastal waters within three nautical miles of the coast are the responsibility of the corresponding state or territory government. Oil and gas projects in the states and territories are generally subject to an ad valorem royalty levied at a rate of 10 percent. In the New South Wales, production in the first five years is exempted from the royalty and the rate increases by one percentage point a year from 6 percent in the sixth year to 10 percent in the tenth year.

An overview of resource taxation arrangements in Australia is given below.

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Oil and Gas</th>
<th>Coal</th>
<th>Metallic Minerals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Government</td>
<td>Company tax</td>
<td>30%</td>
<td>30% and in NT it ranges Ad valorem</td>
</tr>
<tr>
<td></td>
<td>Royalty</td>
<td>Rent based and output based</td>
<td>-</td>
</tr>
<tr>
<td>Western</td>
<td>Royalty</td>
<td>Ad valorem</td>
<td>Ad valorem</td>
</tr>
</tbody>
</table>
## 1.5.0 Access to Capital

Australia and Canada have well placed system to raise capital for exploration and mining.

### 1.5.1. Australia: Initial Equity Capital Raising:

The initial listing of a company on Australian Stock Exchange (ASX) is governed by the requirements of both the Corporation Act (2001) and the ASX listing rules.

The Corporation Act requires companies and other issues to issue a prospectus or Product Disclosure Statement (PDS) when raising capital from retail investors. ASX listing rules also impose a similar obligation on entities prior to listing. Such disclosures aim to provide prospective shareholders with sufficient information to make an informed investment choice.

The issuer is responsible for compliance with the disclosure requirements and neither ASIC nor ASX ‘approve’ offer document.

The ASX listing rules are a binding agreement, with the statutory backing of the Corporation Act, between the company and the ASX attesting that the company meets the initial listing requirement, which include a minimum number of shareholders at the time of listing and

<table>
<thead>
<tr>
<th>Country</th>
<th>Royalty Type</th>
<th>Ad Valorem</th>
<th>Specific</th>
<th>Income Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland</td>
<td>Royalty</td>
<td>Ad valorem</td>
<td>Ad valorem</td>
<td>Ad valorem</td>
</tr>
<tr>
<td>New South Wales</td>
<td>Royalty</td>
<td>Ad valorem</td>
<td>Ad valorem</td>
<td>Ad valorem</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Broken Hills</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Income based</td>
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Surplus royalty may also apply.
company size. The company must also agree to comply with the ongoing listing requirement, which include relating to continuous disclosure and periodic reporting. Admission to the official list, and the category of an entity’s admission is at ASX discretion.

1.5.2. Canada:

(a) Flow through shares:

The flow through shares scheme is a fiscal arrangement unique to Canada. Flow through shares is used to encourage mineral exploration by allowing corporations to pass on their rights to cost deduction of eligible exploration expenses to tax payers.

Conventional fiscal regimes limit the ability of exploration companies, particularly junior exploration companies to deduct the expenses they incur from undertaking exploration. The deductibility of expenses is usually limited to the taxable income generated by the organization itself. Because junior companies undertaking exploration often generate little or no income, they cannot deduct all of their expenses. Flow-through shares avoid this problem and work in the following way:

- The company issues a ‘bundle’ including shares and tax deduction to a tax payer in exchange for cash. The tax deduction portion of the bundle allocates the right to deduct exploration expenditure to the taxpayer in the current financial year (the company forfeits this right).

- The company agrees to incur exploration and development expenses up to the amount paid for the shares at the earlier of the period that ends 24 months after the end of the month the agreement was signed or by the end of the calendar year following the effective year of renunciation.

- The expenses incurred by the company are then considered for tax purposes to be expenses of the taxpayer who purchase the shares.
The shareholder/tax payer can then deduct the expenses from their taxable income as though they had been incurred directly.

The system allows companies to use the funds for up to 12 months after the end of the financial year in which they were used. Taxpayers can reduce their tax liability by investing in a participating organization.

Once the flow through portion of the shares has been used, the share remains valid; as though issued as an ordinary share. If the company’s exploration is successful and minerals are discovered, the value of the shares increases making the investment more profitable.

**1.6.0. Institutional Finance:**

**1.6.1. New Africa Mining Fund of African Development Bank**

New Africa Mining Fund (NAMF) is a specialist equity fund based in Johannesburg and Mauritius which invests in early to later stage junior, exploration, mining and beneficiation activities (Junior Minor) in Africa in resources such as base metals, PGM, gold, Coal and other bulk minerals such as iron, manganese and chromites.

NAMF provides high risk capital to Junior Miners for the purposes of exploration, feasibility studies or development where the African Development Bank is satisfied that significant value can be added to the project. Philosophy of the bank in this regards is that value addition can only be measured when the investment is monetized and the bank seeks commensurate risk. NAMF I which was introduced in 2003 with investment capital of US $ 86 million produced a return on the investment portfolio of 39%. African Development Bank (AFD) has now introduced NAMF II as a follow-on-fund to NAMF I with a limited life of 8 year starting from the first closing date of 28.2.2011 and will over twelve months accept further capital commitment of up to a maximum of US $ 300 million.

**1.7.0 Tax Incentives offered by different Countries for Mining Sector:**
1.7.1. Canada

For taxation purposes, mining activities are divided into two distinct stages:

(i) Extraction and processing
(ii) Semi-fabrication and fabrication.

The extraction and processing stages which include concentrating, smelting and refining are given special treatment under the corporate income tax regime of the federal and the provinces/territories.

At the federal level, this special treatment includes the following tax provisions:

(i) Deductions of provincial/territorial mining taxes and royalties.
(ii) Canadian Exploration Expenses.
(iii) Investment Tax Credit for Pre-production Expenditure.
(iv) Flow-Through Share (FTS) and the Mineral Exploration Tax Credit (METC).
(v) Foreign Resource Expenses (FRE) and Foreign Exploration and Development Expenses (FEDE).
(vi) Canadian Development Expenses (CDE) and Canadian Oil and Gas Prospecting Expenses (COGPE).
(vii) Special class of Capital Cost Allowance.
(viii) Accelerated Capital Cost Allowance (ACCA).
(ix) Investment Tax Credit for qualified property acquired for use in the Atlanta and Gaspe Peninsula.
(x) Treatment of foreign ores.
(xi) Deduction for mine reclamation trust fund contribution.

The semi-fabrication and fabrication of metal products are considered to be manufacturing activities. As such they are accorded the same general treatment as other manufacturing activities in the economy.
1.7.2. Deductions Available:

(a) Deductions of provincial/territorial mining taxes and royalties:

Since January 1, 2007, mining taxes and royalties paid to a province or territory with respect to income from a mineral resource are fully deductible in computing income for federal income tax purposes.

(b) Capital Cost Allowance (CCA):

The depreciation of tangible assets is allowed under the system of capital cost allowance. The following capital assets acquired by mining and oil and gas companies are qualified for a depreciation rate of 25% on a declining balance basis.

(i) All buildings, structure, machinery and equipment used in the extraction and processing (concentrating, smelting and refining) of a mineral resource that is not beyond the prime metal stage or its equivalent.

(ii) Motive equipment and railway facilities (excluding rolling stock) used to produce income from a mine.

(iii) Loading and unloading assets used at the mining or at the mineral processing facilities.

(iv) Electrical generating and distributing equipment used for mining.

(v) Assets that provide services to the mine or to the community where a substantial portion of persons employed at the mine reside (hospital, school, airport, firehall etc.)

(c) Investment Tax Credit for qualified Property Acquired:

A 10% investment tax credit applies to qualified property for use in the Atlantic Provinces and the Gaspe Peninsula. Qualified property includes depreciable assets acquired and used for the purpose of exploring for and developing a mineral resource, extracting minerals from a mineral resource and processing mineral resources up to the prime metal stage or its equivalent.
(d) Canadian Exploration Expenses (CEE):

Canadian Exploration Expenses (CEE) are expenses incurred by the taxpayer for the purpose of determining the existence, location, extent or quality of a mineral resource, or petroleum or natural gas in Canada including expenses involved with:

(i) Prospecting
(ii) Geological, geophysical or geochemical surveys
(iii) Drilling (rotary, diamond, percussion or other methods), and/or
(iv) Trenching, digging test pits and preliminary sampling.

CEE also includes expenses incurred for the purpose of bringing a new mine into production, including clearing, removing overburden and stripping, and sinking a mineshaft. These expenses can be described as pre-production development costs.

There is a 100% deduction available in respect of CEE in the year that the expenditure is incurred.

(e) Investment Tax Credit for Pre-production Mining Expenses:

The Investment Tax Credit (ITC) for Pre-production Mining Expenditure is a 10% non-refundable credit, available to a Canadian Corporation that incurs mineral exploration and mine development expenses in respect of a new mine or a major mine expansion where the final products are base metals or precious metals or diamonds. The credit applies only to qualified expenditures that are not renamed under the terms of a flow-through share agreement.

(f) Foreign Resource Expense (FRE) and Foreign Exploration and Development Expense (FEDE).

The Foreign Resource Expense (FRE) and the Foreign Exploration and Development Expense (FEDE) claims are available to corporations resident in Canada throughout the taxation year.
FEDE and FRE include, subject to the applicable date restrictions:
(i) Expenses incurred in respect of exploration and drilling for petroleum and gas outside Canada.
(ii) Exploration and development expenses incurred in searching for minerals outside Canada.
(iii) The cost of acquiring foreign resource properties.
(iv) Annual foreign lease rental payments.
(v) The “at risk” portion of the corporation’s share of any of the above expenses from a partnership.

(f) **Canadian Development Expenses (CDE)**

A Canadian Development Expense (CDE) Consists of expenses incurred in:
(i) Drilling, converting, and completing an oil well in Canada; or

(ii) Sinking or excavating a mineshaft, main haulage way or similar underground work for a mine in a mineral resource in Canada built or excavated after the mine came into production. The cost of any Canadian mineral property or of any right to or interest in any such property also qualifies as CDE.

CDE are accumulated in a pool called cumulative Canadian Development Expenses (CCDE). The taxpayer can deduct upto 30% of the unclaimed balance in that pool at the end of each year. Unclaimed balances may be carried forward indefinitely.

(h) **Mine Reclamation Funds** :

Reclamation of a mine site generally involves the dismantling of building and structures and the stabilization and re-vegetation of mine waste dumps and tailings impound areas.

Under the former tax treatment for mine reclamation costs, a deduction was allowed only after money had actually been spent on reclamation. The February 1984 Budget amended the income tax rules relating to mine reclamation as follows:
(i) A deduction will be permitted for contributions to qualifying mine reclamation trusts made after Feb. 22, 1984, pursuant to a statutory obligation to make such contribution;
(ii) Income earned in such trusts will be subject to tax each year;
(iii) All withdrawals from the trust will be included in computing the recipient’s income for tax purposes.
(iv) Reclamation costs will continue to be fully deductible at the time incurred; and
(v) Contributions trust earnings and withdrawals will not be taken into account for the purposes of determining a taxpayer’s resource allowance. Mine reclamation trust fund rules were extended to industrial mineral quarries and waste disposal sites in the 1997 federal budget.

(i) **Mining Depletion:**

Prior to 1990, mining corporations were able to deduct an allowance (the lesser of 25% of resource profits or the amount earned depletion) for earned depletion, which could be accumulated in an earned depletion pool. While additions to the earned depletion pool were not permitted after December 31, 1989, mining corporations can still use the unclaimed balance from its depletion pool to reduce taxable income in future years.

(j) **Flow Though Shares and the Mineral Exploration Tax Credit:**

A Flow Though shares (FTS) is a mechanism that allows business Corporations to obtain financing for expenditures on mineral exploration and development in Canada. By issuing flow-through shares, a company can renounce, or flow through, certain expenses to the purchaser of the share. These expenses are deemed to be incurred by the investor and not the corporation and reduce income subject to tax in the hands of the investor (which can be an individual or another corporation). FTS mechanism, therefore, not only allows costs to be claimed soon than they would have been if they were retained in the Corporation incurring them, but also to be claimed against income subject to higher rates for the individual investors, the advantages of investing in flow-through shares can be two fold:

(i) They receive a 100% tax deduction for the amount of money they invested in the shares plus a 15% tax credit in the case of eligible expense, and
(ii) They stand to see the value of their investment appreciate in the event of successful exploration.

The flow through share mechanism has been a longstanding and unique feature of the Canadian regime for mining and oil and gas taxation. Flow through shares have financed a significant amount of the increasing exploration activity in Canada in recent years.

1.8.0 Incentives Available for Mining Industry in India

The following incentives are available in the income tax for Indian mining industry.

(i) Availability of tax holiday: Mining companies in specified backward areas are eligible for a complete tax holiday for a period of five years from commencement of production and a partial tax holiday thereafter.

(ii) Depreciation allowances: The benefits of accelerated depreciation are available for tax purposes. As a result, the total amount of depreciation which is allowable as a tax deduction does not change but the company is allowed to make such deductions earlier in the project’s life.

Tubes, Winding ropes, haulage ropes, stowing pipes and safety lamps used in mines and quarries are allowed 100 percent depreciation. Environmental protection equipment, pollution control equipments, energy saving equipment also qualify for 100% depreciation.

(iii) Withholding tax rates: Withholding tax rates are dividend (20%), Interest (20%), Royalties (20%), Technical services fee (20%), and other taxable income (20%).

(iv) Deduction in r/o of export turnover: Deduction of 100 percent of export income is granted for export of specified mineral and ores. To claim this deduction, the sale proceeds of exports must be brought into India in convertible foreign exchange within a specified time period.
Expenditure of prospecting, extraction and production of minerals: The expenditure incurred by an Indian Company engaged in any operation relating to prospecting for or extraction or production of any mineral during the five year period ending with the year of commercial production is allowed as a deduction from the total income to the extent of one tenth of the amount of such expenditure.

No deduction is allowed on expenditure on the acquisition of site and other capital expenses on which depreciation is claimed.

1.9.0 Structural Changes Needed in Indian Mineral Sector:

The basic framework for mineral exploration is provided by the applicable mining law and may be supplemented by other legislation and institution. Mineral exploration is also influenced by arrangements for mineral extraction – if the mining framework is unattractive then exploration has little value to a company. The framework for mineral exploration includes:

(i) Ownership of mineral resources
(ii) Granting of licences to explore and mine
(iii) Financial arrangements for companies
(iv) Environmental requirements for projects
(v) Other legislation affecting the mineral sector
(vi) Availability of useful and relevant geological information
(vii) Governance and perceived political risk
(viii) Transparency of arrangements
(ix) Ability of companies to access capital
(x) Tax incentives available.

However, the existing MM(DR) Act and Rules are acting as deterrents for mineral exploration and mining due to following reasons;

(i) Reconnaissance Permit/ Prospecting Licence holder do not have guarantee of getting the next concession.
(ii) Inordinate delays in approval/ grant of various concession
(iii) Lack of tax incentives for exploration/ mining
(iv) No mechanism to raise funds for exploration/ mining through stock exchanges.
1.10.0 Suggestions for Encouraging Investment in Exploration and Mining

To encourage investment in exploration and mining, Federation of Indian Mineral Industry (FIMI) and other members of core group have made following suggestions.

(a) A policy of no reservation for Government agencies or PSUs for any mineral/ mining areas except in circumstances of national security or where no private sector interest exists.

(b) Guaranteed security of tenure

(c) Transferability of exploration and mining leases without prior approval

(d) Faster approvals for obtaining exploration/ mining licenses as per time frame mentioned below –

   a. RP – 3 months
   b. PL – 4 months
   c. ML – 6 months

(e) If the State Governments are unable to grant leases within the stipulated time frame, Central Government should be empowered to hear the case for appropriate orders within a reasonable period, suggested to be half the period required for original decision.

(f) Allocation of mining permits through first-in-time principle only, not through auctions or bids, through prescribed and transparent criteria, to disable any discretion.

(g) Thorough review of various levies/ royalties and taxes being charged on various mining sector industries with the following objectives:

   i. Attracting investments where required

   ii. Govern behaviours: sustainable development, proper use of land, scientific development, tribal issues, waste disposal/ utilization etc.

   iii. Facilitate a level playing field to investors across different sectors and among domestic/ foreign investors.
A single agency, like IBM, should be made responsible for overseeing the overall mining development, approvals and inspections, from a mining as well as environmental perspective. IBM will need a lot of capacity-building but this will remove a lot of multiplicity and will work in favour of both mining sector’s scientific development and regulation as also remove duplication.

(i) Role of Capital Markets

i) Exploration companies cannot raise capital from the public (capital markets) because SEBI regulations generally require companies raising funds from the public to have a track record of dividends and profit distribution or at least a reasonable expectation of generating cash flows in the near future based on known parameters. Exploration companies *per se* during the prospecting stage cannot with a reasonable degree of confidence comply with the SEBI regulations when issuing their prospectuses. For this reason, getting approval from SEBI to list exploration companies on Indian Stock Exchanges and raise funds from the public is generally very difficult.

In the domestic equity capital markets, in fact, IPO eligibility criteria set forth under SEBI (Issue of Capital and Disclosure Requirements) regulation, 2009 is stringent and stipulates;

**Option I: {Regulation 26(1)} Net tangible assets, profitability and net worth track record**

(a) Net tangible assets of at least Rs. 30 mn in the preceding 3 full years, not more than 50% held in monetary assets

+  
(b) Track record of distributable profits in terms of Section 205 of Companies Act, 1956 (excl extra ordinary items) for 3 out of preceding 5 years

+  
(c) Net worth of at least Rs. 10 mn in each of the preceding 3 full years

**Option II: {Regulation 26(2)} No net tangible assets, profitability and net worth track record**

(a) Issue through book building route with at least 50% allotted to QIBs

or
‘Project’ has at least 15% participation by financial institutions/banks of which 10% comes from appraiser and at least 10% of issue size allotted to QIBs.

(b) Minimum post issue face value capital of the company shall be Rs. 100 mn or Compulsory market making for at least 2 years.

Similarly, the foreign equity capital markets are no easy for the mining sector in India for exploration purposes. Only listed Indian companies can issue depository (Global Depository Receipts- GDR) receipts in overseas market. Most of the Indian mining companies especially in initial phases are unlisted. The other requirement for GDR are (i) depository receipt issued against underlying equity shares of the Issuer Company, and (ii) GDRs issued cannot in aggregate exceed 51% of the issued and subscribed capital of Issuer Company. Most of the mining and exploration companies find it difficult to meet the above conditions and tap global capital markets.

ii) It is only after completing detailed feasibility studies involving a huge quantum of drilling and collection and analysis of core samples undertaken together with other surveys and exploration methodologies can an exploration company predict with any reasonable level of confidence, the projected incomes from mineral deposits. The quantum of drilling and use of other exploration methodologies is restricted under a Reconnaissance Permit. A Prospecting License (PL) is required to undertake such feasibility studies. The approval and grant of PLs takes several years under the present regulatory regime; yet the company needs funds to remain operational during this period. The time lag involved in obtaining PLs, then undertaking feasibility studies and only then being able to raise funds (after complying with the present SEBI regulations) can potentially result in closure of exploration companies due to its inability to raise funds in the interim.

iii) Internationally, the Stock Exchanges in Australia, Canada, UK, USA and South Africa, all leading nations in the mining sector, do not have the restrictions noted above. These countries instead actually encourage exploration companies to list on their stock exchanges and raise capital from the public subject to proper dissemination of information to the public on the
prospects in accordance with the codes existing in those countries such as the JORC code in Australia or the NI 43-101 code in Canada. As a result there are several hundred exploration and mining companies listed on these exchanges raising and spending vast amounts of exploration capital at various stages of their development which ultimately leads to making major mineral discoveries in these countries.

(j) Taxation Regime

i) There is no clarity on the deductibility of exploration expenditure against mining revenues, particularly where an exploration company is working on several prospects and, as is the norm, only one or more amongst the many prospects explored leads to the discovery of a mineral deposit. What happens to the exploration expenditure on the other prospects if only expenditures incurred on prospects leading to economically mineable deposits is allowed to be offset against revenue from mining operations. The whole of the exploration expenditure from all prospects incurred by a company must be available to be offset against any revenue from mining operations generated from any of the prospects.

ii) There is no clarity on whether gains realized on transfer of licences as contemplated in The New Mineral Policy (NMP) 2008 are of a capital or revenue nature. The tax payable could be vastly different under each category. Further, gains realised from sale or transfer of licences should first be reduced by the quantum of exploration expenditure incurred by the company and not just exploration expenditure incurred on the prospect being sold or transferred, before determining the tax consequences.

iii) There is little clarity on the treatment and definition of exploration expenditure in the accounts of an exploration company. The major mining countries in the world have very clear principles defining exploration expenditure and how much and what can be carried forward into future years and how it is to treated from a taxation viewpoint at that time. A similar set of principles need to be adopted in India.

iv) The concept of Flow Through Shares and several other tax incentives to attract high risk investment capital into the exploration and mining sector is non existent in India but there is a desperate need for such incentives to be introduced into the country. Using Canada
as a typical example of a country offering huge tax incentives and comparing it to India where such incentives are non existent, historical data shows that exploration expenditure raised and spent by Canadian companies was around $2 billion per annum in recent years whereas India only spent a few million dollars. The more a country spends on exploration expenditure, the greater the likelihood of discoveries in that country. There have been some major new mineral discoveries in Canada noted as such after completion of feasibility studies, none of any comparable significance in India particularly in the precious metals sector.

v) The concept of Flow Through Shares currently being espoused in India enabling exploration companies to issue shares to the equivalent value of the exploration expenditure incurred and enabling the investor in the exploration company acquiring such shares to claim a tax deduction upon acquisition of such shares should be extended to include all investments in an exploration company and not restricted to the quantum of exploration expenditure incurred by that company as is the norm in some countries overseas.

A three point formula incorporating changes in the regulatory regime, enabling access to the capital markets via public listings on the Stock Exchanges in India and tax incentives for the exploration and mining sector, particularly for precious metals where India significantly lags behind the rest of the world, is an absolute must to attract more Indian and International companies into this sector and ensure that the rate of new mineral discoveries in India is on par with other countries in the world where the geological terrain is similar.

1.11.0 Fiscal Reforms/Rationalization Required in Indian Mineral Sector

Taxation is a form of government intervention which is necessary for optimal exploration, mechanization of mining operations, maintaining environmental standards and maximizing mineral returns. It is also necessary to achieve equality and international competitiveness through optimal mineral extraction policy. Even though market can take care of optimal extraction of mineral through price and interest mechanism, possible market failures warrant a modest amount of government intervention.
Inspite of the fact that the mineral sector has been liberalised in 1993, the actual FDI or private sector investment in mining and mineral exploration has been abysmally low. The mineral exploration activities require use of advance technology to locate the deep seated concealed deposits which in turn requires huge investment. Keeping in mind the necessity of raw material security there is an utmost need of private sector investment in mineral exploration. Globally many developed and developing country offer a number of incentives to investors in mining and mineral sector. Therefore, Indian mineral sector needs to have a special treatment as far as tax incentives are concerned so that the private sector investment is attracted.

1.11.1 Incentives needed for the Indian Mineral sector

(a) Inverted Duty Structure for Gold in Copper Concentrates

Indian Primary refined copper industry follows a custom smelting model, whereby the industry imports the raw material (copper concentrate, Chapter heading 2603) and processes it to produce refined copper. This model is inevitable in the Indian context due to the virtual non-availability of copper concentrate in India.

Copper concentrate also includes some gold and silver content and is paid for by the copper smelters. It is converted into anode slime during the process of production of copper. The anode slime is further refined in a refinery to produce gold and silver. The copper industry has gold refining capacity of 15 tones per annum.

Similar to copper, the processing activity of gold and silver is done for a certain processing charge. Thus, the copper producer pays to the concentrates suppliers the value of copper, gold and silver content in the copper concentrates adjusted for agreed processing charges. The invoice for copper concentrate mentions separately the value of copper, gold and silver content in the concentrate. Internationally determined copper, gold and silver prices are, thus, a pass-through for the copper producers under the custom smelting mode.
Being a part of the copper concentrate (which has 2% basic customs duty), gold content in concentrate attracts customs duty at 2%. At current gold prices and exchange rate, this works out to nearly Rs. 49,740 per kg of gold.

Custom Duty on refined gold (Serially numbered gold bars and gold coins) is only around Rs. 30,000 per kg. This is a clear anomaly. The inverted duty structure leads to a loss of over Rs. 20,000 per kg of gold produced by copper industry. In addition, the industry also has to suffer from blockage of funds to the extent of nearly Rs. 96,585 per kg of gold on account of CVD and ACD as finished gold has nil excise duty.

Hence there is a need for correction for duty on gold.

(b) Mine Closure Expenditure to be set off.

Scheme of mine closure was promulgated by the central Govt. on 10th April 2003 under the Mineral Conservation and Development (Amendment) Rules 2003. According to this, every mining unit has to submit a Progressive Mine Closure Plan and Final Mine Closure Plan. The former plan has to be submitted within 180 days from the date of commencement of such rules and the later one year prior to the proposed closure of the mine.

For progressive mine Closure, substantial money has to be spent. There is a need to give relief in tax to be paid by the mine owner.

(c) Incentivise beneficiation of low grade ores (remove excise duty).

The excise duty for ore and concentrate is 10% during 2011-12, as per ‘Central Excise of India Publication’. To recover additional mineral values and possible bi products etc. By implementation of the process route of beneficiation, excise duty on beneficiated ore need to be removed.

(d) Incentivise private sector to setup private R&D facilities for developing exploration related technologies and mineral based processes as business model (including Venture Capital).
(i) Mineral Processing

The R&D in the mineral sector will have to be focused in developing suitable beneficiation techniques as well as bio-leaching technologies for commercial exploitation of low-grade ores such as copper, fertilizer minerals, etc. and on improving upon mining technologies for enhancing productivity in order to stay internationally competitive. Presently, R&D spending in the mining sector is very low when compared with competing countries. The mining companies, therefore, will have to increase R&D spending. The Government (both Central and the States) will have to facilitate investment in R&D through appropriate support to its institutions.

R&D spending as percentage of GDP in India is only 0.8% as compared to China’s 1.23%. Developed countries have R&D expenditure of up to 3% of GDP. Out of the 0.8% expenditure in India, 80% is by public sector while the private sector share is only 20%. In China and the US, the public sector share is only 30% each while in Japan it is only 18%. Private sector component in R&D will have to increased from present level.

In India presently the R&D facilities related to mineral boned processes are mostly available with government organizations including public sector except very few private organizations like Tata, ACC etc.

To encourage private sector to setup R&D facilities for mineral based processes as business model incentive in the form of income tax/service tax exemption on expenditure incurred on R&D may be considered.

(ii) Exploration Related Technologies

A review of mineral exploration undertaken so far in the country indicates that near surface deposits for which easily detectable signatures have been present are either mined out or under production. There is of course self sufficiency in respect of certain minerals, but that does not substantiate the needs of the industry. India still remains a net importer of minerals and that affects future development plans. So far, the exploration activities in the country are of conventional type, with restricted inputs from geochemistry, geophysics and remote sensing. Of late, aerial geophysics and multi-sensor aerial surveys have been carried out over a part of the target areas, for the purpose of selection of regional targets. This exercise has been done in
conjunction with geological information/data. As regards the exploration methodology, it is observed that in India the conventional practice of target identification and resource estimation are at par with international standards. However, there are definite areas of weakness in application of sophisticated modern techniques and for proper interpretation of data, wider application of latest techniques of remote sensing, regional geochemical surveys and multisensor aerial surveys are necessary, for the fast scanning as well as delineation of favourable targets for detailed exploration. Aeromagnetic data and multispectral satellite imageries are to be analyzed properly for deriving geological information. Airborne multi-sensor survey information needs to be evaluated in a systematic manner for its significance to locate exploration targets. At present there is limited capability in the country in this regards.

The challenges to locate deep seated concealed deposits assume importance in this context along with the need to systematically explore areas in which favourable geological ensemble has been identified through the efforts of geological mapping and specialized thematic mapping. The holistic understanding of geology is to be followed by applying sophisticated geochemical and geophysical techniques. In tandem with search for concealed deposits, it is imperative in the national interest to build up a more complete resource inventory, by depth and extension, probing in known areas of established ore occurrences, as most of the known mineralized tracts have been drilled up to shallow depths of 100 to 200 meters, to cater to the immediate needs of the exploiting agencies. Thus it is necessary to carry out survey and exploration programmes designed to take up concept oriented studies, integrating geological, geophysical (both airborne and ground) and geochemical surveys, well constrained with laboratory studies/analysis and applying more accurate detection tools and more sophisticated interpretation of the data. For this the need for modernization is important and concerted action plans have to be drawn by all the concerned organizations to strive for acquiring higher capability in all fields of Mineral Exploration.

Since, the demand of prospecting and mining has increased, mineral prospectors are constantly on the lookout for newer technologies that can help them identify mineral reserves in a quicker timeframe and at reduced costs. One such technology that is being widely used during reconnaissance and preliminary prospecting is integrated geospatial technology and remote sensing. The usage of remote sensing technology is to identify surface anomalies such as hydrothermal alterations for mapping mineral anomalies with two main objectives. (i) Mapping
and updating of geological attributes (lithology and structure) at regional and local level and (ii) Recognition of hydrothermal alteration zones associated with mineral deposits.

The following technology used world over in field of mineral exploration

Hyperspectral Imaging System

Hyperspectral Remote Sensing And 3-D Seismic Survey

Remote Sensing and Mineral Anomaly Mapping (RSMA)

Hyperspectral Technology

HY LOGGING™ SYSTEM

Aerogeophysical survey

Geochemical Survey

Geophysical Surveys

3-D Seismic Technology

Solid Earth Modelling

Drilling

Offshore Mineral Exploration Techniques

Global Positioning System (GPS) / Bathymetric Surveys

Majority of these modern technology used world over in field of mineral exploration are costly and need to be imported. Therefore incentive needs to be given to encourage for adoption and development of these technologies in India by private sector.

(e) Incentivise pelletisation for iron ore.

In general, the pelletisation process involves mixing of iron ore and required limestone with water which later is ground in ball mills to the desired size. The discharged slurry from ball mills is filtered in pressure filters. The filter cake from filters is then mixed with dry-ground coke fines to which bentonite is mixed in suitable proportion to enable to make green pellets in pelletising discs. The coke fines and bentonite is ground separately. The green pellets are then dried, heated and fired in during machine to get iron ore pellets. There is an increasing
trend for utilisation of pellets or sinters in the recent years. The use of pellets as feed in the blast furnace has several advantages because of their uniform size, known composition and strength.

The pelletisation process is the formation of green balls (12-15mm) by rolling fine ground ore or concentrate (generally 60 to 65% of -325 mesh size) with blain number + 1800 with very small quantity bentonite (as binder) and 8-10% moisture and hardening the green balls by heat treatment under oxidizing conditions up to a temperature of 1250-1350°C. Pelletisation thus produces agglomerate in highly oxidized state as opposed to sinters which contain 5-10% ferrous iron.

In India more than 60% of the production of iron ore is of fines. These fines cannot be directly fed in the steel plant and have to be either sintered or pelletised. The cost of setting up of one million tone capacity pellet plant is about Rs.300 crores at present. Thus there is a need to incentive this industry.

f) Flow through Shares

The concept of Flow Through Shares currently being espoused in India enabling exploration companies to issue shares to the equivalent value of the exploration expenditure incurred and enabling the investor in the exploration company acquiring such shares to claim a tax deduction upon acquisition of such shares should be extended to include all investments in an exploration company and not restricted to the quantum of exploration expenditure incurred by that company as is the norm in some countries overseas.

A three point formula incorporating changes in the regulatory regime, enabling access to the capital markets via public listings on the Stock Exchanges in India and tax incentives for the exploration and mining sector, particularly for precious metals where India significantly lags behind the rest of the world, is an absolute must to attract more Indian and International companies into this sector and ensure that the rate of new mineral discoveries in India is on par with other countries in the world where the geological terrain is similar.

(g) Incentivise extraction and recycling, particularly energy critical metals, base metals, Technology metals and Rare Earth metals.
The recycling of non-renewable resources is often advocated as the solution to potentially restricted supplies. Every kilogram of resources that is successfully recycled obviates the need to locate and mine that kilogram from virgin ores. Unfortunately, however, and notwithstanding their potential value, industrial and consumer products containing these resources have often been regarded as waste material rather than as “surface mines” waiting to be exploited. As the planet’s mineral deposits become less able to respond to demand, whether for reasons of low mineral content, environmental challenges, or geopolitical decisions, we limit our technological future by using these resources once and then discarding them through neglect, poor product design, or poor planning.

Despite the challenges of improving recycling rates, however measured, recycling generally saves energy and minimizes the environmental challenges related to the extraction and processing of virgin materials.

The Metals Recycling industry performs a vital social and environmental function. The industry has no peer in terms of conserving the world’s natural resources while the various stages of the recycling process provide employment for millions of people all around the world.

It is estimated that the global recycling industry directly employs more than 1.5 million people, annually processes over 500 million tons of commodities and has a turnover exceeding 160 billion US$. However in India, this industry performs in a scattered manner with recoveries which are many times uneconomic.

Recyclers collect products that have reached the end of their useful lives and then transform them into valuable secondary raw materials that can be fed back into the manufacturing process. If it were not for the metals recycling industry, a substantial proportion of these end-of-life goods would be consigned to landfills and the valuable materials they contained would be lost to the production cycle forever.

The environmental benefits of Metals Recycling are:

(a) Energy saved using recycled material versus virgin ore is

74% for iron and steel scrap,
95% for aluminium scrap and
85% for copper scrap
(b) Recycling 1 Tonne of steel saves
1.2 tonnes of Iron Ore,
0.7 tonnes of Coal and
0.5 tonnes of Limestone

(c) Recycling 1 Tonne of Aluminium saves
6 tonnes of Bauxite ore and
14 megawatt hours of electricity

(d) Reduction in CO2 emissions by using scrap is
58% for iron and steel scrap,
92% for aluminium scrap and
65% for copper scrap

The Metals which can be recovered by recycling are as follows:

(a) **Ferrous Metals Scrap:**
Vanadium, Chromium, Manganese, Iron, Nickel, Niobium, Molybdenum.

(b) **Non Ferrous Metals Scrap:**
Magnesium, Aluminum, Titanium, Cobalt, Copper, Zinc, Tin, Lead.

(c) **Precious Metals Scrap:**
Ruthenium, Rhodium, Palladium, Silver, Osmium, Iridium, Platinum, Gold.

(e) **Specialty Metals Scrap:**
Lithium, Beryllium, Boron, Scandium, Gallium, Germanium, Arsenic, Selenium, Strontium, Yttrium, Zirconium, Cadmium, Indium, Antimony, Tellurium, Barium, Lanthanum, Cerium, Praseodymium, Neodymium, Samarium, Europium, Gadolinium, Terbium, Dysprosium, Holmium, Erbium, Thulium, Ytterbium, Lutetium, Hafnium, Tantalum, Tungsten, Rhenium, Mercury, Thallium, Bismuth,
However the entire metal recycling industry in India performs in unorganized manner and very low levels of capacity utilization. To encourage recycling there is a need to offer certain incentives in the form of tax benefits, subsidised energy tariff and systematized collection of scrap as in the case of lead acid batteries. A provision of Rs. 10 crore may be kept in the Twelfth Five Year Plan as a Central sector Scheme for incentivizing recycling metal scrap.

Further, it is recommended that a Techno-Economic Cell in the Ministry of Mines may be set up with requisite manpower for analysis of the issues related to taxes, tariff structure and trade policies in the mining sector. The manpower requirement for creation of such Cell in the Ministry would be a minimum of 10 officers/staff to be headed by a Joint Secretary level officer with a budgetary support of Rs. 10 crore during the XIIth Five Year Plan.

1.12.0 Recommendations

1.12.1 All expenditure incurred prior to commercial production including the expenditure incurred on site and deposit acquisition should be eligible for amortization over the minimum mining lease period of 20 years or a lesser period at the option of the lessee. [LFHI]

1.12.2 For reclamation of mined out area, the mining companies may be allowed to earmark a percentage of book profits each year to meet rehabilitation cost as per an approved Mine Closure Plan and set it aside as a special reserve in their books. Mine closure expenditure should be considered for tax benefits [HFHI]

1.12.3 The mineral exploration activity being high risk venture need special treatment. SEBI and Stock Exchanges need to come out with a policy framework so that investment in mining/mineral exploration is increased. For this a concept of Competent Person to certify the mineral resources as per UNFC system may be introduced so that investor is confident of getting returns and at the same time requirement of Stock Exchanges are adhered to as in the case of Toronto Stock Exchange. [HFHI]

1.12.4 “Flow-through–shares” mechanism may be introduced in Indian mineral sector so that venture capital can flow in exploration activities. [HFHI]
1.12.5 Exploration bonds on the lines of Infrastructure bonds may be introduced. [HFHI]

1.12.6 Inverted duty structure for gold in copper concentrates needs to be corrected. [LFHI]

1.12.7 The excise duty on beneficiated low grade ores should be dispensed with in the interest of promoting and incentivizing beneficiation. [LFHI]

1.12.8 To promote creation of private R & D facilities in mineral based R&D processes incentives in the form of exemption in income tax/service tax should be considered. [LFHI]

1.12.9. Iron ore pelletisation industry needs incentives in the form of tax holidays. [LFHI]

1.12.10 Since extraction and recycling, particularly of energy critical metals, base metals, rare earth metal is costly, incentives in the form of tax holidays may be considered to encourage the activity. [LFLI]

1.12.11 It is recommended that a Techno-Economic Cell in the Ministry of Mines may be set up with requisite manpower for analysis of the issues related to taxes, tariff structure and trade policies in the mining sector. The manpower requirement for creation of such Cell in the Ministry would be a minimum of 10 officers/staff to be headed by a Joint Secretary level officer with a budgetary support of Rs. 10 crore during the XIIth Five Year Plan. [LFHI]

Chapter 2

INFRASTRUCTURE DEVELOPMENT

(Item No. 2 of the Terms of Reference for the Sub-Group III)
Terms of Reference

“To review the status of infrastructure such as roads, ports and railways both physical and financial for the mining sector and assess the requirement during the XIIth Plan period and in the perceptive of 10 to 15 years thereafter; to relate infrastructure creation and revenue generation, particularly for development of PPP models and to suggest measures to fill up the existing gaps and building up of additional infrastructure; to define the roles of the Central Government, the State Government and the private sector in creating such infrastructure; and develop policies for best utilization of revenues from mineral wealth to be used for the long term development of the sector and the affected population”.

2.1 Introduction

2.1.1 The importance of infrastructure for sustained economic development is well recognized. High transactions costs arising from inadequate and inefficient infrastructure can prevent the economy from realizing its full growth potential regardless of the progress on other fronts. Physical infrastructure covering transportation, power and communication through its backward and forward linkages facilitates growth; social infrastructure including water supply, sanitation, sewage disposal, education and health, which are in the nature of primary services, has a direct impact on the quality of life. The visible signs of shortfalls in capacity and inefficiencies include increasingly congested roads, power failures, long-waiting lists for installation of telephones and shortages of drinking water illustrate the widening gap between demand and supply of infrastructure and also raises questions concerning the sustainability of economic growth in future.

2.1.2 The efficacy of private sector participation in infrastructure development would be contingent upon the capability to commercialise these projects whereby recovery of investments would be through a system of user charges. There is a potential for public private partnerships (PPPs) to contribute more and help bridge the infrastructure gap in India. There has been considerable progress in the last ten years in attracting private investment into the infrastructure sectors; first in telecommunications, then in ports and roads, and in individual projects in other sectors.
2.1.3 With the current GDP growth of about 9% in 2010-11, in which there is contribution of nearly 51% from services and 16% from manufacturing sector, there is a need for proper alignment of resources. To sustain this growth India needs to develop sound infrastructure so that the right input of skilled, qualified and socially contented labour; visible and reliable supply chains; prompt and accurate information for decision making; efficient process and updated technology can be given to the operations of manufacturing and services.

2.1.4 Infrastructural projects have high upfront costs and long payback periods, there are real cost savings to be gained by executing projects rapidly—even a small overrun can mean the loss of crores of rupees. These gigantic projects require micro-monitoring of small individual projects across multiple locations and this is done with the help of operations management.

2.1.5 Infrastructure development is a major constraint on the industrial growth in India. India is aiming to achieve 10-per cent annual GDP growth by the year 2011-12.

2.1.6 The development and growth of the mineral sector is dependent on availability of adequate infrastructure viz. roads, railway lines, railway wagons, port facilities, power, water and communication facilities. In absence of these basic infrastructure facilities, the mineral resources cannot be accessed, extracted and marketed. Since several Indian mines are usually located in remote areas; inadequacy of infrastructure facilities poses a major bottleneck for sustaining the production.

2.1.7 Mineral deposits generally occur in remote and backward areas with poor infrastructural facilities which often inhibit their optimum development. A major thrust needs to be given to development of infrastructural facilities in mineral bearing areas with special emphasis on linking infrastructure. Financial resources available with government will be leveraged to the maximum extent possible through recourse to user charge based public-private-partnership arrangements wherever possible by providing an institutional framework. An enabling environment will be created to motivate large capacity mining companies to undertake construction of transportation networks (road and rail) on their own.

2.1.8 The contribution of mineral development to regional and more specifically peripheral development, commensurate with the huge investment in large mining projects is substantial. In
so far as public finding of infrastructure is concerned a much greater thrust will be given to development of health, education, drinking water, road and other related facilities and infrastructure in mineral bearing areas so that an integrated approach emerges, encompassing mineral development, regional development and the social and economic well being of the local and particularly, tribal population.

2.1.9 Invariably, the rural roads linking major mining projects and roads from linking national or state highways are generally constructed and maintained by large mining companies. However, in case of small and medium enterprise (SME) mines, generally unsurfaced roads cater to mineral traffic, which results in uneconomical movement of minerals to distant places. At times it is cheaper to import mineral rather than to move from one part of the country to another.

2.1.10 The establishment of road and rail linkage is the pre-requisite for the transportation of minerals from the mined areas to the nearest railhead or national or state highway before a mine can be opened up. Without such linkage the growth potential of the mining sector in the country is seriously jeopardized. The infrastructure issue has to be examined in two different contexts viz. needs of the mining majors on the one hand and the needs of the mines of Small & Medium Enterprise (SME) sector on the other. Mining majors or large stand-alone mines tend to construct their own mine-linking infrastructure. The small scale sector cannot afford to build their infrastructure requirements primarily because (i) their production volume is so small that they cannot afford the heavy investment that is required for construction of infrastructural facilities and (ii) the investment that is required for such facilities is beyond their reach. Therefore, publicly funded infrastructure is needed mainly for the SME sector mines since the scale of their operations limits their ability to build their own mine-linking infrastructure. Moreover, SME sector mines usually tend to come up where some form of public infrastructure already exists. Since existing roads and railways are already over burdened, mining needs are difficult to satisfy and have to be met at the expense of other users.

2.1.11 Though the large mines tend to construct their own mine-linking infrastructure, it may so happen that investment in mine sector is so high that it may go beyond the reach of even the larger mines. This can be seen in the case of Captive Coal Mining Blocks which are finding it difficult to marshal investible funds for construction of infrastructural facilities. What is
therefore, needed is the “cluster concept” so that trunk facilities are constructed with financial participation of all the mines—whether small or big, in a particular area. An attempt has been made in this direction in Talcher Coalfield in Orissa where a large number of Captive Coal Blocks have been allotted to both Private Sector and Public Sector companies and a Master Plan is being prepared for constructing the Trunk Rail line from where Rail sidings for individual mines can take off. This concept can also be extended to Road network, water supply arrangements and power supply arrangements.

2.1.12 In so far financing of ‘cluster concept’ projects is concerned the capital outlay can be shared by the individual mines in proportion to the ultimate production level for which their mine is planned. In case at a subsequent date, any mine proposes to augment its production level he will be called upon to make extra financial contribution proportionate to its increased production capacity but since the infrastructural facilities would have already been constructed by then, the money contributed by him would get distributed among the original contributors in proportion to their original investment.

2.1.13 Short-term infrastructure requirements relating to movement of iron ore, bauxite, limestone, rock phosphate and dimensional stone from mine sites to ports will have to be assessed in order to assess growing demand from the increased traffic in these segments.

2.1.14 India has an edge over many countries in terms of strategic locational advantage, large domestic market, skilled manpower in steel making, availability of cheap iron ore, etc. At the same time it has some serious disadvantages such as inadequate port and rail network, lack of power, etc.

2.1.15 In order to assess year-wise requirement of infrastructure such as railways, ports, roads, power, water and communication for the mineral sector during the XII Plan period and in the perspective of 10-15 years thereafter and to suggest measures to fill up the existing gaps and building up additional infrastructure, an endeavor has been made to highlight some important bulk minerals like iron ore, bauxite, limestone, rock phosphate and dimensional & decorative stones from the point of view of domestic requirements and/or exports.
2.2 Requirement of infrastructure for mineral sector

2.2.1 Iron Ore

India is endowed with vast resources of iron ore distributed close to the eastern and western coast of the country. Major Indian iron ore producing areas can be grouped under the following three regions:

<table>
<thead>
<tr>
<th>Region</th>
<th>Major Indian iron ore producing areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern</td>
<td>Chiria, Noamundi, Kiriburu, Bolani, Meghataburu Thakurani, Banspani, Gua, Baraiburu, Daitari, Gandamardan, Malangtoli</td>
</tr>
<tr>
<td></td>
<td>Bailadila, Dalli, Rajhara, Mahamaya, Aridongri, Rowghat, Surajgarh</td>
</tr>
<tr>
<td>Bellary-Hospet</td>
<td>Donimalai, Ramandurg, Kumarswamy, Neb Range, Ettinahatti, Tumti, Belagal</td>
</tr>
<tr>
<td>Goa</td>
<td>North Goa, South Goa, Reddi</td>
</tr>
</tbody>
</table>

The total resources of iron ore (both haematite and magnetite) as per UNFC system as on 1.4.2010 was 28,526 million tonnes (17,882 million tonnes of haematite and 10,644 million tonnes of magnetite). Out of these, 35% is concentrated in Karnataka followed by Orissa (21%), Jharkhand (16%) and Chhattisgarh (11%), Andhra Pradesh (6%), Goa (4%) and remaining 7% in Madhya Pradesh, Maharashtra, Tamilnadu, Uttar Pradesh, Assam, Meghalaya and Rajasthan. Infrastructural needs of these regions are reviewed as follow:-

2.2.1.1 Bellary-Hospet region

The Bellary-Hospet region in Karnataka is endowed with rich iron ore deposits of about 2.16 billion tonnes and this sector produced more than 43 million tonnes of iron ore in 2009-10
and it has been projected that 79 million tonnes would be produced by 2016-17. Since, there are a very few large user industries (steel mills), due to water and power shortages, most of the iron ore is exported. Around 65-70 million tonnes iron ore is exported to China, Japan and South Korea, the balance being sold to the domestic pig and sponge iron units in the region. This ore is exported through ports of Mangalore, Ennore, Chennai, Goa, Vizag, Kakinada, Karwar and Belekeri. Therefore, certain improvements are urgently called for on these ports. The quality of roads is also not good enough to meet the heavy traffic requirements of trucks transporting iron ore from mines to loading stations. Improving road conditions will reduce cost by minimizing truck breakdowns, less fuel consumption and smoother travel.

2.2.1.2 Goa region:

The Goa region is endowed with rich iron ore deposits of about 1.15 billion tonnes and this sector currently produces more than 39 million tonnes of iron ore in 2009-10 and 71 million tonnes projected by 2016-17. Export of iron ore from Goa region is equally important. More than 40% i.e. about 40.32 million tonnes was routed through Goa in 2009-10. There are certain bottlenecks, which are adversely affecting the exports of iron ore through the Goa port. There is limited railway line capacity to transport iron ore from Karnataka mines to Goa which also needs augmentation.

2.2.1.3 Eastern region

The eastern region comprising Orissa, Jharkhand and Chhattisgarh, is endowed with iron ore resources about 13.8 billion tonnes amounting to 48% of the total resources of the country and these sector produces more than 128 million tonnes of iron ore in 2009-10 and by 2016-17 it has been projected that iron ore production would be 233 million tonnes. Export of iron ore from the above States takes place through Haldia port and Paradip port. Rail and road linkages to the ports of Haldia and Paradip are the main short-term infrastructure requirements in the eastern sector.

The future capacity expansion of iron ore mining is possible only with expansion of railways particularly in the eastern zone and the port facilities on the eastern and western coasts. The east coast ports of Haldia, Paradip and Vishakhapatnam have recorded significant growth in
iron ore shipments during the last few years. However, additional facilities have to be created to handle the increased volume of iron ore in the coming years. So far as Haldia and Paradip ports are concerned the railway bottleneck is critical and unless removed, it can frustrate any efforts by these ports to step up ore transportation. The railway bottleneck is largely, the result of single line existing between Panskura and Haldia (for Haldia port) and between Cuttack and Paradip (for Paradip port). The Haldia port will facilitate export of iron ore from Jharkhand as well as Orissa. The existing facilities at Haldia port is insufficient to handle increased transportation. Paradip port in Orissa coast will provide outlet for iron ore from Orissa. The facility at this port needs further augmentation to accommodate larger ships. Vishakapatnam port is the most important port in the east coast, so far as export of iron ore from Bailadila is concerned. The space allotted for iron ore in this port is inadequate to facilitate export of increased quantum of iron ore. Chennai port is the main outlet for iron ore from Bellary-Hospet area. As the Chennai port is likely to be closed for iron ore exports, alternate arrangement is being made at Ennore port for export of iron ore. New Mangalore port in the west coast has been recently developed for export of iron ore pellets and concentrates from Kudremukh iron ore project. However, the iron ore traffic at New Mangalore has gone up with additional shipment of iron ore from other mines of Karnataka. The capacity of the port to accommodate larger ships has to be developed for exports of iron ore. Mormugao port (Goa), on the west coast is of prime importance. The entire output of iron ore from Goa and considerable quantity of iron ore from Bellary-Hospet is exported through this port. Deepening of the draft at this port to accommodate larger size ships and installation facilities for mechanical handling for rail borne iron ore from the above area needs urgent attention. If India has to remain competitive in the world export market of iron ore, there is no option, but to match the infrastructural facilities with other iron ore exporters in the world. Our port facilities in terms of size of vessel and loading rates are far below other exporting countries, viz. Brazil, Australia, etc. Similarly, consuming countries viz. China, South Korea, Taiwan, Japan, etc. are already having ports to handle large ships while new ports with larger capacities are being built.

Production of iron ore in India is 219 million tonnes (2009-10). Orissa is largest producer (36%) followed by Karnataka (20%), Goa (18%), Chhattisgarh (12%) and Jharkhand (11%).
**Projections of domestic consumption & exports of Iron Ore:** As per the National Steel Policy-2005, projections for domestic consumption for iron ore are at 200 million tonnes by 2020 and for exports are at 100 million tonnes by 2020. Thus, total future demand (both domestic and exports) is projected at 300 million tonnes by 2020.

### 2.2.2 Bauxite

2.2.2.1 The total resources of bauxite as per UNFC System as on 1.4.2005 was 3,290 million tonnes. Major Indian bauxite deposits are located in Orissa, Andhra Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Chhattisgarh, Tamil Nadu and Gujarat. The leading producers are Orissa (35%), Gujarat (19%), Maharashtra (14%), Jharkhand & Chhattisgarh (12% each) and Madhya Pradesh (7%).

2.2.2.2 In the 11th plan period, envisaging a growth of 9% by the end of plan period 2011-12, the demand of bauxite is estimated at about 15 million tonnes. By the end of 12th plan period, the bauxite demand is likely to reach 22 million tonnes. NALCO is the main producer of bauxite, alumina hydrate and aluminium cast metal.

### 2.2.3 Dimensional & Decorative Stones

2.2.3.1 Dimensional Stones are the mainstay of the economy of Indian states like Andhra Pradesh, Tamil Nadu, Karnataka and Rajasthan. India is endowed with vast natural resources of granite in several States predominantly in Southern India, Uttar Pradesh, Rajasthan, Madhya Pradesh, Gujarat and Bihar. Majority of marble, sandstone, flaggy limestone produced in India comes from Rajasthan, which accounts for over 90% of country’s production of marble, sandstone and flaggy limestone (Kotastone).

2.2.3.2 Internationally, more than 90% of the movement of dimensional stones (marble, granite)
to ports and internal destinations are by rail, which is the cheapest mode of transportation. In the absence of rail transport facilities on the scale required, Indian stone miners depend for the movement of dimensional stones entirely on high cost road transport. There is a limit up to which a truck can carry the weight. Being heavy weight cargo, transportation of granites by trucks has its peculiar problems. Single dimensional blocks of 15 to 30 tonnes, which are required for export markets as well as for large factories within the country, have to be transported by trucks. Most of the trucks in India are allowed to carry only 12 tonne load. In countries like China, South Africa and Zimbabwe the transportation of dimensional stone blocks is undertaken by Railways. Compared to facilities in those countries, Indian dimensional stone industry has practically no infrastructural support from the Railways.

2.2.3.3 The transportation of raw blocks and finished goods to and fro quarries and factories are severely hampered due to lack of proper roads and rail connectivity from major stone clusters.

2.2.3.4 Many quarries have been closed because of high transportation cost by trucks. Hence providing proper siding arrangements, railway stockyards with ICD arrangements is the only answer for reducing transportation cost of the mineral / rock. Also there appear bright prospects for railways to have additional earnings. Such facilities of rail movement will also facilitate transportation of additional tonnage of other natural stones like Marbles, Sandstones, Kota stone, Slate etc.

2.2.3.5 Arrangements are also required to be made at ports for stone stockyards with proper handling facilities, where wagons / racks can be unloaded and directly loaded to the vessels. It is a matter of concern that the draft limitations do not allow mother vessel into the Ports. Containers, which are loaded in India, are taken to Singapore or Colombo to catch the mother vessel, which entails holding of cargo and delays shipment. The Government, has notified the seaports at Mumbai, JNPT, Kolkata, Chennai, Vizag and Cochin as the only ports eligible for import of inter alia marble and granite. The move is laudable and if these ports are upgraded to handle import of stones, the facilities could simultaneously be upgraded for exports as well, so that these ports may receive the mother vessels.
2.2.4. **Limestone and other industrial minerals**

Limestone, rock phosphate and some other industrial/bulk minerals also depend largely on rail, road and port infrastructure for domestic consumption and export/imports. The salient feature like resources, production and demand of limestone and other industrial minerals during XIth & XIIth plan period is given below;

**Table 2: Resources, Production, Demand of limestone and other minerals during XIth and XIIth Plan**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Mineral Description</th>
<th>Resource (Million Tonnes)</th>
<th>Present Production 2009-10</th>
<th>Estimated demand (Million Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Limestone</td>
<td>175.345</td>
<td>229</td>
<td>269</td>
</tr>
<tr>
<td>2</td>
<td>Rock Phosphate</td>
<td>21.815</td>
<td>1.547</td>
<td>8.434</td>
</tr>
<tr>
<td>3</td>
<td>Potash</td>
<td>1.674</td>
<td>0.263</td>
<td>1.896</td>
</tr>
<tr>
<td>4</td>
<td>Sulphur &amp; Pyrites</td>
<td>21.740</td>
<td>0.233</td>
<td>386</td>
</tr>
<tr>
<td>5</td>
<td>Asbestos (Th. Tonnes)</td>
<td>7.533</td>
<td>5.200</td>
<td>6.030</td>
</tr>
<tr>
<td>6</td>
<td>Fluorspar</td>
<td>20.166</td>
<td>0.014</td>
<td>0.182</td>
</tr>
<tr>
<td>7</td>
<td>Gypsum</td>
<td>1.237</td>
<td>0.233</td>
<td>386</td>
</tr>
<tr>
<td>8</td>
<td>Wollastonite</td>
<td>20.240</td>
<td>0.132</td>
<td>0.130</td>
</tr>
<tr>
<td>9</td>
<td>Quartz &amp; Silica Sand</td>
<td>3.238</td>
<td>2.898</td>
<td>3.090</td>
</tr>
<tr>
<td>10</td>
<td>Fireclay</td>
<td>705</td>
<td>0.410</td>
<td>0.471</td>
</tr>
<tr>
<td>11</td>
<td>Kaolin</td>
<td>2.596</td>
<td>2.578</td>
<td>2.939</td>
</tr>
<tr>
<td>12</td>
<td>Ball Clay</td>
<td>79.290</td>
<td>0.898</td>
<td>1.162</td>
</tr>
<tr>
<td>13</td>
<td>Magnesite</td>
<td>338</td>
<td>0.286</td>
<td>0.397</td>
</tr>
<tr>
<td>14</td>
<td>Graphite</td>
<td>169</td>
<td>0.109</td>
<td>0.133</td>
</tr>
<tr>
<td>15</td>
<td>Pyrophyllite</td>
<td>33.690</td>
<td>0.242</td>
<td>0.282</td>
</tr>
<tr>
<td>16</td>
<td>Kyanite (Th. Tonnes)</td>
<td>103.000</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>17</td>
<td>Sillimanite (Th. Tonnes)</td>
<td>74.000</td>
<td>31</td>
<td>37</td>
</tr>
<tr>
<td>18</td>
<td>Vermiculite (Th. Tonnes)</td>
<td>2400</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>19</td>
<td>Barytes</td>
<td>74.200</td>
<td>2.138</td>
<td>1.330</td>
</tr>
<tr>
<td>20</td>
<td>Bentonite</td>
<td>530</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>21</td>
<td>Fullers earth</td>
<td>256</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>22</td>
<td>Mica (Th. Tonnes)</td>
<td>394</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>23</td>
<td>Talc/steatite</td>
<td>312</td>
<td>0.835</td>
<td>0.863</td>
</tr>
</tbody>
</table>
2.3 Initiative for Infrastructure Development

2.3.1 Ports

2.3.1.1 India has 12 major ports and 200 minor ports along its 7,517 km long Indian coastline. These are Chennai, Cochin, Ennore, Jawaharlal Nehru Port (Mumbai), Kandla, Kolkata, Marmugao, Mumbai, New Mangalore, Paradip, Tuticorin and Visakhapatnam. There are 200 minor ports, with a pronounced density on the west coast. These minor ports are located in Gujarat (42), Maharashtra (48), Goa (5), Daman & Diu (2), Karnataka (10), Kerala (17), Lakshadweep (10), Tamil Nadu (15), Puducherry (2), Andhra Pradesh (12), Orissa (13), West Bengal (1) and Andaman and Nicobar Islands (23).

Recently, Ministry of Shipping has undertaken ambitious plan for development of ports. Some of these initiatives are:

- The experience of operating berths through PPPs at some of the major ports in India has been quite successful. It has, therefore, been decided to expand the programme and allocate new berths to be constructed through PPPs;
- The Government has also decided to empower and enable the 12 major ports to attain world-class standards. Recognising that the shipping industry is moving towards large vessels, a plan for capital dredging of channels in major ports has also been formulated;
- Rail-road connectivity to major ports is being enhanced;
- The National Maritime Development Programme is expected to bring a total investment of over Rs. 55,804 crore in the port infrastructure by 2011-12. Such improvement in the scale and quality of Indian port infrastructure will significantly improve India’s competitive advantage in an increasingly globalized world;
- The wagon tipplers in Chennai port have already been revamped and replaced as per the requirements of the iron ore exporters;
- Ennore Port commissioned an iron ore berth recently through public-private-partnership to handle 12 MMT of iron ore;
- For receiving vessels the Mangalore port has drafts of 14 metre and is proposing to increasing it to 17 metre draft. The port is also planning for mechanical unloading and stacking;
• Vishakapatnam Port has three tipplers working and the port is planning to deepen the approach channel to receive 2.25 lakh DWT vessels during the course of the XI Plan;
• Kolkata Port has already initiated action for the preparation of a deep sea port south of Haldia Dock Complex and a container terminal at Diamond Harbour;
• Paradip Port has already awarded contracts of interest for construction of an iron ore berth for handling 1.25 lakh DWT vessels and also implementing the project for deepening of approach and entrance channels and turning basin; and
• Development of Dhamra port in Orissa and Krishnapatnam port in Andhra Pradesh needs to be expedited soon.

2.3.1.2 It is recommended that the above projects be implemented most expeditiously, as they would address the immediate problems of mineral/metal exporters. This will lead to the reduction of freight costs and make Indian iron ore more competitive vis-à-vis Australian and Brazilian iron ore. The deficiencies at the ports, the long linkage from the mining area to the port through road and rail and lack of long term planning by exporters are some of the factors responsible for the current situation where the landed cost of per tonne of India’s high grade Iron ore. Although location-wise India is much closer to China than Australia or Brazil, the freight cost from Brazil is more or less same as that of India due to large size ships.

2.3.1.3 Public-Private Partnership (PPP) in Indian Port sector is the one of the major initiatives of the Ministry of Shipping. The approach has been to encourage the private sector to come forward in developing port activities and operations. The policy on PPP in Port sector envisages;

• 100% FDI under the automatic route is permitted for port development projects
• 100% income tax exemption is available for a period of 10 years. Tariff Authority for Major Ports (TAMP) regulates the ceiling for tariffs on cost plus basis charged by Major ports/ port operators (not applicable for minor ports).
• Opened up of all the areas of port operation for private sector participation.
• In view of the past good experience, it has been decided to expand the Port capacities through PPP route only as far as practical.
Model Bidding Documents and Concession Agreement have been put to use with an objective to ensure truly competitive and transparent environment for taking up/implementation/operation of port projects. The Model RFQ and RFP (except Model Concession Agreement) are the same as prescribed for other infrastructure. However, in view of too many sector specific issues, Ministry has its own Model Concession Agreement, approved by the Cabinet in January, 2008.

2.3.1.4 Some of the PPP projects in the port sector are;

1. FIRST CONTAINER TERMINAL AT JNPT

This is the first BOT project in Port Sector. The bidding parameter was royalty to Port per TEU (Twenty Equivalent Unit). The Port had signed the License Agreement with Nhava Sheva International Container Terminal (NSICT) in 1997 for 30 years period. The Terminal berth length of 600 meter was commissioned in April 1999. Royalty paid by NSICT to the Port per TEU handled by the Terminal for last three years is as under:

**Table 3: Royalty paid by Nhava Sheva International Container Terminal (NSICT) to JNPT**

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate of royalty per TEU</th>
<th>Revenue received (Rs. in crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>1,960.00</td>
<td>107.80</td>
</tr>
<tr>
<td>2009-10</td>
<td>2,086.00</td>
<td>114.73</td>
</tr>
<tr>
<td>2010-11</td>
<td>2,218.00</td>
<td>133.08</td>
</tr>
</tbody>
</table>

2. CONSTRUCTION OF DEEP DRAUGHT IRON ORE BERTH ON BOT BASIS AT PARADIP PORT

The Port with an estimated investment of Rs. 591 crores envisages iron ore handling facilities for 10 million tonnes per annum with concession period of 30 years. The project includes a berth for handling ships upto 1,25,000 DWT. Length of the berth shall be 370m and with dredged depth of (-) 17.1 mtrs. Based on the two stage process of award of the project, it was awarded to the consortium of Nobel Group Ltd., Gammon Infrastructure Projects Ltd., and MMTC Ltd. This bidder had quoted a revenue share of 36.802% to the Port. This consortium formed a SPV named “Blue Water Iron Ore
Terminal Pvt. Ltd.” for executing and operating the terminal with whom the Concession Agreement has been signed by the Port in the year 2009. This agreement has been entered into as per the Model Concession Agreement (MCA).

3. CONSTRUCTION OF CONTAINER TERMINAL ON BOT BASIS AT JNPT

The project with an investment of Rs. 1000 crore envisaged developing of 712 meters long berth as Container Terminal. The estimated capacity of the project is 18 MTPA. The selected bidder formed the SPV named “Gateway Terminals India Pvt. Ltd.” and concession agreement was signed in August 2004. The project has been in operation efficiently since August 2006 and is handling traffic more than the estimated traffic.

4. CONSTRUCTION OF CONTAINER TERMINAL AT V.O. CHIDAMBARANAR PORT, TUTICORIN

The Port converted one of its berths to container terminal through PPP route. The project was awarded to M/s PSA SICAL Terminal Ltd., Chennai based on maximum revenue sharing criteria. The concession was signed in July 2008 and commercial operation started in December 2009. Private party invested Rs. 135 crores in the project. As a result, the Container Traffic at the Port has increased substantially from 86,911 TEU in year 2000 to 4,48,085 TEUs in the year 2010. They have achieved ‘Gross Crane Rate’ (GCR) about 23 moves/ hr., Vessel rate (VR) 44 moves/ hr., Berth Utilization about 52.74%, Vessel Turnaround time about 27.84 hrs which is better than the prescribed performance standard.

5. CONSTRUCTION OF DEEP DRAUGHT COAL BERTH ON BOT BASIS AT PARADIP PORT

The project with an estimated investment of Rs. 479 crores envisages iron ore handling facilities for 10 million tonnes per annum with concession period of 30 years. The project includes a berth for handling upto 1,25,000 DWT with dredged depth of (-) 17.1 mtrs. The Port adopted a two-stage process for award of the project. Based on the two stage process of award of the project, it was awarded to the consortium of Essar Shipping Ports &
Logistics and Essar Shipping & Logistics Ltd. This bidder had quoted a revenue share of 31% to the Port. This consortium formed a SPV named “Essar Paradip Terminal Ltd.” for executing and operating the terminal with whom the Concession Agreement has been signed by the Port.

2.3.1.5 As a result of PPP policy, Ministry of Shipping has achieved the following progress in the sector;

- In the year 2009-10, 13 PPP projects were awarded.
- In the year 2010-11, 9 projects were awarded on PPP basis.
- For the current year (2011-12), it is envisaged to award 23 PPP projects.
- M/s RITES India Ltd. has been nominated for carrying out a feasibility study for the deep draft Port facility at Sagar Island.

2.3.1.6 Some of the infrastructural bottlenecks at Indian ports are as follows:

- Inadequate receiving capacity of about 15000 tonnes per tippler per day
- Inadequate stockyard capacity in ports to ensure enough quantity of iron ore stocks for the shipping system to work continuously at the optimum capacity.
- Inadequate loading capacities
- Inadequate draft to handle large vessels
- Inadequate railway network to feed the port

2.3.2 Roads

2.3.2.1 For a country of India's size, an efficient road network is necessary both for national integration as well as for socio-economic development. The National Highways (NH), with a total length of 66,590 km, serves as the arterial network across the country. The ongoing programme of four-laning the 5,846 km long Golden Quadrilateral (GQ) connecting Delhi, Mumbai, Chennai and Kolkata is almost complete. The ongoing four-laning of the 7,300 km North-South East-West (NSEW) corridor is to be completed by December 2009. An ambitious
National Highway Development Programme (NHDP), involving a total investment of Rs. 2,20,000 crore upto 2015, has been established. The main elements of this programme are:

- Four-laning of the Golden Quadrilateral and NS-EW Corridors (NHDP I & II)
- Four-laning of 10,000 kms (NHDP-III)
- Two laning with paved shoulders of 20,000 km (NHDP-IV)
- Six-laning of 6,500 kms (NHDP-V)
- Development of 1000 km of expressways (NHDP-VI)
- Construction of Ring Roads, By-passes, Grade-separators, service Roads, etc (NHDP-VII)
- In addition to development of roads in North-East region, special Accelerated Road Development Programme has also been approved [SAROP-NE].

Thus most of the above identified roads section are already under improvement under various National Highway projects. Among national highways the only ones not yet taken up are NH 33 and a small segment of NH 6 falling in Jharkhand as well as NH 75 E. The Sub Group III therefore recommends that these sections of the route from Jaintgarh via Chaibasa and Jamshedpur to Haldia whose improvement has not yet taken up should be taken up now under NHDP III project. It is also proposed by the Sub Group that the small portion of state highway between Chaibasa to Jamshedpur be declared as National Highway.

Several State Highways and link roads from specific mines to the NH or SH or the railhead would also need to be taken up to make it easier for the SME mine owners to transport their minerals. For development of highway sector, Government has taken following steps:

1. **Resource mobilization through:**
   
   - Public Private Partnership (DBFO)- financing
   - External Assistance & Domestic Financial Institutions
   - 100% Foreign Direct Investing, Duty Free Road Building Equipments
   - Capital grant up to 40% of project cost
   - Fuel Cess @ Rs. 2 per litre- Central Road Fund
• User charges and betterment levy

2. **Initiatives taken for Implementation of National Highway Projects through PPP basis:**

• PPP to be the main mode of delivery for the future phases of National Highways Development Project.
• The common forms of PPP for development of National highways are;
  - Build, Operate and Transfer (Toll) Model
  - Build, Operate and Transfer (Annuity) Model
  - Design, Build, Finance and Operate (DBFO) Model
• The Government has put in place appropriate policy, institutional and regulatory mechanisms including a set of fiscal and financial incentives to encourage increased private sector participation in road sector.

3. **Incentives given by Government for implementation of NH projects on PPP basis:**

• Viability Gap Funding up to 40% of project cost to make project viable
• Duty free import of high capacity and modern construction equipments
• 100% tax exemption in any 10 consecutive years within a period of twenty years after completion of the project
• Agreements to avoid double taxation with a large number of countries
• Provision of encumbrance-free land for construction of roads
• Procurement procedure
  - Well defined and transparent with standard tender documents
  - Investor friendly Concession Agreement
  - International Competitive Bidding
• Foreign Direct Investment up to 100% in road sector
• Concession period up to 30 years
• Concessionaire to have the right to collect and retain user fee (toll)
• Award of PPP projects based on new Model Concession Agreement (MCA)
• Simplified procedure for Land Acquisition- 50% land on or prior to the Appointed Date and balance 50% at mutually agreed date.

4. **Measures proposed to be taken:**
• Review the policy on mode of delivery
• A mixed approach of all the three modes Toll/Annuity/ EPC needs to be tested. The mode could be initially identified/ finalized to avoid time and cost overrun due to successive process of Toll, Annuity and EPC.
• Many of the project stretches require large percentage of viability gap funding. Reducing the scope from four laning to two laning with paved shoulders reduces the cost but does not improve the viability, as the applicable toll rates also becomes 60%. In such case the stretch needs to be taken purely as public funded projects.
• To avoid the process of prequalifying bidders for each and every project, a system of empanelment of the qualified firms can be developed.
• Process of land acquisition needs to be streamlined. Presently, it has been decided to award projects only after issuance of notifications under Section 3D of the National Highways Act to ensure availability of land by the appointed date in accordance with Article 10.3 of the MCA.
• MCA also needs to be rationalized.
• The Planning Commission has been making a number of suggestions for improving the viability of national highways stretches included under NHDP.

2.3.2.4 Several State Highways and link roads from specific mines to the NH or SH or the railhead would also need to be taken up to make it easier for the SME mine owners to transport their minerals.

2.3.3 Railways

2.3.3.1 Minerals, being bulk commodities, are transported over a long distance mainly by the railways, the world over. In India also, the mineral transportation from the mines to the ports or to the factories takes place preferably by rail. Railways primarily carry iron ore and small quantities of other ores. During 2009-10 railways have carried 132.74 million tonnes of iron-ore and during 2010-11 around 115.4 million tonnes of iron-ore. The present status of the railway
segments/ lines identified during XIth Five Year Plan to be of critical importance for transportation of minerals in India are given Annexure-I.

2.3.3.2 Out of the 16 projects listed in Annexure-I, two projects namely, Mahanadi Bridge and Guntakal-Hospect (doubling) identified during XIth Five Year Plan have been completed. Four projects are in quite advanced stage of completion. They are Banspani-Keonjhar- Daitari (99%), Kottur-Harihar (95%), Banpani-Padapahar (93%) and Bhatapara-Urkura 3rd Line (78%). While no progress has been made in Jharsuguda-Sambalpur (doubling), other nine projects are in the early stage of construction.

2.3.3.3 The projection of production of minerals indicate that future growth in mining of iron-ore is expected in the states of Andhra Pradesh (Anantapur, Cuddapah), Chhattisgarh (Dantewada, Durg), Goa (North & South Goa), Jharkhand (Singhbhum -West), Karnataka (Bellary, Chitradurga, Tumkur), Madhya Pradesh (Jabalpur), Maharashtra (Chandrapur, Sindhudurg) and Orissa (Keonjhar, Sundargarh, Mayurbhanj). These areas cover a large number of zonal railways. Primarily these area covers East Coast, East Central, South-Eastern, South-Central, South East Central, South-Western and Central Railways of the Railway network. Railways have already undertaken a large number of Capacity Augmentation works like new lines, doubling, tripling and quadrupling of congested routes, developing new yards and freight terminals, augmenting station holding capacity by additional loops, improving signaling systems etc. to take care of the additional capacity requirements on the network. A list of capacity augmentation works which would fructify during the 12th and 13th FYP and which would help the railways to carry incremental mineral traffic from the areas mentioned above is given in the table below.

**Table 4: List of important ongoing works to improve capacity to handle Mineral Traffic**

<table>
<thead>
<tr>
<th>No.</th>
<th>States</th>
<th>Rly</th>
<th>Name of the Project</th>
<th>Kms.</th>
<th>Cost 11-12 (Rs.Cr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>JHA</td>
<td>ER</td>
<td>Hansdiha-Godda</td>
<td>30</td>
<td>267</td>
</tr>
<tr>
<td>2</td>
<td>AP</td>
<td>SCR</td>
<td>Bhadrachalam Road-Sattupalli</td>
<td>56.25</td>
<td>337.5</td>
</tr>
<tr>
<td>3</td>
<td>TN/AP</td>
<td>SR</td>
<td>Attipattu-Puttur</td>
<td>88.3</td>
<td>446.87</td>
</tr>
<tr>
<td>No.</td>
<td>Origin</td>
<td>Location</td>
<td>Description</td>
<td>Double Track</td>
<td>Total Cost (Rs.)</td>
</tr>
<tr>
<td>-----</td>
<td>--------</td>
<td>----------</td>
<td>-------------</td>
<td>--------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>1</td>
<td>ORI</td>
<td>ECoR</td>
<td>Sambalpur-Titlagarh</td>
<td>182</td>
<td>950.84</td>
</tr>
<tr>
<td>2</td>
<td>CH/ORI</td>
<td>ECoR</td>
<td>Raipur-Titlagarh incl. NL Mandi Hasaud-Naya Raipur(20 km) and new MM for conversion of Raipur(Kendri)-Dhamtari&amp;Abhnapur-Rajim branch line(67.20 km)</td>
<td>270.2</td>
<td>691.67</td>
</tr>
<tr>
<td>3</td>
<td>ORI</td>
<td>ECoR</td>
<td>Sambalpur-Talcher</td>
<td>174.1 1</td>
<td>679.27</td>
</tr>
<tr>
<td>4</td>
<td>ORI</td>
<td>ECoR</td>
<td>Banspani-Daitari-Tomka-Jakhapura (Suppl.)</td>
<td>180</td>
<td>942.95</td>
</tr>
<tr>
<td>5</td>
<td>ORI</td>
<td>ECoR</td>
<td>Brundamal-Jharsuguda flyover connection to join DN Line (Suppl.)</td>
<td>-</td>
<td>88.02</td>
</tr>
<tr>
<td>6</td>
<td>CH</td>
<td>ECoR</td>
<td>Kirandul-Jagdalpur</td>
<td>150</td>
<td>826.57</td>
</tr>
<tr>
<td>7</td>
<td>JHA</td>
<td>ECR</td>
<td>Chandrapura-Rajabera-Chandrapura-Bhandaridah</td>
<td>10.6</td>
<td>34.87</td>
</tr>
<tr>
<td>8</td>
<td>WB</td>
<td>ER</td>
<td>Chinpai-Sainthia, Prantik-Siuri</td>
<td>31.61</td>
<td>595.91</td>
</tr>
<tr>
<td>9</td>
<td>JHA</td>
<td>ER</td>
<td>Tinapahar-Sahibganj as PH-I of doubling of Tinapahar-Bhagalpur</td>
<td>37.81</td>
<td>167.84</td>
</tr>
<tr>
<td>10</td>
<td>WB</td>
<td>ER</td>
<td>Sahibganj-Pirpaniti</td>
<td>10.45</td>
<td>129.45</td>
</tr>
<tr>
<td>11</td>
<td>AP</td>
<td>SCR</td>
<td>Gooty-Renigunta - Patch doubling</td>
<td>151.0 4</td>
<td>532</td>
</tr>
<tr>
<td>12</td>
<td>CH</td>
<td>SEC R</td>
<td>Bilaspur-Urkura</td>
<td>110</td>
<td>321</td>
</tr>
<tr>
<td>13</td>
<td>CH</td>
<td>SEC R</td>
<td>Bilaspur-Salka Road</td>
<td>39.4</td>
<td>144.19</td>
</tr>
<tr>
<td>14</td>
<td>CH</td>
<td>SEC R</td>
<td>Salka Road-Khongsara Patch Doubling</td>
<td>26</td>
<td>143.87</td>
</tr>
<tr>
<td>15</td>
<td>CH</td>
<td>SEC R</td>
<td>Khodri-Anuppur with flyover at Bilaspur</td>
<td>61.6</td>
<td>385.54</td>
</tr>
<tr>
<td>16</td>
<td>CH</td>
<td>SEC R</td>
<td>Byepass at Champa</td>
<td>14</td>
<td>37.64</td>
</tr>
<tr>
<td>17</td>
<td>ORI</td>
<td>SER</td>
<td>Bimlagarh-Dumitra</td>
<td>18.3</td>
<td>115.66</td>
</tr>
<tr>
<td>18</td>
<td>WB</td>
<td>SER</td>
<td>Gokulpur-Midnapur New bridge on diversion alignment with substructure &amp; steel super structure on Bridge No. 143.</td>
<td>2</td>
<td>52.14</td>
</tr>
<tr>
<td>19</td>
<td>ORI</td>
<td>SER</td>
<td>Banspani-Jaruli</td>
<td>9</td>
<td>90.88</td>
</tr>
<tr>
<td>20</td>
<td>WB</td>
<td>SER</td>
<td>Rajgoda-Tamluk-Phase-II of Panskura-Haldia Doubling</td>
<td>13.5</td>
<td>86.91</td>
</tr>
<tr>
<td>21</td>
<td>ORI</td>
<td>SER</td>
<td>Champajharan-Bimlagarh</td>
<td>21</td>
<td>151.09</td>
</tr>
<tr>
<td>22</td>
<td>JHA</td>
<td>SER</td>
<td>Bhojudih -Mohuda</td>
<td>23</td>
<td>134.19</td>
</tr>
<tr>
<td>23</td>
<td>KAR</td>
<td>SR</td>
<td>Kankanadi-Panamburu Patch Doubling (Suppl.)</td>
<td>19</td>
<td>149.2</td>
</tr>
<tr>
<td>24</td>
<td>TN</td>
<td>SR</td>
<td>Omalur-Mettur Dam doubling with electrification</td>
<td>29.03</td>
<td>149.61</td>
</tr>
</tbody>
</table>
### Table:

<table>
<thead>
<tr>
<th>No.</th>
<th>Source</th>
<th>Division</th>
<th>Route Description</th>
<th>Distance</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>KAR</td>
<td>SWR</td>
<td>Dharwad-Kambarganvi (Suppl.)</td>
<td>26.68</td>
<td>127.44</td>
</tr>
<tr>
<td>26</td>
<td>KAR</td>
<td>SWR</td>
<td>Hubli-Hebsur (Suppl.)</td>
<td>17.17</td>
<td>77.79</td>
</tr>
<tr>
<td>27</td>
<td>KAR</td>
<td>SWR</td>
<td>Arasikere-Birur (Patch doubling)</td>
<td>44.28</td>
<td>149.88</td>
</tr>
<tr>
<td>28</td>
<td>KAR/GO</td>
<td>SWR</td>
<td>Hospet-Hubli-Londa-Tinaigahat-Vasco-de-Gama</td>
<td>352.2</td>
<td>2127</td>
</tr>
<tr>
<td>29</td>
<td>MP</td>
<td>WCR</td>
<td>Guna-Ruthiyai</td>
<td>20.5</td>
<td>66.5</td>
</tr>
<tr>
<td>30</td>
<td>MAH/UJ</td>
<td>WR</td>
<td>Udhna-Jalgaon with electrification</td>
<td>306.9</td>
<td>714.6</td>
</tr>
</tbody>
</table>

#### 3rd LINE:

<table>
<thead>
<tr>
<th>No.</th>
<th>Source</th>
<th>Division</th>
<th>Route Description</th>
<th>Distance</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>WB</td>
<td>SER</td>
<td>Panskura-Kharagpur 3rd line(44.7 km) with new MM Panskura-Ghatal(32.8 km) NL 11-12</td>
<td>77.5</td>
<td>529.23</td>
</tr>
<tr>
<td>32</td>
<td>JHA</td>
<td>SER</td>
<td>Rajkharsawan-Sini-3rd line</td>
<td>15</td>
<td>91.61</td>
</tr>
<tr>
<td>33</td>
<td>JHA</td>
<td>SER</td>
<td>Dongaposi-Rajkharsawan 3rd line (Suppl.)</td>
<td>75</td>
<td>309.44</td>
</tr>
<tr>
<td>34</td>
<td>JHA</td>
<td>SER</td>
<td>Sini-Adityapur 3rd line</td>
<td>22.5</td>
<td>95.29</td>
</tr>
</tbody>
</table>

### Adequate supply of rakes:

Besides the issue of adding railway lines including new lines and doubling lines, another issue that needs focus is the issue of rolling stock. It is observed that during high demand rake availability becomes an issue. As we target larger volumes of mineral movement in future, railways need to ensure that adequate rakes are made available in the iron-ore circuits. The loadability of wagons also needs to be improved so that larger volumes can be carried. The quality of rakes for transportation of ore also needs improvement. High axel wagon load type of wagons which can load upto 90 mt. and can run faster is the need of the hour. In fact, railways have developed new BOXHN wagons which need to be introduced more and more into the iron ore circuits.

Further, there is a need for creation of mechanism to review rail tariffs for ore freight and to sequester revenue stream for freight transportation capacity development. For this Planning Commission has to set up mechanism.

### PPP in Railways:

Several initiatives have been taken by MSPL in the railways sector for its development catering to its need. As such, MSPL has invested an amount of 120 Crores in 6 rakes under the OYS(Own your wagon scheme) during the year 2005-06 and the rakes are fully operational to Goa from Bellary-Hospet sector & move iron ore to the tune of 3.5 million tons per annum to Goa port. MSPL has already received the approval for construction of private
railway siding complex at Novamundi station in the Barbil-Joda sector of South Eastern Railway which will facilitate export volume of 5 million tonnes per annum from the Eastern sector & the required amount of Rs. 5 crores has already been deposited. MSPL has invested an amount of 18 crores towards the construction of Haridaspur-Paradeep Railway line in East Coast railway under PPP with RVNL along with seven more stake holders. However, work on this line is very slow. It is understood that there are some issues with regard to agitation by local people who are claiming higher compensation for land that has been acquired. MSPL has started the investment process for the private railway siding construction at Basapur station near Ginnigera of South Western railway for their steel project involving a total outlay of 150 crores. The approval has been received from Railways and work will start by August’ 2011.

2.3.4. **Power:** The power sector was among the first sectors to be opened in India for private sector investment during the early 1990s. Though the initial impetus was on investment for power generation projects, the government subsequently allowed private investment in distribution and transmission projects also. India has around 156,784 MW of installed power generating capacity as on 31.01.2010. Out of which, thermal power plant is having 100,352 MW, followed by hydroelectric plant is 36,885 MW and nuclear plant is 4,120 MW and Renewable Energy System (RES) is 15,427 MW.

2.3.4.1 Further, as against XIth plan target 78,700 MW set by the Planning Commission, the CEA has assessed that a total capacity of 62,374 MW is likely to be commissioned with high level of certainty during the XIth Plan period. A capacity of 19,582 MW has already been commissioned till 31.01.2010 and a capacity aggregating to 42,792 MW is likely to be commissioned with a high level of certainty during the balance period of the XIth Plan. In addition, projects totalling to 12,590 MW are being attempted for commissioning on best efforts basis during the XIth plan period.

2.3.4.2 Keeping in view that a large number of private power projects in India are in the pipeline, Sub-Group III of the Working Group on mineral development and exploration for XIIth Five Year Plan for which the Central Electricity Authority (CEA) has granted techno-economic
clearances (TECs) recommends that significant power generation capacities need to be added to support mineral industry during XIIth Plan.

2.3.5 **PPP initiative taken by the Rajasthan State:** State Government of Rajasthan has recognized the importance of infrastructure as the basic requirement for economic development. Construction of mines approach roads is a must for increasing the production of minerals. Approach roads lead to faster mineral movement and in turn quick returns. In Eleventh Five Year Plan mines road will be constructed in mining areas of districts of Churu, Ajmer, Bhilwara, Nagaur and Rajasamand. Till now construction on 7 mines roads have been taken and about 34.86 km work has been completed which falls in districts of Rajasamand, Bhilwara, Nagaur, Jhalawar and Bundi. Among above 7 roads, 4 roads were undertaken under PPP mode where 25% of project cost was borne by the mines owners of eth area. This year Rs. 263.60 lakh is proposed for 3 road works where about 6.00 km length will be completed. It is expected that similar steps should be taken by other mineral rich states for constructing mines approach roads in the States in the PPP mode.

2.3.6 **Control on Illegal Mining relating to Infrastructure**

Rule 45 of the MCDR, 1988 has been notified on 9.2.11 with a view to allow end-to-end accounting of the minerals. Rule 45 largely covered the area of accounting of mineral production and movement of minerals legally mined, while the Rules made under Section 23 C of the MMDR Act covered the area of minerals illegally mined. With the implementation of the provisions of Rule 45, increasing the efficiency in accounting minerals, State Government may find it easy to isolate and monitor areas of illegal mining effectively. The need of the hour is to implement Rule 45 and develop and implement uniform ore accounting software with interface to Railways, Ports and Customs. The software for registration and concessions MIS should be developed preferably by NIC. A fund requirement of Rs. 50 crore for the purpose for its implementation during Twelfth Five Year Plan.

2.4 **Recommendations**
General Recommendations

2.4.1 India produces as many as 90 minerals and most of the mines are located in interior and tribal areas. The mining companies develop infrastructure commensurate to their requirements. However, so far the development of general infrastructure like all-weather roads, which can withstand movement of heavy vehicles, is woefully lacking in such mining belts. The general road conditions in mining belts otherwise also is extremely bad. State Governments do not spend funds for providing linking infrastructure to mining areas. It is, therefore, considered necessary that State Governments should allot a certain amount out of their royalty collection for providing roads and other basic amenities like power, telecommunications, etc. at par with industrial estates. It is, therefore, essential that adequate attention is given on infrastructure development in mining areas by Central and State Government. Government should provide special emphasis on development of roads in Northeast region looking to large potential for export of limestone. [HFHI]

2.4.2 Development of high quality roads connecting priority sector mines (iron ore, bauxite, dimensional stones and limestone) to loading stations are urgently required and State Governments should earmark revenue from their royalty earnings for such infrastructure development in mining sector. In order to undertake the task of building the infrastructure in mining areas, it is recommended that Mineral Development Fund (MDF) should be set up in each State having stake in major mining activity by earmarking 15% of the annual royalty collections for the fund. [HFHI]

2.4.3 For planning and promoting the development of mine-related infrastructure, it would be necessary to put in place an appropriate institutional framework. In the major mining States, we already have mineral development corporations and State Industrial Development and Investment Corporations. It would be necessary to enlarge the mandate of these corporations to include planning, promotion and financing of mining infrastructure. [LFHI]

2.4.4 These corporations should take up funding for the mining infrastructure projects by inter alia promoting and implementing entities in the form of JVs/SPVs. In appropriate cases these
institutions could meet their bridge financing and / or Viability Gap Funding (VGF) from the Scheme of the Ministry of Finance or from out of the Mineral Development Fund and further tie up loans from the financial institutions as well as from the India Infrastructure Finance Company Ltd. (IIFCL). It is also recommended that consideration should be given to an alternative arrangement whereby allocations would be made to the Ministry of Mines to enable it to allocate funds directly for undertaking mining infrastructure projects. In order to facilitate such an arrangement the Ministry of Mines would have to set up a small-specialized body in the form of a corporate entity for appraising projects, routing funds and providing the requisite expertise.

2.4.5 Though the large mines tend to construct their own mine-linking infrastructure, it may so happen that investment in mine sector is so high that it may go beyond the reach of even the larger mines. What is therefore, needed is the “cluster concept” so that trunk facilities are constructed with financial participation of all the mines-whether small or big, in a particular area. In so far financing of ‘cluster concept’ projects is concerned the capital outlay can be shared by the individual mines in proportion to the ultimate production level for which their mine is planned. In case at a subsequent date, any mine proposes to augment its production level he will be called upon to make extra financial contribution proportionate to its increased production capacity but since the infrastructural facilities would have already been constructed by then, the money contributed by him would get distributed among the original contributors in proportion to their original investment. This concept can also be applied in all the infrastructure development, be it railways, road network, water supply arrangements and power supply arrangements.

2.4.6 Government of India has taken up projects in PPP mode in railway projects, National Highways and the port projects within the existing schemes. The Government of India should encourage more and more projects in Public Private Partnership (PPP) mode in all the above three sectors of infrastructure.

2.4.7 Private sector industries in mining have offered to construct additional lines and to run private rakes on PPP basis. However, all the 16 Zones of Railway in India have procedural delay
in giving approval due to which the implementation is hampered. In view of this, a kind of single window clearance is required for obtaining clearances. [LFHI]

2.4.8 The siding policy of railway needs to be liberalized. As of now railway is taking deposit of Rs. 5.00 crore for private siding in the mining industries and Rs.10.00 for private siding in the Steel Industry. There are so many applications pending with Railways from various companies for development of siding. However, railways needs to develop a single window system of approval to expedite new sidings which can result in increase in iron ore volumes. [LFHI]

2.4.9 The capital cost of water and power projects (to access the main grid) for the SME sector may have to be borne by the State Government through outright grants from the Mineral Development Fund. If the Rural Water Supply Scheme of the Central Government could be extended to the mining areas to meet the water supply requirement of the small/medium size mines, it would alleviate the strain on the resources of the MDFs. Similarly, a conscious decision could be taken by the State Government to make electricity available to the mine sites, especially for small and medium size mines. [LFHI]

2.4.10 Power supply grid system in the country needs to be strengthened, particularly that located in mining belts of India. [LFHI]

2.4.11 New railway lines in the eastern sector as well as in Karnataka connecting mining areas to ports will have to be undertaken to support exports and for reducing cost structure of various steel plants. [LFHI]

2.4.12 Development of dedicated freight corridors for transport of iron ore by railways from the mine-heads to various ports needs to be promoted along with private promoters. [LFHI]

2.4.13 Ports should invest in additional tipplers to augment their receiving capacities. [LFHI]

2.4.14 Additional stockyard capacity at ports needs to be installed. [LFHI]
2.4.15 Considering high cost of construction of ports, dredging, etc. alternatives such as floating terminals, which will facilitate loading of larger ships outside the port, should be examined and implemented. [HFLI]

2.4.16 New ports coming up at Gopalpur (located between Paradip and Vaizag) and Dhamra (located south of Haldia and north of Paradip) in Orissa by a consortium of TATA Steel and L&T and another port coming up at Ennore, all on East Coast should be expedited. These mega ports will hopefully have sophisticated mechanized handling plants and deep draft berths to handle super cargo. [LFHI]

2.4.17 Besides the issue of adding railway lines including new lines and doubling lines, another issue that needs focus is the issue of rolling stock. It is observed that during high demand rake availability becomes an issue. As we target larger volumes of mineral movement in future, railways need to ensure that adequate rakes are made available in the iron-ore circuits. The loadability of wagons also needs to be improved so that larger volumes can be carried. The quality of rakes for transportation of ore also needs improvement. High axle wagon load type of wagons which can load upto 90 mt. and can run faster is the need of the hour. In fact, railways have developed new BOXHN wagons which need to be introduced more and more into the iron ore circuits. [HFHI]

2.4.18 Apart from track and signaling improvements, rail freight tariffs to be rationalized to retain competitive edge of mineral based industry. [LFHI]

Sector Specific Recommendations

2.4.19 Iron Ore:

Iron ore plays an important role in the development in the nation. The production of iron ore in the country was 219 million tonnes in 2009-10. As per the National Steel policy 2005, projections of domestic consumption for iron ore are at 200 million tonnes by 2020 and for exports are at 100 million tonnes by 2020. Thus, total future demand (both domestic and exports)
is projected at 300 million tonnes by 2020. The movement of iron ore will continue to be mostly by rail and therefore development of railway infrastructure to handle iron ore has to be suitably augmented. The total traffic projections for the steel sector by 2019-20 include 230 million tonnes by railways and 100 million tonnes by road.

In a globally integrated economy, minimization of the overall cost of transportation of iron ore becomes an important factor for maintaining the competitive edge in both the domestic and overseas markets. The Indian steel plants and iron ore mines therefore need to be integrated with the ongoing programmes of National Highway development and also with the proposed rural road development schemes.

2.4.19.1 Bellary-Hospet Sector: In Bellary-Hospet Sector, the existing iron ore production of about 43 million tonnes in 2009-10 and is expected to go more than 79 million tonnes by 2016-17. In order to meet the infrastructure requirements for the increase in production/demand in iron ore both for domestic and export market, following infrastructure will need to be created/augmented.

2.4.19.1.1 Railways: As the iron ore from this sector moves to ports namely Chennai, Krishnapatnam, Goa, Karwar, Belikeri and New Mangalore, it is necessary to strengthen and improve railway carrying capacities to all these ports. This can be achieved by doubling of tracks, other measures to increase line capacity on these sections and electrification of routes wherever necessary in addition to ensuring timely availability of wagons. Simultaneously, however, the wagon tippling facility also needs to be augmented. A substantial portion of iron ore is transported by road from mine-heads to the loading stations. In addition to being costlier, it also puts a lot of strain on the road network and therefore, it would be desirable to provide suitable rail linkages to some of these large mines. [HFHI]

2.4.19.1.2 Ports: There has been a decision to close down Chennai port for export of iron ore due to environmental reasons. It is therefore, necessary to develop alternative port /ports to handle the current exports from Chennai as well as to meet future export demands. In this connection, a new port at Ennore, north of Chennai is being developed. It is recommended that efforts be made for speedy development of iron ore berth, mechanical ore loading facility, adequate capacity of stockpile and dredging to accommodate large cape size vessels. The ship
loading facilities at Ennore should match with other iron ore loading ports of the World to make Indian iron ore competitive in the global market.

As part of hinterland of Bellary-Hospet Sector, a private sector port at Krishnapatnam in Andhra Pradesh is being developed. Iron ore loading facilities in this port should be suitably designed to handle part of the cargo, which is expected to move from Bellary-Hospet area through this port.

Iron ore handling facilities at New Mangalore port on the West Coast should be gradually improved to load additional iron ore expected to move to this port from Bellary-Hospet and other regions in Karnataka. In case of new Mangalore port, conversion of metre gauge railway line would also be required.

It would also be worthwhile to make expeditious efforts to develop an all–weather port at Tadri or Belekeri with a draft of 18 meters as a long-term solution. The port should have mechanical ore handling facilities and storage space to accommodate minimum of 5 million tonnes of cargo.

The above project is critically dependent on the construction of railway line between Hubbli and Ankola – a distance of 172 kms, involving a gradient 1 to 150 metres. The construction of this railway line will reduce the lead from Bellary-Hospet by 200 kms. This line together with the development of port is expected to increase and make iron ore exports competitive in the world market. Construction of Hubli-Ankola railway line will also give the hinterland access to the Konkan railways and whole of Karnataka coastline. These railway lines and the port projects deserve to be taken up on fast track.

Efforts should be made to deepen draft at Mormugao (Goa Port) upto 16.5 m and mechanical handling facilities be installed for rail borne iron ore traffic from Bellary-Hospet sector to Goa Port.

Obulavaripalle- Krishnapatnam port Rail line project which is at different stages of construction needs to be expedited. [LFHI]
2.4.19.2 **Bailadila-Vaizag Sector:** The major iron ore producer in this sector is NMDC, the production was 22 million tonnes in 2008-09, which is expected to go up to 32.7 million tonnes by 2012 and more than 42 million tonnes by 2022. About 8 million tonnes out of this is expected to be moved by slurry pipelines and the balance by railways, both for domestic and export demand. By 2012 rail and road movement is expected to cover 22.8 million tonnes and 1.9 million tonnes respectively. Therefore, construction of a new railway line to link Bailadila Sector (Jagdalpur) to Raipur needs to be taken up on priority.

2.4.19.2.1 **Railway:** A dedicated railway line exists between Bailadila and Vaizag port, which carries the iron ore for exports and for domestic consumption of Vishakapatnam Steel Plant, ESSAR, ISPAT Industries and Vikram Ispat, etc. To ensure and sustain the movement of increased tonnage by railway, it is necessary to strengthen the existing railway facilities. Similarly, to meet the iron ore demand of other steel units in Chhattisgarh area immediate action is recommended to establish/improve the rail/road facilities in the region.

The load carrying capacity of railways for ore transport is to be enhanced keeping in view the movement of bauxite envisaged from Andhra Pradesh quarries. For ensuring steady power supply, the power grid system in these belts also needs to be strengthened.

Construction of new rail line to link Bailadila sectors (Jagdalpur) to Raipur & Gua-Barbil-Badajamda sector needs to be taken up on priority. This will support SAIL, NMDC’s and others mining operations. [HFHI]

2.4.19.2.2 **Port:** As NMDC and MMTC are the major suppliers of iron ore from Vizag port, it is necessary to augment the stockpile capacity of this port. Vizag port is facing congestion making the vessel wait sometimes up to 7 days to berth. The port has taken up some berth including General Cargo berth for renovation because of which iron ore which is handled at General Cargo berth does not get berth as other berths are dedicated only for handling coal. The situation is likely to improve once the renovation works are completed. [LFHI]
2.4.19.3 **Orissa / Jharkhand – Haldia / Paradip Sector**:

About 30% of India’s iron ore resources are located in the states of Orissa and Jharkhand. The combined production from these two states was about 102 million tonnes during 2009-10, out of the total all India production of 219 million tonnes during the same period. It is, therefore, evident that infrastructure facilities in this region are of utmost importance both from the point of view of domestic trading and exports. Since, this Orissa/Jharkhand belt supplies iron ore to several domestic steel industries, the internal movement of iron ore both by road and rail is substantial. The prospects of growth of iron ore mining in this region is expected to be high in view of several new steel plants of POSCO, TATA and Mittal Steel being proposed.

2.4.19.3.1 **Railway**: From iron ore mining areas of Barajamda, Barbil, Banspani, etc., the iron ore is transported by railways to steel plants and to the ports of Haldia and Paradip. In order to increase the capacity, several new railway projects have been undertaken in this region viz. Banspani – Daitari, Haridaspur – Paradip, Angul – Sukinda Road, Jharsuguda – Sambalpur, etc. While Banspani-Daitari project is in completion stage (99%), the work has been started in Haridaspur – Paradip, Angul – Sukinda Road. Work in the project Jharsuguda – Sambalpur (doubling) yet to commence. It is, therefore, recommended that these projects be expedited to be completed as soon as possible. The expeditious construction of Daitari – Banspani rail line which is in quite advanced stage will reduce distance between iron ore mines to the port by 313 kms.

It is, therefore, recommended that Ministry of Railways should develop product-specific railway freight corridors jointly with rail users – MNCs / private companies / or / PSUs. A similar project is under consideration at an estimated cost of Rs.560 crores i.e. Haridaspur – Paradip railway line project in which POSCO is likely to contribute Rs. 27 crore initially for its 10% stake. This will provide a dedicated rail corridor connecting its steel plant with Paradip port in consortium with PSUs and private companies like Jindals, SAIL and MSPL Mining Company. This project is being developed by Special Purpose Vehicle (SPV) led by Rail Vikas Nigam Ltd. This new railway corridor will be an alternative to the Cuttack railway line which will reduce the distance and time of transportation of raw materials like iron ore and coal from Orissa’s Keonjhar and Angul districts to the plant site. [HFHI]
2.4.19.3.2 **Road:** In the absence of adequate rail capacity in this sector, a large quantity of iron ore is moved by roads. In view of the growing demand of iron ore, it is recommended that all the road projects undertaken in the mining area should be completed as soon as possible. Some of the road routes critical to Indian mining sector in this region are:

(i) Rajamunda-Barbil (NH215) - 60 kms  
(ii) Barbil-Panikoili (NH215) -189 kms  
(iii) Chandikhole – Paradip (NH5A) - 77 kms  
(iv) Jamshedpur – Haldia (NH 33, NH6, NH41) – 200 kms  
(v) Jaintgarh – Chaibasa – Haldia(NH 75E) -100 kms

2.4.19.3.3 **Port:** Two major ports that handled the iron ore exports from this sector are Haldia and Paradip. During 2009-10, the quantity exported was about 7.4 million tonnes and 12.27 million tonnes from Haldia and Paradip respectively. At present Haldia can handle a ship of about 90,000 DWT while Paradip can load a vessel of about 70,000 DWT due to draft limitations. The draft of Haldia port is very low as 6.5 meter. Vessel more than 20,00 MT cannot be loaded. Dredging is required. Though Dredging Corporation of India is doing dredging regularly, due to the very nature of the port it is not serving the purpose. Hence in case of Haldia Port high sea loading through barges is strongly recommended. Simultaneously Gangasagar which is the end of 24 paraganas should be developed as a ship loading point.

Paradip Port is a very congested port. The draft needs to be increase for berthing bigger vessels. With the completion of construction project which includes a berth handling ships up to 1,25,000 DWT by PPP mode at Paradip Port, the draft limitation will be removed.

In view of the increase in demand of iron ore loading in these ports, immediate action is required for completion of Paradip Port through PPP and deepening of Haldia Port and turning basin and construction of iron ore berth to receive bigger ships.
Several new port projects namely Dhamara and POSCO’s captive port are under consideration for quite some time. In fact Dhamara port has state of art facilities and has a capacity of 10 million tonnes per annum which will be expanded further. It is recommended that support should be given by way of separate allotment of rakes for Dhamara port from Eastern India. Also, it is recommended that these projects should be implemented expeditiously to handle additional iron ore from the region in order to reduce freight costs from India to iron ore importing countries.

POSCO’s own port proposed at Jatadhari near Paradip should be developed expeditiously. [LFHI]

2.4.19.4 Goa Sector : Total iron ore production in 2009-10 from this region was 39 million tonnes. In addition to local production, considerable quantities of iron ore are moved from Karnataka region through Mormugao port. In 2009-10, total quantity of iron ore handled at Goa (Panjim+Mormugao port) was 53.7 million tonnes.

2.4.19.4.1 Railway: The Goan iron ore mines are located close to rivers and therefore the iron ore movement within Goa is mostly by barges to Mormugao and Panjim ports. However, iron ore from Bellary Hospet is moved by railways and exported through Mormugao. The iron ore is brought to river loading point of Sanverdam from where the ore is loaded into barges and transported to the port. In order to avoid double handling, a project to handle wagons directly at the port is underway and should be completed immediately. Likewise the railway capacity from Bellary-Hospet to Goa should be suitably increased to meet the growing movement of iron ore. The early completion of doubling of Hospet-Vasco line which has been recently sanctioned will help the iron ore industry in Karnataka and Goa. [LFHI]

2.4.19.4.2 Port: At Mormugao port (berth no. 9), the aggregate assessed loading capacity is 7.5 million tonnes per annum, can handle ships from 30,000 to 275,000 DWT capacity. The total handling capacity was 24.30 million tonnes for iron ore and other ores and 5.00 million tonnes for coal/coke in 2008-09. The ships are partly loaded upto the permissible draft and fully loaded
at anchorage with the help of transhippers. The port also loads large cape size vessels directly from barges with the help of transhippers. The main infrastructure at Mormugao port is therefore barges, mechanical ore loading facility and transhippers, which should be maintained, replaced and suitably enhanced to take care of growing export demand. The minor port of Panjim handles about 8-9 million tonnes of iron ore annually, mainly through barge loading, and therefore, availability of adequate barges should be ensured. [HFHI]

2.4.20 **Dimensional & Decorative Stones:**

Handling facilities at major ports viz. Chennai, Tuticorin, Cochin, Mangalore, Kaswa, Kandla, Mumbai, JNPT and Vizag need to be improved for the export of dimensional stones.

Road network should also be extended to rural mining belts including decorative & dimensional stone producing centers, thereby providing linkages to highways / expressways.

It is recommended that railway stockyards at various places should be created with Inland Container Service System (ICD) in operation. The railway stockyards with potential of handling stones should be equipped with crane facilities of minimum 50 tonnes. From these points, open wagons shall move to important ports and other destinations where the stone processing units are located.

The Indian dimension stone industry is totally dependent on road transport with practically no support from the railways. Most of the competing countries have vast network of rail transportation supporting their stone industry through which they are able to offer any quantity in any size at very competitive prices in International market. Thus, it is necessary for the Indian stone industry to have proper rail links nearest to the quarrying areas. [LFHI]

2.4.21 **Bauxite & Alumina**

The Greenfield alumina plants and bauxite mining would require strengthening of infrastructure development of road and rail network. The bauxite mining belts of Chattisgarh and Jharkhand also need improvement in road infrastructure for the brownfield expansion of existing plants. In Andhra Pradesh bauxite deposits would require extension of railway line up to deposits. [HFHI]
2.4.22 **Limestone and other industrial minerals**

Bulk handling of limestone and rock phosphate both for domestic consumption, exports and imports is made by rail and road network. Road network is a serious bottleneck in northeastern states where limestone is exported through road network to neighbouring counties. Therefore, efforts should be made to strengthen the existing road and rail network connecting mines to the consuming centres. [LFHI]

2.4.23 **Control on Illegal Mining relating to Infrastructure**

Rule 45 of the MCDR, 1988 has been notified on 9.2.11 with a view to allow end-to-end accounting of the minerals. Rule 45 largely covered the area of accounting of mineral production and movement of minerals legally mined. With the implementation of the provisions of Rule 45, increasing the efficiency in accounting minerals, State Government may find it easy to isolate and monitor areas of illegal mining effectively. This requires implementation of Rule 45 by developing uniform ore accounting software with interface to Railways, Ports and Customs. The software for registration and concessions MIS should be developed preferably by NIC. A fund requirement of Rs. 50 crore for the purpose for its implementation during Twelfth Five Year Plan. [HFHI]
CHAPTER 3
ENVIRONMENT, FOREST, RECLAMATION & REHABILITATION ISSUES

CHAPTER 3.1
PROBLEMS & CONTRAINTS IN EXPLORATION & EXPLOITATION OF MINERAL RESOURCES IN TRIBAL FOREST AREAS AND TO SUGGEST MEASURES IN HARMONISING MINERAL DEVELOPMENT WITH ENVIRONMENT AND FOREST REGULATION

(Item No. 3 of the Terms of Reference for the Sub-Group III)

Terms of Reference

“To assess constrains and problems encountered in exploration and exploitation of mineral resources in tribal, forest areas and to suggest measures in harmonizing mineral development with environment and forest regulation, PESA Act and Forest Rights Act and to suggest changes if any. To suggest measures that need to be taken to promote inclusive growth and at the time safeguard the interests of the tribal in the areas of the country.”

3.1.1 Introduction:
The mining industry in India is significant for its economic development. The industry provides raw materials to domestic industries, and also contributes to India’s export earnings. Not only that, it also offers employment opportunities in rural areas. Mining has strong multiplier effect on the rest of the economic as every penny generated from the mining industry generates 2.4 times the direct and indirect output in the economy.

The historical and ongoing conflict between mining mineral reserves and conserving environmental resources will continue to exist as India's forests, mineral bearing areas, major river watersheds, tribal habitat regions and most backward regions overlap significantly. Such conflict situations demand a process of rationalization that takes into account various adverse impacts and suggests the least-damaging proposition. A decision needs to be taken to clearly categories areas based on ecological, environmental, and socio-cultural significance for the nation (National Parks, sanctuaries, areas occupied by primitive tribes, among others), so that some of these areas are preserved, to the extent possible, while mineral development is encouraged in other areas.

The extraction of mineral reserves has always resulted in varying degrees of environmental resource degradation and social impacts, including displacement, all across the globe. Whilst acknowledging that no mining can be entirely free of all negative impacts, there is sufficient ground to suggest that all-round performance on this subject in the mining sector needs to be urgently and substantially improved in the country.

It is necessary to improve the basic building block of governance required for mining industry to contribute to sustainable development including: promoting transparency in revenue flows, promoting disclosure of mining projects, developing governments capacity to manage volatile revenues efficiently. Develop modern policy and regulatory framework integrating the public into decision making process at local and national level process and ensuring that the
rights and interests of indigenous people and other communities are recognized and respected by the states and companies.

The coincidence of rich biodiversity with mineral bearing areas, is understood but not adequately factored into the comprehensive assessment and mitigation of long term impacts, leading to inadequate response from the project proponents and the regulators. There are two main concerns emerging out of any mining activities i.e. environmental concern & sustainable development. Both the challenges can be tackled by adopting Sustainable Development Framework, CSR & well planned Mine Closure Activities.

3.1.2 Sustainable Development Framework for Mining Sector

A High Level Committee, set up under the Chairmanship of Shri Anwarul Hoda, Member, Planning Commission, to review the National Mineral Policy, 1993, inter-alia, studied the impact of mineral development with the need to develop principles in mining, best practices, and reporting standards which may be measured objectively and 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. In their assessment the High Level Committee had relied on the Sustainable Development Framework (SDF) modeled by International Council of Mining and Metals (ICMM)/ International Union for the Conservation of Nature and Natural Resources (IUCN). The High Level Committee further held that there is a need to protect the environment through initiatives beyond the regulatory aspect, so that miners can and should enrich rather than deplete biodiversity as a corollary to their intervention in the ecology of the area of activity. The Committee also held that mining should contribute to the 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 High Level Committee held 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, and accordingly recommended preparation of a Sustainable Development Framework (SDF) specially tailored to Indian context taking into account the work done and being done in ICMM & IUCN. The said SDF would compose 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 the same would be monitored through a regulatory mechanism.
In accordance with the recommendations of the High Level Committee, the Government approved a National Mineral Policy, 2008, on 13th March 2008. In respect of issues pertaining to sustainable mining, the National Mineral Policy deliberates on the issue. Further, in accordance with the policy direction in the National Mineral Policy, 2008, Ministry of Mines appointed M/s ERM India Pvt. Ltd as its Consultant to develop a Sustainable Development Framework for the Mining Sector (Non Coal, Non Fuel) in India. The development of the SDF has also followed through on the policy recommendations of the High Level Committee.

A participatory approach involving consultation and discussions with different stakeholder groups, support of the concerned line departments at the state and central level, feedback and representation from the industry and the civil society groups were the key highlights of the approach adopted for the study. The SDF is informed by ground realities, conflicts, issues, expectations and perceptions with regard to the mining and the different activities associated with it.

3.1.2.1 SDF Principles

The key principles that have been espoused in the SDF report submitted by the Consultant which is under active consideration of the Government are as under;

**Principle I: Incorporating Environmental and Social Sensitivities in decisions on leases:**

This principle integrates sustainable development concepts at the earliest phase of the mining life cycle. The underlying philosophy of the principle is to categorise mineral bearing areas based on an environmental and social analysis taking a risk based approach. At the bidding stage the categorisation of lease areas into High and Low risk will allow the investors to take business decision with the knowledge that the cost and uncertainties of getting approvals as well
as operations in high risk areas will be significantly higher than the low risk areas. It will also allow regulators to put additional commitments at an early stage for environmental and social performance. This principle allows for the government to balance environmental and social interests of the nation, with mining priorities in the longer term;

**Principle II: Strategic Assessment in Key Mining regions:**

Understanding that mining activities occurs in clusters which have impacts at a regional level, undertake a strategic assessment of regional and cumulative impacts and develop a Regional Mineral Development Plan based on as assessment of the regional “capacity” at periodic intervals. Creating an institutional structure to own and implement such plans in key mining regions and taking critical decisions on mining, new leases, allocation of resources, and even possible moratorium on mining to ensure more sustainable planning and development in such regions;

**Principle III: Managing impacts at the Mine level impact through sound management systems:**

The key elements of this principle are impact assessment of key environmental, social, health and safety issues, development of management framework and systems at the mine level and continual improvement of the same on the basis of international standards on a self driven basis. A key elements is disclosing performance on environmental and social parameters to external stakeholder at every stage of the project lifecycle;

**Principle IV: Addressing Land, Resettlement and Other Social Impacts:**
This principle demands a comprehensive assessment of social impacts and displacement of mining projects at the household, community and mining region level, and management commitment to address those impacts through mitigation measures and management plans;

**Principle V: Community engagement, benefit sharing and contribution to socio-economic development:**

The principle seeks commitment to regular engagement with the local community as well as sharing of project benefits with the affected families. It is rooted in the principle of sharing profits with the affected communities already provisioned for in the draft MMDR Act awaiting approval. It dovetails the social impact management of project operations with the CSR initiatives being undertaken and looks at an integrated approach to mitigate impacts and improve local livelihoods and living conditions in the neighbourhood areas/communities.

**Principle VI: Mine Closure and Post Closure:**

Mining operations must prepare, manage and progressively work on a process for eventual mine closure. This process must cover all relevant aspects and impacts of closure in an integrated and multi-disciplinary way. This must be an auditable document and include a fully scoped and accurate estimate of planned cost of closure to the company. The cost estimates must be adequately provisioned to cover national, regional and local legal and regulatory requirements for closure; and must also include the cost of servicing all agreements/commitments made with stakeholders towards post-closure use;

**Principle VII: Assurance and Reporting:**
This principle seeks mining sector stakeholders to assess their performance against this SDF and demonstrate continual improvement on this performance over the life of the project. It requires this performance to be reported in a structured manner in a Sustainable Development Report to be disclosed in the public domain as well as to regulatory agencies to consider during approval processes.

3.1.2.2 Likely outcome of the SDF

At the very least, the SDF provides guidance for the mining companies to improve performance on environmental and social aspects, however, over time it can also become the common benchmark against which all mining operations may be evaluated in terms of their comparative performance on sustainable development terms. The SDF will need to be used by mining companies to demonstrate commitment to sustainable development, and may be submitted to regulators at the time of seeking clearance or renewal or extension. It should also be used by regulators to evaluate the mining company’s commitment to achieving environmental and social goals. Investors and financers may use this to assess risk and could additionally use it to demand better performance of the associated mining operations. Once this SDF is accepted, its use can be determined through more focused consultations and seeking consensus. Civil society and the local community could use the SDF to drive mining companies and regulators for increased accountability and mining performance related disclosure.

The SDF for mining sector which is being finalized has taken into account the PESA, FRA, FC Act, EPA, development of tribal like cooperative society for mining of small deposits and minor minerals etc. So far as the institutional arrangement is concerned, the Ministry of Mines in consultation with ministry of Environment and Forest will administer the SDF for the mining sector.

3.1.3 Constraints and problems in exploration and exploitations of mineral resources in tribal and forest areas:
- There is no clear cut mapping strategy for go and no-go areas.
- Identification of equivalent non-forest land for compensatory afforestation is a major constraint.
- Long delays in getting forest and environment clearance as there are nearly 10 agencies at the centre and state levels through which a prospecting license/ mining lease application has to be routed.
- Payment of net present value of forest land are the most important conditions stipulated by the central government while approving proposals for de-reservations or diversion of forest land for non-forest uses.
- Sometime such land for compensatory afforestation is not available on the allotted land is far from the area of operation of the concession seeker. Such problems are common in rugged & fragile Himalayan terrains. Therefore, the compensatory afforestation in such cases becomes cumbersome and expensive.
- Two stages clearance of proposals. In first stage, the proposal shall be agreed to in principle whereas in the second stage, the final approval will be accorded.
- Phased reclamation of mined area.
- At present, the forest clearance for the entire mining lease area is not given in one go. So, getting environment clearance is piece-meal is contrary to scientific mining, as the lessee cannot undertake scientific mining in the area.
- Forest and environmental clearance shall be valid till exhaustion of resources or expiry of lease, whichever is later.

The other major concern is rehabilitation of the indigenous communities. This situation has greatly contributed to general social dissatisfaction and unrest in these mining belts; further exacerbated by undervaluation of lands that were acquired by the government for development of mines. Long pending and pertinacious resettlement (legacy) issues have contributed to a deep local mistrust of mining and all associated activities (including exploration studies) and continues to colour all discussions on the subject.
While there are some economic benefits that may be gained by the communities living around mining areas in terms of employment and business, it is the vulnerable sections: women, children and old people, who sustain several negative impacts, and have more limited coping mechanisms.

3.1.4 Suggested measures to harmonise mineral development with environment and forest regulation and promote inclusive growth and safeguard the interest of tribals in the areas

3.1.4.1 Categorisation of mineral reserves and resources at the State levels, into high and low risk areas for purpose of investment in exploration based on environmental and social sensitivities. [LFHI]

3.1.4.2 Over a map of all the mining leases in the country, overlay environmental and social sensitivities using available databases covering at least subjects like protected area (PAs), dense forests, and schedule areas to begin with. Through such an overlay, identify mine leases that fall into the high and low risk categories. Provide this categorisation, as well as its associated risks for each new lease area as well as those that are already in operation [LFHI]

3.1.4.3 Initially, for operational mining leases, the categorisation would be more focussed on impacts rather than risks, and would include elements like pollution levels, water quality, health indicators in the area etc which would indicate potential and ongoing impacts of the mining activity. [LFHI]

3.1.4.4 Classify as No-Go zones areas that are statutorily declared as prohibited or protected zones under various central, state and local government regulations and international conventions. Exclude these No-Go areas from mining considerations [HFHI]

3.1.4.5 Consultation and stakeholder engagement especially in Schedule V areas. This will address some of the issues of ensuring local stake in control, use and management of such areas and resources. [LFHI]
3.1.4.6 Benefit-sharing: The mining companies should share the benefit of mining with the mine affected people. Consultation and stakeholder engagement together with benefit sharing would address issues of consent of the indigenous communities on project impacts on common resources, cultural practices, economic opportunities and adequate compensation. [LFHI]

3.1.4.7 Frameworks for understanding more comprehensively, potential environmental impacts – safeguards, management, mitigation, indicators. [LFHI]

3.1.4.8 Strategic area-based approach to conserve natural resources and address pollution related issues. [LFHI]

3.1.4.9 Put in place institutional structures and mechanisms at central, state and district levels to address different issues concerning consultation and stakeholder engagement, benefit sharing, environmental impact and conservation of natural resources. [LFHI]

3.1.4.10 Develop a sectoral regulator to comprehensively address social and environmental concerns through statutory interventions and approvals at mine as well as regional (watershed) levels, with the intention that such regulator would function under the over arching supervision of the Environmental Regulator in the Ministry of Environment and Forest. [HFHI]

CHAPTER 3.2

COMPREHENSIVE FRAMEWORK FOR THE MOST SUSTAINABLE USE OF THE COUNTRY’S MINERAL RESOURCES FOR NATIONAL DEVELOPMENT KEEPING IN VIEW OF THE INTEREST OF VARIOUS STAKEHOLDERS

(Item No. 4 of the Terms of Reference for the Sub-Group III)
Terms of Reference

“To formulate a comprehensive framework for the most sustainable use of the county’s mineral resources for national development keeping in view the interests of various stakeholders.”

3.2.1. Introduction

The country is endowed with huge resources of many metallic and non-metallic minerals. The share of metallic mineral in the overall production has witnessed a significant increase over the last five years. The new Policy enunciates measures to streamline and simplify the procedures for grant of mineral concessions, develop a sustainable framework for optimum utilization 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.

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 mineral specific strategy will be developed to maximize 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. 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 utilization of low grade ore and rejects and recovery of associated minerals- concept of zero waste mining.

3.2.2 Need for Technology upgradation:

a) Most of our exploration efforts by GSI, MECL or other govt. agencies or mining companies were restricted to area near ancient mine workings or near surface deposits by using conventional exploration techniques.
b) Advanced integrated exploration techniques are needed to thoroughly explore deeper deposits in complex geological environment including deposits concealed in offshore zones.

c) State-of-the-art drilling techniques with sophisticated rigs (such as RC) for three dimensional sub surface delineation of ore body as well as for directional drilling and underground exploratory drilling are needed to be employed.

d) Suitable technology for mining of deeper deposits with geothermic temperature to sustain coal production and hence to fulfill the ever increasing demand of India.

To ensure that the interests of host populations and other vulnerable sections are fully protected and stakeholder interests are developed, the benefit of the economic activity in the mining sector should flows equitably to the stakeholders. Since a large proportion of the mineral wealth is situated in areas under forest cover, inhabited by tribal or under-privileged communities, and of late, socio-economic issues of tribal and remote communities which inter-alia include perceptions about displacement, control of area by outsiders, economic isolation, environmental degradation and loss of livelihood and habitat, have come into focus, a felt need to incorporate provisions in the mining legislation enabling institutional mechanisms for involvement of the local people, especially the tribal and under privileged communities, in the development of mineral resources through creation of stakeholder rights.

The Forest and environmental issues policy lays down creation of 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) populations 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.

3.2.3 IBM as Regulator within SDF
The implementation of the provisions of the SDF will require new layers of information and reporting, monitoring, capacity improvement and institutional mechanism to prosecute and punishing the violators. The institutional arrangement for an SDF is not simple as it envisages the involvement of a range of disciplines. Therefore, it is necessary to strengthen the existing structure to build capacities to understand, develop process and monitor the SDF at each of their levels. The draft report on the SDF recommended that it can rope in to become a part of the enforcement team that is typically led by Indian Bureau of Mines on mining and State Pollution Control Boards for environmental compliance to provide advice on sustainable development performance. The draft report on SDF suggested that for the mining sector to adopt this framework, it will need strengthening of capabilities of the existing regulators, planners as well as the mining companies. The draft report recommended that the key agencies that would need their skill to be diversified and capacities significantly enhanced includes Indian Bureau of Mines to be able to guide mining companies to bring in the SDF as a part of the mining plan where possible, or as additional aspects they would need to cover for approvals. IBM itself should have the capacity to review the SD reports, commitments and evaluate these in the field.

The draft SDF report also suggested that the mining companies, large or small, should be able to understand the SDF and its implications for their mining exploration or operations and to bring in professional that will help them meet their SD responsibilities and commitment.

Moreover, environmental regulation in the mining sector requires sound knowledge of mining practices. Also, regulation requires application of the arm’s-length principle and instead of MOEF directly performing dual role as a policy maker and regulator, it should only over see the sectoral regulations. Since, IBM is already a technical regulator and can be equipped by creating capacity enabling to analyse environmental issues for EIA/EMP. To highlight the issue, as part of the HPC Report on IBM regulatory capacity need to be created in IBM. IBM is to accredit agencies to prepare SDF compliance reports as part of Mining Plan as per new MMDR Act.

3.2.4 Capacity creation at State and District Level
The Sustainable Development Framework prepared at the national level advocate for creation of State level Sustainable Development Framework. This requires capacity creation in State Directorate of Geology and Mines (DGMs) by way of establishing SDF Cell at the State DGMs. The capacity creation in State DGMs including monitoring of SDF activities are to be funded out of the State Mineral Fund (SMF). The Action Plan for State DGMs is to be funded out of the State Plan/ State Cess.

Similarly, there is a need for creation of capacity at local level to execute programmes to facilitate and provide funding for common socio-economic infrastructure creation and management in mining areas. In order to support this endeavor, the institutional mechanisms like District Mineral Fund (DMF) to be created as a non-profit Trust to create local socio-economic infrastructure using DMF. Further, there is a need for incentivizing the promotion of Tribal Cooperatives for exploitation of minor minerals.

### 3.2.5 Suggestions to formulate comprehensive framework for sustainable use of the mineral resources

For the development of a “comprehensive framework to take informed decisions for the most sustainable use of the country’s mineral resources, the following issues are recommended.

3.2.5.1 Conduct detailed studies of the extent of mineral reserves and their reassessment in the light of revised threshold values. [LFLI]

3.2.5.2 The proportion of land already leased out, and within that, what proportion has been exploited, needs to be undertaken, to the degree possible (first level through remote sensing). [HFHI]

3.2.5.3 Consolidation of state databases for the whole country, based on minerals, irrespective of go/no go areas. [LFHI]

3.2.5.4 Sustainable use of minerals and re-use potential (Recycle). Cost benefits analysis on conservation strategies to reduce energy consumption as well as CO2 emissions. [LFHI]
CHAPTER 3.3
RECLAMATION & REHABILITATION NEEDED FOR ABANDONED OR CLOSED MINES
(Item 5 of the Terms of Reference of the Sub-Group III)

Terms of Reference

“To assess the magnitude of rehabilitation and reclamation needed for abandoned or closed mines prior to the concept of mine closure plan and financial assurance came into being and to suggest appropriate plans for reclamation & rehabilitation for such mines to give eco-friendly image to mining industry”.

3.3.1.1 Introduction

Minerals are a valuable natural resource being the vital raw material for infrastructure, capital goods and basic industries. As a major resource for development, the extraction and management of minerals has to be integrated into the overall strategy of the country’s economic development. The exploitation of minerals has to be guided by long-term national goals and perspectives. 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.

Mineral wealth, though finite and non-renewable in the long term, is a major resource for development. The need for a well planned programme of survey and exploration, management of resources which have already been discovered and those which are in the process of discovery and their optimal, economical and timely use are matters of national importance.

The Mining sector in India has shown tremendous scope for growth keeping in view the fact that the country has optimum potential for mineral wealth to meet demand from manufacturing sector which continues to expand in sustainable manner. It is however recognised that mining, unless properly regulated can have serious adverse environmental and social consequences. Mining is an extractive industry and, by its very nature, can have significant direct and secondary environmental and social impacts. The negative legacy of past practices has created a deep level of mistrust of the industry in conservation circles and raised questions about the industry’s role in society’s transition to sustainable development.
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.

India is a federal structure with a single economic space and environmental issues too do not respect geographical boundaries. Extraction of minerals closely impacts other natural resources like land, water, air and forest. The areas in which minerals occur often have other resources presenting a choice of utilisation of the resources. Some such areas are ecologically fragile and some are biologically rich. 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. 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, but so far, these have been voluntary and yet to be followed by the entire mining industry as a uniform approach. Mining operations often involve acquisition of land held by individuals including those belonging to the weaker sections. In areas in which minerals occur and which are inhabited by tribal communities and weaker sections it is imperative to recognise resettlement and rehabilitation issues as intrinsic to the development process of the affected zone.

Previous practices in mine planning, mine closure and rehabilitation have neglected the fundamental concepts of post mine land use development and integrated mine closure planning. The long term environmental, economic and social performance of a site is
apparent after mine closure and completion has occurred. However, successful mine closure is determined by the initial mine planning process, which recognises the need for improved stakeholder involvement and community consultation. Mine site closure planning should occur within the initial mine planning and feasibility assessment phase prior to the commencement of mine site operations.

3.3.1.2 Mining Regions covered by large to medium mining ventures:

Whereas there are leases in groups or cluster, covering large tracts of metallic minerals like iron ore, manganese ore, base metals, bauxite, chromites and sizable number of mines of infrastructural base minerals limestone, dolomite, gypsum, china-clay, soapstone, magnesite, rock phosphate held by both public sector and corporate sector and predominantly under A category. Environmental issues including reclamation, rehabilitation are under surveillance of IBM by virtue of implementation of approved closure plans and further creating awareness among mining community through Mines Environment & Mineral Conservation week (MEMC) during last three decades. The community development in mining belts and contribution of each lessee has also been included later on in MEMC activity. The annual data on both aspects is being collected through regular monitoring & documentation. The lessees have been awarded for their CSR and Community development activities from MEMC platform.

3.3.1.3 Key issues of Indian Mining Sectors:

With the above changing socioeconomic and environmental scenario, some of the key issues which Indian Mining Industry needs to focus upon are listed below:

**Social**: Livelihoods; Land acquisition and resettlement; Community equity / benefit sharing in mining; Labor, with a focus on Women and Child Labour; Human rights; Cultural values, norms and ethos; Stakeholder engagement; Scheduled Areas related issues; Health and safety; and Education and Empowerment.

**Economic**: Incentives; Taxes; Suppliers and contractors; Profitability and business continuity; and Re-investment.
Environmental Water management; Waste Management; Soil Conservation; Air quality; Tailings disposal; Restoration/Reclamation and Biodiversity.

Disclosures: Free Prior and Informed Consultation (FPIC); Assurance; Monitoring and Reporting; Mine closure; and Land use management.

3.3.1.4 Framework for effective Reclamation & Rehabilitation of Mines

Planned mine closure and completion is still at an early stage of development with few examples of integrated mine closure planning applied from conception throughout all phases of mine operations. Integrated approaches to mine closure, which takes into account the environmental and social considerations at an early stage of mine operations and throughout the mine process is elementary in the development of long term environmental and social perspectives and sustainable development within the mining industry.

Integrated mine closure planning is a dynamic process which is fundamental to the development of sustainable mine closure and mine rehabilitation practices. Mine closure planning should recognise that mining is a sequential land use, and so the closure of a mine site and rehabilitation provides an opportunity for post mine land use development. Planning for mine closure should aim to alleviate or mitigate environmental damage, achieve a productive use of the land, or return the land to its original condition or an acceptable alternative and provide for sustainability or social and economic benefits resulting from mine development and operations.
Mineral resources are finite ore bodies, and as a result all mine facilities will eventually close and the reputation of the mining industry dependant on the legacy in which it leaves. In recent years, responsible mining companies have identified the importance of sustainable mine closure and rehabilitation practices.

3.3.1.5 Terms & Definitions

**Reclamation**- Reclamation means return the mined out land with useful life. It implies restoring the land to a form and productivity that is useful and in conformity with a prior land use. Reclamation always may not be a single-phase operation.

**Rehabilitation**- Rehabilitation is to bring back the degraded land to a normal stage by a special treatment. It is a process of taking some mitigation measures for disturbed environmental condition created through mining activities.

**Restoration**- Restoration is the process of returning the mined out land being fit to an acceptable environmental condition. However, the general acceptable meaning of the term is bringing the disturbed land to its original form. Restoration is often used to indicate that biological properties of soil are put back to what they were. This is a rare phenomenon.
Reclaiming the mine site and incorporating it into existing landscape encompasses rehabilitating the mined out pits, tailings disposal, water and waste rock management and ecosystem reconstruction. The main concern here is to blend the mine site in to the surrounding landscape while minimising environmental impacts.

While developing a framework for post mine life land use, the above definitions and their applicability and implications must be understood. There shall be an attempt to restore the mined out area but in reality, such thing may be difficult as the void already created by the minerals dispatched is larger than the filling material available and may not be a desired state by the local community for its economic usage as per their needs, cultural requirements.

Therefore, the magnitude of environmental implications of mine closure depends on the composition of minerals, type of mining and site-specific sensitiveness. The surrounding land use is also important. The broad objectives of mine closure are:

- To create a productive and sustainable after use for the site;
- To protect public health and safety of surrounding habitations;
- To minimise environmental damage;
- To conserve valuable attributes and aesthetics;
- To overcome adverse socio-economic impacts;
- To reshape areas disturbed by mining operations to the extent possible to attain:
  - Site stability,
  - Adequate drainage to minimize erosion,
  - Compatibility with desired long-term land use, and
  - Surface conducive to re-vegetation

3.3.1.6 Present Statutes and Policies:

Granite Conservation & Development Rules, 1999. These statutes also prescribe statutory guidelines for the environmental concern on reclamation; rehabilitation/restoration in generalized overview with not conservation needs in particular. As such, there are no stringent legal provisions for key issues of monitoring amelioration practices.

There are provisions for termination of PL and ML on environmental and other grounds under section 4A (1) & (2), Rehabilitation of flora in leasehold area for major and minor minerals under section 13(2) and 15 (1A) respectively in Mines and Minerals (Development & Regulation), MMDR Act 1957, (amended in 1984 and 1994).

Mineral Conservation & Development Rules (MCDR), 1988 have been enacted under the MMDR Act, 1957 which includes protection environment and measures to control pollution concerns from rule 31 to 41 other than mineral conservation and development aspects. The base line information is made mandatory for submission of exploration Schemes vide rule 4(2) of MCDR, 1988, whereas there is the separate part in Environment Management Plan in mining plan/Scheme of mining document to be submitted under rule 22 & 23 of MCR 1960 and 10, 11, 12 under MCDR, 1988. Along the Mining Plan and schemes, Progressive Mine Closure plan shall be required for closure activities as per requisite guidelines. Further, IBM is also empowered to suspend the mining operations and prohibit deployment of person under rule 13(2) and 56 of MCDR’88 towards noncompliance and leading to a grave and immediate threat to the environment.

Progress of Reclamation of mining land/Abandoned Mines  
(Excluding Fuel, atomic & Minor Minerals)

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Mines Abandoned</th>
<th>Number of mines where reclamation has been carried out</th>
<th>Total area reclaimed in abandoned mines (in Ha.)</th>
<th>Number of mines where reclamation being carried out</th>
<th>Extent of area where reclamation is being carried out (in Ha.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-10</td>
<td>102</td>
<td>53</td>
<td>656.18</td>
<td>1263</td>
<td>12,228.49</td>
</tr>
</tbody>
</table>

The Cumulative Afforestation in important mines  
(Excluding Fuel, atomic & Minor Minerals)

<table>
<thead>
<tr>
<th>Year</th>
<th>Area Covered (in Ha)</th>
<th>Number of trees planted (in ‘000)</th>
<th>Number of trees survived (in ‘000)</th>
<th>Percentage of survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-10</td>
<td>38621</td>
<td>94138</td>
<td>63016</td>
<td>67</td>
</tr>
</tbody>
</table>

3.3.1.7 Way Forward

In spite of several legislations and host of laws governing restoration/conservation of environmental status and prevention of activities in the biodiversity rich areas, the mining industry quite often faces criticism of non compliance as well as damaging the eco system. It is a fact that, there are only handful of cases, where this industry can showcase excellent work in restoration and rehabilitation, even that is not showcased to the conservationists and others including mine owners who not doing as good as it is expected from them. Such gaps in understanding of the concept and its implementation are because of absence of uniform approach and consistency in the various regulatory requirements. Some of the answers are suggested below to improve the performance and governance for the mining industry:

- Institutionalise the universal Framework for Restoration or Rehabilitation. The mining in India largely occurs in specific regions (11 states account for more than 90% of the mining leases). These regions can be identified across the states and should have region specific
guidelines for the Restoration or Rehabilitation. These region specific frameworks can be formulated based on the following:

- Regional Environment Management Plan to be developed and all the mines falling in that region are to be guided by the conditional requirements of the REMP. This will bring uniformity of practices as well as give an indication of investment and requirement for mine closure to the investor raising the confidence level of the investor as well as bringing transparency in the guideline to be followed by all and understood by the local community.

- Use certified nurseries/ agencies for procurement of standard saplings of native species as per the REMP. Government can develop these nurseries; large mine owners, local cooperatives/entrepreneurs to bring uniformity in plantation as well as mine linked local economy as alternate vocation.

- Although mining of coal or non-coal have similar implications as far as mine closure or reclamation/ restoration/ rehabilitation, but the two ministries follow two different models for managing the cost involved with closure. While IBM follows model of a financial assurance as certain prescribed rate per ha to be deposited with IBM, which will be forfeited in case the closure is not done by the owner, whereas the Coal Controller follows a model of Escrow fund at a certain rate per ha to be paid every year till production life of the mine with escalation of 5% every year on previous year basis and the deposited fund is given back to the owner for meeting closure expenses in the last year when closure activities like restoration or rehabilitation starts. It is suggested that IBM also follows the Escrow fund concept like coal sector. This has distinct advantage over financial assurance concept: Every year the fund increases making it viable and substantial in the end of life.

- Every year allocation of such fund becomes part of the cost of mining.
• In the end of life, the size of the Escrow fund will be such that the owner will be happy to use that fund for meeting the expenses rather than opting to lose the BG which will be relatively smaller than the expected expenses after 25 years.

• As discussed above there is an urgent need to relook the way we have been doing plantation/ afforestation/ rehabilitation and use innovative and advanced techniques. The framework should suggest guidelines in the following line to improve the performance of mining industry. The Strategic Framework for Mine Closure should be structured around a set of objectives and principles grouped under six key areas (stakeholder involvement, planning, financial provision, implementation, standards and relinquishment). Ecological restoration is about a broad set of activities (enhancing, repairing, or reconstructing degraded ecosystems, and optimising biodiversity returns. In essence, the restoration of mined land is based around ecosystem reconstruction. It is usually a question of the re-establishment of the capability of the land to capture and retain fundamental resources (energy, water, nutrients, and species).

Several innovative approaches are being used for eco restoration of mined out areas in India and abroad. Few important innovative approaches are worthwhile to mention here: Mulching, Organic amendments, Geotextiles, Super-absorbent Grass-legume mixtures, Mycorrhiza biofertiliser applications in mine soil reclamation. Therefore, a detailed Manual on ecological amelioration practices for mined areas to be produced in consultation with a wide range of stakeholders. This manual should include viz Guidelines as to the nature of amelioration inputs (restoration, reclamation etc.) required according to the mineral, extraction process, location of mine etc, Performance standards for the reclamation programmes in mine region according to a range of site-specific requirements, Monitoring protocols to measure the performance of reclamation projects and Case studies on best practices from around the world.

3.3.2.1 Management of Closed and Abandoned Mines

Opencast mining operations have a number of irreversible impacts on the surrounding environment and ecosystems. Mitigation measures commonly adopted in mined out areas are: compensatory afforestation/plantation, reclamation, rehabilitation and ecological restoration. Definitions and interpretations of various terms used in statutes are both unclear and ambiguous.
It is because of this absence of clear guidelines on mine closure and restoration, many mined out areas are abandoned, could be termed as Orphan land or Abandoned Mined Land (AML), leaving them open to further degradation. This is one of the major causes of the present state of the environment in the mining belts. The OB dumps are environmentally very unstable, whether mechanically stable or not, are become sources of pollution when suitable controlling measures are not taken. The major effects are destruction of original habitat and land, air pollution, water pollution and siltation, and aesthetics. Restoration of a vegetation cover can fulfils the objectives of stabilisation, pollution control, visual improvement and removal of threats to surrounding population. Mine degraded soils are man-made habitat which experience a wide range of problems for establishing and maintaining vegetation cover. The adverse physico-chemical and physico-mechanical properties tend to inhibit soil forming process and plant growth. In acidic dumps, along with elevated metal concentration, other adverse factors include high stone content, lack of moisture, higher compaction, shortage of soil forming materials and organic matter.

3.3.2.2 Present Status of abandoned mines

IBM had identified abandoned/orphaned mines, which had been left un-reclaimed prior to the promulgation of rules about Mine Closure Plan in April, 2003. Through a special study at national level, 297 abandoned mine sites were identified. Out of the 297 abandoned mine sites, IBM identified 106 abandoned mine sites belonging to Public Sector Undertakings, major and other private sector companies requiring reclamation/rehabilitation. Out of the above 106 sites, 24 mine sites become operational again, thus requiring reclamation and rehabilitation in respect of 82 abandoned sites only. List of such 82 mine sites sattewise with breakup of mineral wise is given in table-1 and mineral wise for the country is given in table 2 below:

Table No. 1

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>State</th>
<th>Total</th>
<th>Mineral</th>
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The balance 82 abandoned mines are yet to be addressed for operations, these were mostly belong to Corporate sector (22) and Public sector of both central and state govt. (33), remaining are from private sector of low value minerals. In some cases, there are no warning signs of the danger posed by the abandoned operations. Some of these mines were simply left to fall into disrepair and neglect posing threat to environment, safety, illegal mining or other illegal activities. Unfortunately, most mines remain abandoned waste sites. Cleaning up an old mine can be costly. Faced with such an expense, many mine operators preferred to simply abandon their mines. Even after the defined regulatory requirement by IBM for scientific closure in 2003, the financial penalty for no or partial reclam ation/restoration is not sever. As time passed, land leases lapsed, records were lost and the original ownership of the mines became unclear. In short, no one was held accountable for the mine sites. Old mines pose two types of hazards: physical (like a mine shaft or void where person/ livestock/ wild animal likely to fall) and environmental (like the OB dumps or piles of tailings that leach toxins or other pollutants into water supplies). The developed countries have already taken up this matter seriously and have developed technology, legislative framework and specific projects to tackle the problem of abandoned mines. Government of India has also signed an MoU with Canada in 2006 to seek help from Canadian companies in the field of technologies of handling the orphaned and abandoned mines.

### Measures and Strategy for Reclamation and Rehabilitation of Abandoned Mines

It has been stated in above paras that, out of 82 abandoned mines are erstwhile owned by public and corporate sectors with some of those belong to private sector. Prior, taking up restoration, it is pertinent to know land use viz government land, forest land and private land in
turn with remnant mineral present with present economic context and those mines where mineral exhausted. Therefore, rationalization needed on remnant mineral existence in consonance with threshold values with type land use. Hence, it is suggested to identify two categories viz. abandoned mines where the mineral is not exhausted and abandoned mines where mineral exhausted completely.

**Abandoned Mines where the mineral is not exhausted:** In the light of present threshold values of particularly metallic minerals and possible use of associated minerals is necessitated to revisit such abandoned mines for further resource appraisals. Therefore, the concerned State Government can take up the action for these areas that can be thrown open for Prospecting Licence/Mining Lease grant. While granting concessions, considerable priority shall be given to earlier lessee with his operational capacity and in various administrative clearances. Meantime, safety concerns to endangerment to livelihood, impact over water, air, fauna, flora are necessary including socioeconomic aspect shall be assessed and to be ensured by State Govt.

**Abandoned Mines where mineral exhausted completely:** In such cases, State Government shall review the type of land use and ensure it post-land use after its restoration. It is also important to explore possibility of backfilling of fully exhausted voids shall be explored by utilisation of waste within feasible distance from working mines in neighborhoods. For retaining biodiversity, it shall be resolved through consultation with expertise agencies. The application of innovative advanced techniques available with state/central agencies enabling quick rehabilitation shall be explored.

In view of above, State Government shall conduct the survey of abandoned mines, prepare project report in consultation with IBM for assessment of fund for reclamation and rehabilitation activities for further monitoring and commission preparation of reclamation projects in consultation with local committees to be executed by District Mineral Foundation out of State Mineral Funds as per proposed MMDR2011.

**3.3.4 Conclusions and Recommendations:**
3.3.4.1 There are about 82 abandoned mining sites as per IBM, out of that sizable numbers of sites are of erstwhile PSU (33) and corporate sector (22). It is proposed that studies have to be taken up for their resource appraisal, environmental and socioeconomic impacts due abandoned mines along with concerned State Government and Pollution Control Boards, Ground Water agencies with assistance of respective Central or State PSU, Forest Dept. [LFHI]

3.3.4.2 Possibility of backfilling of fully exhausted voids shall be explored by utilisation of waste within feasible distance from working mines in vicinity in consultation with forest department where it is necessary. Safety aspects of such reclamation should be studied in advance. [LFLI]

3.3.4.3 Accordingly, plan of rehabilitation in the form of Project document shall be worked out, so as to facilitate State Government to implement the plan of rehabilitation for enabling it to bring it to eco-friendly shape. [LFHI]

3.3.4.4 Further unlocking remnant mineral in such sites, notification for leases should be issued by State Government and after unlocking the residual values; the area should be reclaimed by the new holder of lease. Some relaxation on EC/FC for such sites for faster reclamation should be provided and such initiatives by the lessees should be incentivised. Those who have excellent track records in previous operations should be given preference in allocation of leases. [LFHI]

3.3.4.5 The financial implication of such small abandoned mines, where there are no takers, should be calculated and funding mechanism should be explored through Planning Commission. [LFHI]

3.3.4.6 Escrow fund for mine closure should be done in case of current practice of financial assurances. Incentivise the good work of the lessee and penalize the defaulters. [HFHI]
CHAPTER 3.4
SOCIO-ECONOMIC IMPACT OF MINING ON THE LIFE OF LOCAL INHABITANTS AND TO SUGGEST WAYS AND MEANS FOR IMPROVING THEIR LIVING STANDARD

(Item 6 of the Terms of Reference of the Sub-Group-III)

TERMS OF REFERENCE

“To examine and assess the socio-economic impact of mining on the life of local inhabitants and to suggest ways and means for improving their living standard.”

3.4.1 Introduction

Mining of minerals has always resulted in varying degrees of social and environmental degradation and has impacted the society around mining areas, including displacement of persons. This hard truth cannot be brushed away even as the requirement of minerals is justified to meet the growing demand from the industrialised lifestyle of the modern era. With a view to achieve balance between the contradictory forces, and in face of severe global criticism being
faced by the mining sector there has been a growing need to ensure policy approaches for sustainable development of mineral resources.

Social Impact Assessment is currently mandated under the EIA notification 2006, during diversion of forest land under the Forest Conservation Act, 1980, and under the National Policy on Resettlement & Rehabilitation 2007 (NPRR) which is triggered when more than 400 people are displaced for a project. The proposed Land Acquisition Bill also makes a social impact assessment mandatory when resettlement of a certain scale occurs.

The most significant social impacts arise from land acquisition. Land for mining can be either directly purchased or leased from land owners (as is mostly in the case of small scale mines) or acquired by the Government for the mine under the provisions of the Land Acquisition Act, 1894) which is currently being modified to link it with the resettlement and rehabilitation (R & R) aspects of land acquisition.

The draft version of the Act seeks to make resettlement and rehabilitation enforceable, includes livelihoods habitats cultural and natural resources as critical areas of impact to be compensated and addressed and modification of the clause of ‘public purpose’ for acquisition. It also provides for valuing land at replacement value and not market value as is the status today.

The delay in reforms in the land acquisition regulation has resulted in different states adopting different strategies, creating confusion and uncertainty and has frequently resulted in enhanced conflicts over land. It is suggested that a uniform strategy is adopted and the new Land Acquisition (LA) Act should be in place.

The Forest Rights Act (2006) establishes a process by which forest dwelling and other forest dependent communities can claim and get their rights settled. Settlement of forest rights is still at an early stage and only some states have initiated the settlement process. The settlement of forest rights may become one of the most challenging aspects of mine development in the near future.

Detailed guidance and rules for the interpretation of the Forest Rights Act (FRA) are still being developed. While it recognizes individual as well as customary rights, in absence of detailed guidance and rules, the settlement process is marred with inconsistencies in
interpretations and often the non-recognition and settlement of customary rights. Recent developments in Orissa where two large projects have been put on hold on the issues of non-compliance to the FRA points out towards the challenges ahead.

The key issues that it still needs to address is that it only get triggered when there is significant displacement, rehabilitation is focussed on monetary support and not on the complex and difficult process of livelihood restoration. It also does not provide guidance on private sector projects where the government may not be involved in the resettlement process. The following steps need to be taken:

- Establish a baseline of the community and identify sensitive social issues at the reconnaissance stage through stakeholder analysis, consultations and focus group discussions. Include this baseline assessment, proposed risk mitigation measures and a consultation strategy during explorations as a part of the PL application.

- Comprehensively assess the social impacts of a mining project through its lifecycle before the start of any mining activity as a part of the mining lease application. Ensure that gender based impacts and impacts of children living around mining areas are an integral part of the impact assessment.

- Comprehensively assess the livelihood dependence on land (private, government or community), natural resources, and all other sources of income that gets impacts by the mining activities, irrespective of the legality of ownership and use.

- Design rehabilitation measures that either replace the sources of livelihood, or compensates them on the basis of a term livelihood loss. Identify and focus on the vulnerable groups in this process.

- Encourage asset building among the affected families through a basket of measures and incentives so that compensation money is used productively and people have a living standard better than before.
3.4.2 Specific provisions in Scheduled Areas

- Ensure that the social impact assessment in a scheduled area has a specific focus on impacts on tribal groups and their way of life and their social, cultural and religious choices. Experts on tribal communities should lead such an impact assessment.
- For land in Scheduled Areas, seek free, prior and informed consent of the Gram Sabhas for both major and minor minerals under PESA before starting the process of land acquisition. The consent process needs to be clearly defined in a manner and a timeframe that gives a fair chance to both parties to negotiate.
- Focus on programmes that enable the affected communities to participate in the economic benefits of the mine, through employment, business, services and contracts.
- Implement Corporate Social Responsibility (CSR) programs for sustainable development of the areas.

There are mining companies that have demonstrated that by openly committing to doing responsible business, adopting good practices and management systems, being more transparent about their performance and intention to improve, and standing to scrutiny by all their stakeholders by reporting on their performance in public domains, they have managed to garner more support and a social licence to operate even in extremely sensitive environments. They have shown that by functioning ethically, following their guiding policies, mining can be seen as a viable and chosen option for development.

3.4.3 Issues which need policy level clarification:

- Delays in granting clearances (Forest Clearance, Environmental Clearance).
- Clarification on first level Forest Clearance before Environment Clearance process may be started which is the cause for further delay.
- Proposal for categorizing future leases based on sensitivities and risks needs discussion and process level reform jointly with Ministry of Environment and Forest.
- Compensatory afforestation: Creation of land banks and updated records of available land for compensatory afforestation requires policy level intervention. Whether new projects
requiring compensatory afforestation will be rejected if such land is not available within the administrative unit requires clarification. Suggest alternative strategies to address this issue.

The Ministry of Mines needs to engage with the Ministry for Rural Development and the Ministry of Tribal Affairs to widen the Gram Sabha consent process to all mining activities.

3.4.4 Institutional Mechanism and Funding

There is need for commissioning base line studies in consultation with State DGMs in mining areas to assess socio-economic impacts of mining and nature and extent of ameliorative measures. Towards this end, IBM to commission studies using National Mineral fund. Also, State DGMs to supervise preparation of projects by District Mineral Foundation (DMF) in terms of SDF for local development and ensure execution. For this, State DGMs to prepare projects using State Mineral Funds and District Mineral Foundation to use District Mineral Funds for implementation.

3.4.5. Suggestions and Recommendations

3.4.5.1 The concept of single window clearance for forest and environment should be introduced. [LFHI]

3.4.5.2 A study needs to be carried out on sensitivities and risks, demand and supply for granting the lease. [HFHI]

3.4.5.3 Policy on compensatory afforestation needs to be revisited considering the position of land banks available with the State for compensatory afforestation. [LFHI]
CHAPTER 3.5
CSR INITIATIVES AND SUGGEST WAYS TO IMPROVE CORPORATE IMAGE IN THE MINING SECTOR

(Item 7 of the Terms of Reference of the Sub-Group III)

Terms of References
“To suggest CSR initiatives and suggest ways of enabling corporate, including Central Public Sector Enterprises improve their corporate image in the mining sector through coordinated CSR efforts”.

3.5.1 Institutionalisation of Corporate Social Responsibility for Mines

Mining exploitation is second after agriculture as the world’s oldest and most important industry. It is the ancient method of winning the hidden treasures of the mother earth for human consumption. Civilisations are chronicled as per the minerals mined out during the period. Stone Age, Copper Age, Iron Age etc., indicate that mining has contributed in abundance to human comforts and quality of life through ages. Mining has become strong pillar of human civilisation.

For sustaining developments in modern civilisation, mining is essential and for sustaining mining, mitigation of its impact & management of its consequences are essential. Corporate citizenship means conducting business with responsibility, integrity and respect. This includes ensuring a safe, healthy and fair workplace, protecting the environment, caring for communities and maintaining high ethical standards wherever any company operates.

Corporate social responsibility should not be construed as charity but the purpose of business should be understood for the community where it operates.

Investments in mining bring many benefits to regions, such as new jobs, higher salaries and family incomes and bigger tax revenues. Company’s key challenge is to identify opportunities and leave a positive legacy of sustainability in the regions where it operates.

Integrated actions promote development. The company develops programmes, actions and projects to leverage the positive results of its presence. Company’s strategy is to work in an integrated manner with government entities and society, stimulating the use of tax revenues to improve infrastructure, train workers and suppliers and diversify the region’s economy.

3.5.2 Present Statutory Provisions
The proposed MMDR Act which is in the process in being enacted is a welcome note to institutionalise framework for sharing the benefit. From the various data and documentation on community development/CSR activities, it has been observed that extent of CSR activities, expenditure incurred on these activities varies with mineral produced, region-to-region and type of sectors involves. Mostly corporate/PSU sectors have strategies and plans but do not have sound basis or criteria of allocation of funds. However, Ministry of Mines has issued guidelines to central public sector on the basis of net profit in last financial year. The conceptualization of mining activity so as to assess project capacities and CSR potential during lifetime of mine is pre-requisites.

3.5.3. Need for Policy and planning at Corporate/ Institutional Level

Before formulating plan of CSR, it is necessary to carry out sector wise appraisal to work out CSR activities on long term and short-term span on the basis of community requirements in the vicinity and neighborhood of mining projects. Since CSR activities falls within domain of sustainable development of region, it is therefore, suggested that each Lessee/public/corporate sector shall establish “Sustainable Development Cell” in the organisation for conceptualisation, planning, monitoring of sustainable development with mineral resource management.

3.5.4 Expenditure for CSR activities

It is felt that net profit is directly proportional to production dispatches and its end use utilisation including value addition, if any. Hence, it is proposed that each lessee should contribute at least Rs.5/- per ton for products dispatched for CSR activities outside the lease area for communities nearby.
It is also further suggested that Lessees of smaller production in other States of India can take inspiration from Mineral Foundation of Goa (MFG). The methodology and functions adopted by MFG is summarized as follows.

**Mineral Foundation of Goa (MFG)** has been established as a NGO on December 12, 2000, MFG is only of its kind in the country set-up by the industry having a co-operative ideology and people-centric approach. It was set up to address the social and environmental issues concerning the communities residing in the mining belt of Goa and foster social and economic development of the local communities. Any individual, Firm or Company registered as Member either with Goa Mineral Ore Exporters’ Association or with Goa Mining Association or with both, and engaged in the production of mineral ores in the state of Goa, shall be eligible to apply for Ordinary Membership of the Foundation. The Ordinary Membership shall be classed further based on production of mineral ores during the immediately preceding year on which royalty is payable. The annual subscription due from each Ordinary Member shall be decided by the Governing Board from time to time, subject to final determination by the Ordinary Members in General Meeting. Such subscription shall be calculated based on the quantity (per tonne) of mineral ore extracted and in respect of which royalty is payable to the Government of Goa by the Ordinary Member under the provisions of the Mineral Conservation & Development Rules, 1988 and as per particulars indicated in the latest Annual Return in Form “H-1” filed with the Controller General, IBM, under the Mineral Conservation & Development Rules, 1988 as amended from time to time. Annual General Meeting is conducted within 6 months of end of financial year where annual report and statement of audited statements of Balance Sheet and Accounts are received and adopted. MFG operates on a two-tier system of governance consisting of the Governing Board and the Executive Committee, both comprising representatives from Central Government, State Government, Civil Society and the mining companies.

3.5.5 CSR Programme as part of SDF Mining Plan: Accreditation Agencies to Prepare SDF

Present structure of mining plan inhibits mostly technical domains of SD dealing with mineral conservation and development, mine environmental protection & pollution control,
progressive closure activities. Therefore, address community development in the vicinity of mining area the programme of implementation of CSR should be incorporated in present mining plan structure and devised in three parts in mining plan document: Further, IBM to accredit agencies to prepare SDF compliance reports as part of Mining Plan as per new MMDR Act.

**Base line Information:** Collection and collation of base line data and documentation of socioeconomic conditions of the communities nearby.

**Social Impact Assessment (SIA):** Social Impact Assessment (SIA) due to mining and its satellite activities shall be worked out.

**CSR Plan:** Finally, year wise CSR proposals with expenditures to be incurred linked with proposed production capacities should be given in mining plan as separate part.

It is also felt that, in case of PL, CSR should be initiated right from the award of PL itself and the licensee should not wait to initiate the CSR activities after awarding of mining lease. Compliance to CSR activities should be made part of lease deed conditions and relevant rules.

**Self- Auditing & Reporting:**

Each company shall publish document on CSR policy framework, fund flows and targeted achievement. Annual report on CSR on individual mine should be sent along with annual return under rule 45 of MCDR, 1988. Accordingly State Government/Central Government shall monitor and conduct physical verifications etc.

**Verification and audit:**
Annual audits of the CSR project and accounts of the CSR activities will bring accountability and transparency in the system. The results of the approach should to be measured with respect to UN millennium development goals and Human Development Index (HDI) of the district.

The above suggested framework/guidelines for the CSR shall be included in the requisite statutes and it is suggested that the large private and PSU companies shall be encouraged to take up these projects with their dedicated CSR wing. The ‘District Mineral Fund’ to be created as a non-profit Trust to create local socio-economic infrastructure using District Mineral Fund (DMF) may be formed with representatives from Local administrative bodies and members from society as has been stated in the Chapter 3.4.

3.5.6 Institutional Development and Regulatory Enforcement:

i) Mining sector & its Beneficiaries:

- Each Lessee/public/corporate sector shall establish ‘Sustainable Development Cell’ in the organisation for conceptualisation, planning, monitoring of sustainable development with mineral resource management. The lessee/companies should make in-house and outside faculty programmes for executive development for carrying out CSR activities to executive/employees for institutional development.

- The vocational training programmes to render development of rural technologies in local trades to local aboriginal people in agriculture, husbandry, sericulture, water harvesting, hygiene and health, sanitation, recreation & education, saving schemes etc for augmentation of revenue to increase per capita income. It is invariably felt that ‘Value Education’ imparted both mining sector and beneficiaries for aimed output through diminishing crimes, violations, addictions and social evils.

ii) Govt. Sector
• IBM and State Directorates of Geology & Mining should develop capacity building in monitoring and suggesting proper CSR activities in the vicinity of mining area.

• IBM and State Directorates should establish “Sustainable Mineral Development Cell’ to plan, monitor and review CSR activities centrally with corporate and PSU sector and also work out guidelines, plan of action for mines in private sector particularly for small mining sector.

• IBM shall develop system of reporting in regard to CSR activities, by introducing quarterly /annual return and made mandatory by amendments in requisite statute.

For empowerment of Regulatory capacity in IBM, such recommendation shall be included in HPC Report on IBM. Accordingly IBM can accredit agencies to prepare SDF for mining ventures. Further, to monitor compliance to SDF, there is urgent need of Capacity building of State DGMs in SDF.

3.5.7 Strategy to build image of Mining Industry

Mining activity often leads to environmental problems like land degradation in opencast mining and land subsidence in underground mining, deforestation, atmospheric pollution, pollution of rivers and streams, soil contaminations due disposal of solid wastes like overburden and so on, all affecting the ecological balance of the area. Open-cast mining in areas with actual forest cover leads to deforestation. Recognition of good work on transparent reporting and consistent performance, self certification of the reporting of various parameters for the environmental performance over a sustained period of five years, recognition through a national award on good environmental performance and CSR in mining like national safety awards, value additions, safety to be formed as part of strategy to build the image of mining industry.
However, the internal improvements are the first to start for any image building exercise. Since 1989, observation of Mineral Environment & Mineral Conservation (MEMC) week and Annual Mines safety week are being celebrated to create awareness and exchange of outputs. On similar line with fanfare, workshops, seminars at national capital, state capitals and metros to change the perception about mining fraternity need to be organized.

3.5.8 Conclusions and Recommendations

3.5.8.1 Each Lessee/public/corporate sector shall establish Sustainable Development Cell in the organisation for conceptualisation, planning, monitoring of sustainable development with mineral resource management. Accordingly, lessee shall carry out detailed appraisals region-wise/sector wise to work out long term and short-term strategies for Corporate Social Responsibility (CSR). These strategies shall include preparatory action for conceptualisation of mining activity, impacts on socioeconomic structure and action plan for improving the quality of life of the communities nearby. [LFLI]

3.5.8.2 Each company shall publish document on CSR policy framework, fund flows and targeted achievement and quinquennial reviews should be submitted by five years to know efficacy and compatibility of implementation of proposals and address prospects and constraints demonstrated through socioeconomic parameters. [LFHI]

3.5.8.3 The base line studies shall be commissioned in consultation with State DGMs /other agencies in mining areas to assess socio-economic impacts of mining and nature and extent of ameliorative measures. The project report shall be prepared by District Mineral Foundation (DMF) in terms of SDF for local area development, and ensure execution. DMF shall execute such programmers/projects. Necessary Funds utilization shall be made as per proposed MMDR. [HFHI]

3.5.8.4 CSR activities should be made component of terms in lease deed conditions for PL and ML. CSR activities should start from award of Prospecting Licence. [HFLI]

3.5.8.5 The present state of Mining Plan document is comprehensive, multidisciplinary covers also Conceptual plan, Environment Management plan, Progressive closure plan, outlines
of socioeconomic aspects of region. It is proposed to introduce the separate part in document dealing with baseline data generation, Social Impact Assessment (SIA) and action plan for CSR activities linked production capacities for further implementation. [HFLI]

3.5.8.6 For institutional development, the lessee should make in house and outside faculty programmes for executive development for carrying out CSR activities. [LFHI]

3.5.8.7 Since RR and CSR issues are integral part of Sustainable development in mineral districts, implementation of the proposal regarding monitoring of environmental parameters and community development as per approved document shall involve interaction and consultation if considered necessary. [LFHI]

3.5.8.8 IBM and State Directorates should develop capacity building in monitoring and suggesting proper CSR activities in the vicinity of mining area. IBM and State Directorate should establish “Sustainable Mineral Development Cell“ to plan, monitor and review RR and CSR activities centrally with corporate and PSU sector and also work out guidelines, plan of action for mines in private sector particularly for small mining sector. [HFHI]

3.5.8.9 IBM and DGM shall develop a system of reporting in regard to RR and CSR activities, commissioned through proposed SDF at National and state level by introducing quarterly/annual return and made mandatory as per provision of draft new MMDR Act 2011. [LFHI]

3.5.8.10 While reporting, it requires due verification of implementation from respective department/agencies. Corporate sectors are solely responsible for reporting it. IBM shall monitor R&R and CSR through regional offices in various mining belt by sample checkup or audits for physical verification. [HFHI]

3.5.8.11 Each Corporate sector, should submit the survey report by five years to know efficacy and compatibility of implementation proposals and address prospects and constraints demonstrated through socioeconomic parameters. [HFHI]
3.5.8.12 Initiatives for Improving the Image of Mining Industry: Promotional campaign for environmental and social performance, Recognition through a national awards, Display of Showcases, articles in mass media on positive impacts and development with statistics, conducting mass media programme on sustainable mining and its outputs, achieving zero waste mining, value additions. Endorsement to Green Mining initiatives, awareness to curb illegal practices, participation of stakeholders in MEMC week celebrations. [HFHI]

***
ORDER

Subject: Setting up of Sub-Group-III on Mineral Exploration and Development (other than coal and lignite) for Twelfth Five Year Plan (2012-17)

It has been decided to constitute Sub-Group-III on Mineral Exploration and Development (other than coal and lignite) for the Twelfth Five Year Plan (2012-17). Sub-Group-III deals with matter relating to review the present investment, taxation, trade policies and FDI. It has to come out with suggestions for structural changes to attract venture capital, project investment perspectives for 10-15 years, promoting inclusive growth, SDF, R&R policies and Mine closure issue alongwith socio-economic impact by CSR initiatives.

2. The composition and Terms of Reference of the Sub-Group-III would be as follows:

**Composition**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name and Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Joint Secretary &amp; FA, Ministry of Mines, Shastri Bhavan, New Delhi</td>
</tr>
<tr>
<td>2</td>
<td>Joint Secretary(Capital Markets), Department of Economic Affairs, North Block, New Delhi</td>
</tr>
<tr>
<td>3</td>
<td>Joint Secretary, Department of Revenue, Ministry of Finance, North Block, New Delhi</td>
</tr>
<tr>
<td>4</td>
<td>Joint Secretary, Ministry of Shipping(Ports), Parivahan Bhavan, Sansad Marg, New Delhi</td>
</tr>
<tr>
<td>5</td>
<td>Representative of Railway Board, Ministry of Railways, New Delhi</td>
</tr>
<tr>
<td>6</td>
<td>Deputy Adviser (Minerals), Planning Commission</td>
</tr>
<tr>
<td>7</td>
<td>Secretary, Mining &amp; Geology, Govt. of Chhattisgarh, Raipur</td>
</tr>
<tr>
<td>8</td>
<td>Secretary, Ministry of Mining &amp; Geology, Govt. of Karnataka, Bangalore</td>
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<tr>
<td>9</td>
<td>Secretary, Mining &amp; Geology, Govt. of Orissa, Bhubaneswar</td>
</tr>
<tr>
<td>10</td>
<td>Secretary, Deptt. of Mining &amp; Geology, Govt. of Rajasthan</td>
</tr>
<tr>
<td>11</td>
<td>Director (C.TEMPO), Ministry of Mines, C.G.O. Complex, Lodhi Road , New Delhi-110003</td>
</tr>
<tr>
<td>12</td>
<td>Controller General, Indian Bureau of Mines, Nagpur</td>
</tr>
<tr>
<td>13</td>
<td>Director, Ministry of Environment &amp; Forests, New Delhi</td>
</tr>
<tr>
<td>14</td>
<td>National Aluminium Company Limited (NALCO)</td>
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<tr>
<td>15</td>
<td>SBI Capital</td>
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<tr>
<td>16</td>
<td>Kotak Mahindra</td>
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<tr>
<td>17</td>
<td>UBS Securities India Pvt. Ltd.</td>
</tr>
<tr>
<td>18</td>
<td>Representative from Barclays</td>
</tr>
</tbody>
</table>
3. **Terms of Reference**

(i) To examine the present investment, taxation, and trade policies for the mining sector and to review the actual realization of private investment (including FDI) and suggest structural changes in a way that enables high risk venture capital to flow into the sector along with state-of-the-art-technology, and project investment during the XIIth Five Year Plan and in the perspective of 10-15 years thereafter.

(ii) To review the status of infrastructure such as roads, ports and railways both physical and financial for the mining sector and assess the requirement during the XIIth Plan period and in the perceptive of 10 to 15 years thereafter; to relate infrastructure creation and revenue generation, particularly for development of PPP models and to suggest measures to fill up the existing gaps and building up of additional infrastructure; to define the roles of the Central Government, the State Government and the private sector in creating such infrastructure; and develop policies for best utilization of revenues from mineral wealth to be used for the long term development of the sector and the affected population.

(iii) To assess constraints and problems encountered in exploration and exploitation of mineral resources in tribal, forest areas and to suggest measures in harmonizing mineral development with environment & forest regulation, PESA Act and Forest Rights Act and to suggest changes if any. To suggest measures that need to be taken to promote inclusive growth and at the same time safeguard the interests of the tribal in the areas of the country.

(iv) To formulate a comprehensive framework for the most sustainable use of the country’s mineral resources for national development keeping in view the interests of various stakeholders;

(v) To assess the magnitude of rehabilitation and reclamation needed for abandoned or closed mines prior to the concept of mine closure plan and financial assurance came into being and to suggest appropriate plans for reclamation & rehabilitation for such mines to give eco-friendly image to mining industry.

(vi) To examine and assess the socio-economic impact of mining on the life of local inhabitants and to suggest ways and means for improving their living standard.

(vii) To suggest CSR initiatives and suggest ways of enabling corporate, including Central Public Sector Enterprises improve their corporate image in the mining sector through coordinated CSR efforts.
4. The Chairman of the working group may co-opt other officials or non-officials as Members, if considered necessary, as per Order No.I&M-3(24)/2010 dated 23.02.2011 of Planning Commission. The sub groups may submit proposal for co-opting official member or non-official members for the approval of the Chairman of the working group.

5. The expenditure on TA/DA of official members in connection for attending meetings of the Sub Group will be borne by the respective parent Department/Ministry to which they belong as per the rules applicable to them. Non-official members of the Group will be paid TA/DA by the Planning Commission as per SR 190(a) as admissible to Grade-I officers of the Government of India as per Order No.I&M-3(24)/2010 dated 23.02.2011 of Planning Commission.

6. The Sub Group will submit its report by 15th May, 2011.

7. The nodal officer in Planning Commission concerned with the Working Group is Shri L.P. Sonkar, Consultant (Minerals), Planning Commission (Tel:23096547) and any further correspondence/query in this regard may please be made with him.

(Bhupal Nanda)
Director

Copy forwarded to:
1. Chairman and all Members of the Working Group
2. PS to Deputy Chairman, Planning Commission
3. PS to MOS (IC) for Mines
4. PS to all Members, Planning Commission
5. PS to Member-Secretary, Planning Commission
6. Prime Minister’s Office, South Block, New Delhi
7. Cabinet Secretariat, Rashtrapati Bhavan, New Delhi
8. PPS to Secretary (Mines)
9. Sr. PPS to AS (Mines)
10. Ps to JS (M&R)/JS(M)/JS&FA, Ministry of Mines
11. Dir (SK)/Dir (BN)/Dir (CS)/Dir (RM), Ministry of Mines
12. Accounts Branch, Ministry of Mines
13. Information Officer, PIB, Shastri Bhawan, N.Delhi

(Bhupal Nanda)
Director
New Delhi, the 29th April, 2011.

Sub: Minutes of the First Meeting of Sub Group III on Mineral Exploration and Development (other than Coal and Lignite) for 12th Five Year Plan (2012-2017)

The first meeting of Sub Group III on Mineral Exploration and Development (other than Coal and Lignite) for 12th Five Year Plan (2012-2017) was be held under the chairpersonship of JS&FA on 27.4.2011 at 11.00 AM, Aluminium Room, Ministry of Mines, 1st Floor, Shastri Bhavan, New Delhi. The minutes of the meeting is enclosed for necessary action.

(Chandramani Sharma)
Director
Member Secretary Sub-Group III
Chandramani.sharma@nic.in
Tel: 23383096

1. Shri Rajesh Khullar, JS(I&I), Investment & Infrastructure Division, Department of Economic Affairs, M/o Finance
2. Shri Vivek Johri, Joint Secretary, Department of Revenue, Ministry of Finance, North Block, New Delhi.
3. Shri Rakesh Srivastava, Joint Secretary (Ports), Ministry of Shipping, Parivahan Bhavan, Sansad Marg, New Delhi.
4. Executive Director (Planning), Representative of Railway Board, Ministry of Railways, New Delhi (Kind Attn: Shri S.D. Gujarati, ED, and Railway Board)
5. Shri R.B.Tyagi, Deputy Adviser (Minerals), Planning Commission
6. Mr. S.K.Behar, Secretary, Mineral Resources & Industry Deptt., Govt. of Chattisgarh, D.K.S. Bhavan, Raipur- 492001
7. Shri B.S.Ramaprasad, Secretary (Mines, SSI & Textiles), Deptt. of Industries & Commerce, Govt. of Karnataka, M.S Bldg. BANGALORE-560001.
8. Shri Manoj Ahuja, Secretary, Steel & Mines Deptt. Govt. of Orissa, BHUBANESWAR- 751001
9. Dr. Govind Sharma, Principal Secretary, Mining & Petroleum Deptt., Govt. of
10. Shri A.K. Bhandari, Advisor (C Tempo), Ministry of Mines, C.G.O. Complex, Lodhi Road, New Delhi-110003
10. Controller General, Indian Bureau of Mines, Nagpur
11. Shri R.N. Meshram, Chief Mineral Economist, IBM, Nagpur
11. Shri S.K. Agarwal, Director, Ministry of Environment & Forests, New Delhi
12. Shri B.L. Bagra, CMD (IC), NALCO National Aluminium Company Limited (NALCO)
13. Shri Mukul Modi, Vice President, Project Advisory and Syndicate Finance, SBI Cap. 6th Floor, World Trade Tower, Barakhamba lane, Cannought Place,
14. Shri Manish Makharia, Kotak Investment Banking, 1st Floor, Babha Toara, 229, Nariman Point, Mumbai – 400021
15. Shri Ashok Mittal, 2/F 2 North Avenue, Maker Maxity, Bandra Kurla Complex, Bandra (E), Mumbai 400 051
16. Chairman/CMD, Barclays Bank PLC, First Floor, Eros Corporate Tower Nehru Place, New Delhi 110019 (to nominate a suitable representative from Barclays)
17. Shri D.S. Rawat, Secretary General, ASSOCHAM, ASSOCHAM Corporate Office, 1, Community Centre Zamrudpur, Kailash Colony, New Delhi – 110 048 (to nominate a suitable representative)
18. Shri Ranjan Sahai, Controller of Mines, IBM, Nagpur

Special Invitee:

10. Secretary, Ministry of Road, Transport and Highways, New Delhi, GoI (with the request to nominate suitable representative)
11. Secretary, Ministry of Tribal Affairs, New Delhi, GoI (with the request to nominate suitable representative)
12. Shri R.K. Sharma, Secretary General, Federation of Indian Mineral Industries (FIMI), New Delhi (to represent a suitable representative)
13. Shri Subir Gupta, Managing Director M/s Energy Resources Management Pvt. Ltd., Gurgaon (with the request to nominate suitable representative)
14. Shri Narendra Baldota, CMD, MSPL, Baldota Enclave, Abheraj Baldota Road, Hospet 583203, Karnataka (with the request to nominate suitable representative)
15. Mr. Akhilesh Joshi, Representative from Vedanta (with the request to nominate suitable representative)
16. CMD, MECL (with the request to nominate suitable representative)
17. CMD, IDBI Capital Market (with the request to nominate suitable representative)
18. HINDALCO, Shri U. Kumar, Sr. Adviser, S.L. Mining and Industries Ltd., 4th Floor, Parliament Street,

(Chandramani Sharma)
Director
Member Secretary Sub-Group III
Chandramani.sharma@nic.in
Tel: 23383096
Minutes of the First meeting of the Sub Group III on Mineral Exploration and Development (other than Coal and Lignite) for 12th Five Year Plan (2012-2017) held on 27.4.2011 at 11.00 AM, Aluminium Room, Ministry of Mines, Shastri Bhavan, New Delhi.

****

The first meeting of the Sub Group III on Mineral Exploration and Development (other than Coal and Lignite) for 12th Five Year Plan (2012-2017) was held on 27.4.2011 at 11.00 AM, Aluminium Room, Ministry of Mines, Shastri Bhavan, New Delhi under the Chairpersonship of JS&FA(Mines). The list of participants are at Annexure-1.

After welcoming the Members and co-opted Members of the Sub-Group III, JS&FA briefed the Members that Sub-Group III is entrusted with the task to review the present investment, taxation, trade policies and FDI. The issues of structural changes to attract venture capital, project investment perspectives for 10-15 years, promoting inclusive growth, Sustainable Development Framework, R&R policies and Mine closure issue along with socio-economic impact by CSR initiatives are cornerstone of the Sub Group- III.

The terms of reference circulated in the Agenda (ToR) of the Sub-Group III were discussed in detail. The need for investment in prospecting was highlighted. The concept of flow through share and venture capital and its importance in Indian mining sector was discussed. The Sub-Group has to examine the present investment, taxation, and trade policies for the mining sector and to review the actual realization of private investment (including FDI) and suggest structural changes in a way that enables high risk venture capital to flow into the sector along with state-of-the-art-technology, and project investment during the XIIth Five Year Plan and in the perspective of 10-15 years thereafter.

Chairperson of the Sub-Group III further stated that the Group has to review the status of infrastructure such as roads, ports and railways both physical and financial for the mining sector. Followed by that, we have to assess the requirement during the XIIth Plan period and in the perspective of 10 to 15 years thereafter to relate infrastructure creation and revenue generation. The Group has to examine the option of PPP models and to suggest measures to fill up the existing gaps and building up of additional infrastructure. We have to define the roles of the Central Government, the State Government and the private sector in creating such infrastructure; and develop policies for best utilization of revenues from mineral wealth to be used for the long term development of the sector and the affected population.
The sustainable development while mining need to be considered since mining is closely linked with forestry and environment issues. A significant part of India’s known reserves of some important minerals are in areas which are under forest cover. Further, mining activity is an important intervention in the environment and has the potential to disturb the ecological balance of an area. However, the need of the economic development makes the extraction of nation’s mineral resources an important priority. Therefore, there is a need for sustainable mining. The need of the hour is sustainable mining, scientific mining and zero-waste mining.

The Group has to assess constraints and problems encountered in exploration and exploitation of mineral resources in tribal, forest areas and to suggest measures in harmonizing mineral development with environment & forest regulation. The Group has to suggest measures that need to be taken to promote inclusive growth and at the same time safeguard the interests of the tribals in the areas of the country.

The issue of rehabilitation and reclamation concerning mining was also discussed. The Group has to assess the magnitude of rehabilitation and reclamation needed for abandoned or closed mines prior to the concept of mine closure plan and financial assurance came into being. Accordingly, we have to suggest appropriate plans for reclamation & rehabilitation for such mines to give eco-friendly image to mining industry. The issue of CSR initiatives was discussed. It was discussed that the Group need to suggest ways of enabling corporate, including Central Public Sector Enterprises improve their corporate image in the mining sector through coordinated CSR efforts.

The Sub-Group III approved the proposal to divide the Sub-Group into four Core Groups as proposed in the Agenda to prepare the draft chapters as per the terms of reference as assigned to them. The four Core Groups constituted are as under;

**Core Group I: FISCAL MEASURES**

9. Shri R.N. Meshram, Chief Mineral Economist, IBM, MOM, (Convenor & Coordinator)
10. Joint Secretary, (Custom & Excise), Department of Revenue, M/O Finance, GOI.
11. Representative from FIMI
12. Representative from SBI Capital (Shri Mukul Modi)
13. Kotak Mahindra, (Shri Manish Makharia)
14. Representative from UBS Securities India Pvt. Ltd.
15. Representative from Barclays
16. Secretary General ASSOCHAM/ representative

**Core Group II: INFRASTRUCTURE DEVELOPMENT**

9. Dr. Chandramani Sharma, Director, MOM- (Convenor & Coordinator)
10. Executive Director (Planning), M/o Railways, New Delhi
11. Joint Secretary (Ports), Ministry of Shipping, New Delhi
12. Dy. Adviser (Minerals), Planning Commission, (Shri R.B. Tyagi)
13. Representative from Ministry of Road, Transport and Highways, GoI
14. Representative from HINDALCO, (Shri U. Kumar)
15. Representative from MSPL
16. Representative from Vedanta

Core Group III: ISSUES CONCERNING ENVIRONEMT, SUSTAINABILITY AND FOREST

11. Shri A.K. Bhandari, Advisor (C-TEMPO)- (Convenor & Coordinator)
12. Director, Ministry of Environment & Forests, New Delhi
13. Dr. Chandramani Sharma, Director, MoM,
14. Dy. Adviser (Minerals), Planning Commission, (Shri R.B. Tyagi)
15. Ministry of Tribal Affairs, New Delhi, GoI
17. Secretary, Mineral Resources & Industry Deptt., Govt of Chattisgarh, Raipur
18. Secretary(Mines, SSI & Textiles), Govt. of Karnataka,
19. Secretary, Steel & Mines Deptt. Govt. of Orissa,
20. Secretary, Mining & Petroleum Deptt., Rajasthan.

Core Group IV: REHABILITATION & RECLAMATION AND CSR INITIATIVES

8. Shri Ranjan Sahai, Chief Controller of Mines, Mining Control and Conservation of Mineral Division, IBM. MoM, (Convener & Coordinator)
9. Representative from NALCO
11. Secretary, Steel & Mines Deptt. Govt. of Orissa,
12. Secretary, Mineral Resources & Industry Deptt., Govt of Chattisgarh, Raipur
13. Secretary(Mines, SSI & Textiles), Govt. of Karnataka,
14. Secretary, Mining & Petroleum Deptt., Rajasthan.

It was discussed and agreed in the meeting that some of the ministries/ organizations need to be co-opted into the Sub-Group III for adequate deliberation of output. The following ministries and organizations were co-opted into the Sub-Group III.

19. Ministry of Road, Transport and Highways, New Delhi, GoI
20. Ministry of Tribal Affairs, New Delhi, GoI
21. Federation of Indian Mineral Industries (FIMI), New Delhi
23. Representative from MSPL
24. Representative from Vedanta
25. Representative from MECL
26. IDBI Capital Market
27. HINDALCO, Shri U. Kumar, Sr. Adviser, S.L. Mining and Industries Ltd., 4th Floor, Parliament Street,

In addition, The Sub-Group empowered the Convener of the Core Group to co-opt any Members with adequate expertise and to complete the exercise in a time bound manner.
With this composition of the Core Groups, it is expected that the Convener of the Core Group would coordinate the draft preparation of chapters among the Group and send the first draft to the Member Secretary of the Sub Group within by 16.5.2011.

<table>
<thead>
<tr>
<th>List of participants</th>
<th>Annexure – 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ms. Anjali Anand Srivastava, JS &amp; FA, Ministry of Mines</td>
<td>In Chair</td>
</tr>
<tr>
<td>2. Shri R.B. Tyagi, Dy. Adviser (Minerals), Planning Commission</td>
<td></td>
</tr>
<tr>
<td>3. Shri Chandramani Sharma, Director, Ministry of Mines</td>
<td></td>
</tr>
<tr>
<td>4. Shri K.B. George, Director (Planning), Ministry of Railways</td>
<td></td>
</tr>
<tr>
<td>5. Shri Srinivasa Naik, Director, Ministry of Shipping</td>
<td></td>
</tr>
<tr>
<td>6. Shri Sanjay Wakchaure, EE, Ministry of Road Transport and Highways</td>
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<tr>
<td>7. Shri A.K. Bhandrari, Director, C TEMPO</td>
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<tr>
<td>8. Shri D.S. Gaur, Under Secretary, Department of Economic Affairs</td>
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<td>9. Shri Santosh Kumar Vats, TO, TRU</td>
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<tr>
<td>10. Shri Sumit Dhingra, Associate Vice President, Kotak Mahindra Capital Company</td>
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<tr>
<td>11. Shri S.B.S. Chauhan, Adviser, FIMI</td>
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<tr>
<td>12. Shri R.N. Meshram, CME, IBM</td>
<td></td>
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<tr>
<td>13. Shri Ranjan Sahai, Controller of Mines, IBM</td>
<td></td>
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<tr>
<td>14. Praveen Tungait,</td>
<td></td>
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</tbody>
</table>
Annexure-III

Annexure-III: Status of Infrastructure Projects Crucial in Mining Sector

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the Project</th>
<th>Plan Head</th>
<th>Km.</th>
<th>Target Date</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Banspani-Keonjhar-Daitari</td>
<td>NL</td>
<td>155</td>
<td></td>
<td>In Baspani-Keonjhar-Tomka Section, goods traffic is in operation. Daitari-Jakhapura commissioned on 4.1.2009. Flyover works between Jakhapura-Sukinda Road completed and commissioned on 15.11.2010. Jakhapura-Haridaspur 3rd line (25Km) sanctioned as MM to Daitari-Banspani NL project in Nov.06. Work being executed by RVNL. 15.08 lac cum out of 15.90,39 minor bridges out of total 49, 37000 cum ballast out of total 74000 completed. 4 major bridges are critical on which foundation work is in progress.</td>
</tr>
</tbody>
</table>
Haridaspur-Jenapur (16km) is targeted for completion by Dec-10 and Remaining 9 km by March-11. Progress: 41%.
Overall progress; 99% 100%(Jakhapura flyover)

<table>
<thead>
<tr>
<th>No.</th>
<th>Project Details</th>
<th>Route</th>
<th>Length</th>
<th>Year</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Dallirajahara-Rowghat-Rowghat-Jagdalpur</td>
<td>NL</td>
<td>235</td>
<td>2012-13</td>
<td>Ph.I: Dallirajhara-Rowghat (95km): M/s SAIL Ph.II: Rowghat-Jagdalpur (140km) Railway, M/s. SAIL, NMDC, Govt of Chhattisgarh. Fresh MOU has been signed on 11.12.2007 among the Ministry of Railways and State Govt. of Chhattisgarh, Steel Authority of India Ltd (SAIL) and National Mineral Development Corporation (NMDC) to take up this line on a cost sharing basis at the updated cost of Rs. 968.69 crore. Ph.I: Dallirajhara-Rowghat (95km,); The work has been entrusted to RVNL. Stage-I clearance for 83.12 hect. of revenue forest land out of total 109 received and physical possession given to RVNL. Also, final approval of 259.54 hect. of forest land received from MOEF. This segment is planned to be completed in 3 years after completion of land acquisition. Villagers stopping the work for want of jobs in the project. Ph.II: Rowghat-Jagdalpur (140km): Preliminary action towards land acquisition is started. Necessary payment has also been deposited to District Collector/Kanker. Land plans have been finalized and submitted to Collector.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Haridaspur-Paradip</td>
<td>NL</td>
<td>82</td>
<td>Yet to DE</td>
<td>DE for Rs.444.12 cr. sanctioned</td>
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</table>
be fixed. Work is being executed by RVNL. Land acquisition is being done by ECoR & 1146.30 acres acquired out of total 1653.69. The premium of Govt. land is under review with State Govt. DE sanctioned for Rs. 499.37 crore (including OHE Rs.55.36 crore). Work is being executed through SPV. 522.06 hect. of land out of total 669.37, 9.91 lac cum earthwork out of 76 completed. Work on 12 minor bridges out of total 174 and 2 major bridges (Luna & Mahanadi) out of total 22 in progress. Law & order problem from locals for want of more compensation for acquired land. Overall progress: 15%(RVNL)

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<thead>
<tr>
<th>No.</th>
<th>Project Name</th>
<th>Category</th>
<th>Size</th>
<th>Completion Date</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Angul-Sukinda Road</td>
<td>NL</td>
<td>98.7</td>
<td>June 2013</td>
<td>DE sanctioned for Rs.638.506 cr. on 15.6.2007. Confirmatory FLS has been completed by RVNL. Land acquisition is being done by ECoR. Land plans &amp; land schedules prepared for 26 km from Baghupal end. Rs. 200 lakh with Collector Jaipur &amp; Rs. 263.5 lakh with Collector, Dhenkanal deposited in c/w land acquisition. Requisition for all 69 villages private land filed. SPV has been formed. FLS completed. Bid documents for important bridge over Brahmani and two major bridges across Rengali approved by competent authority. Tender for the same have been floated on 27.10.2010.</td>
</tr>
<tr>
<td>6.</td>
<td>Kottur-Harihar</td>
<td>NL</td>
<td>65</td>
<td></td>
<td>State Govt. has agreed to share 2/3 cost of the project. Revised detailed estimate amounting to Rs. 302.23 crore sanctioned and the share of GOK is about Rs. 217.33 crore has been deposited. MM for</td>
</tr>
</tbody>
</table>
Rs. 23.00 cr. For improvement of cutting is under finalization. Work completed. Section can be opened to goods traffic in Jan., 2011 & for passenger traffic in March, 2011 after completing the improvement to cuttings.

Overall physical progress: 95%

7. Hubli-Ankola NL 167

Part detailed estimate sanctioned for Rs. 103.72 crore for Hubli-Kiruvatti section out of total cost of Rs.997.58 crore.

Final location survey has been completed. Total land acquisition of 1140 hectare is involved comprising of 720 hectare of forest land. Land acquisition of 258.50 hectares in 25 villages completed. Proposal for forest land of 720 hectares in entire stretch has been submitted to Forest Department on 23.6.05 & clearance from MoEF is awaited. Joint inspection with MoEF officials completed in June’07. Case is being followed up with MoEF. As per direction of CEC, all works have been stopped on the project.

Hubli-Kirvatti section (48 kms), 80 out of 85 hect. land, 28.88 out of 32 lac cum earthwork, 5 out of 7 major bridges, 37 out of 61 minor bridges were completed. This project was been identified as one of the four K-RIDE project but there is no progress on cost sharing arrangement. Government of Karnataka has filed their Affidavit to CEC. Principal Secy./GoK had a meeting on 29.12.09 in which it was advised that affidavit already submitted by GoK will be revised. GoK has
taken up a flora & fauna study of western ghats to quantify the environmental impact assessment & report is awaited.

Overall physical progress: 15%.

| 8. | Obulavaripalli-Krishnapatnam | NL | 113 | This work is being executed by RVNL.  
(i) Work on Venkatchalam-Krishnapatnam (20 Km); Work completed and opened for goods traffic.  
Physical progress: 97%  
(ii) For Obulavaripalle-Venkatchalam (93 km): Proposal for land acquisition sent to Collector, Cuddapah. 150 hect. acquired out of total 784, 3.06 lakh cum earthwork completed out of 70, 11 minor bridges out of 48, 3 major bridges out of 14, 1 RUB/ROB out of 11, 2000 cum ballast out of 295000, 7 km track linking out of 93 completed.  
Physical Progress: 2% |
|---|---|---|---|---|
| 9. | Banspani-Padapahar | NL | 32 | Padapahar-Dongaoposi (5.1 kms) has been completed and commissioned on Sept.'08  
Jamakundia-Deojhar (7.5 kms) completed & commissioned on 25.02.09.  
Deojhar-Murgamahadev Road-Banspani (8.6 km) commissioned on 26.5.10.  
Up loop line of Deojhar Yard completed & commissioned on 5.1.2010. Serious law and order problem are faced in execution of work in various reaches in c/w land acquisition in small stretch by villagers. All earthwork and minor bridges almost completed except ballast supply & track linking in progress. | Dec., 2010 |
<table>
<thead>
<tr>
<th></th>
<th>Project Details</th>
<th>DL</th>
<th>Percentage</th>
<th>Notes and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>Jharsuguda-Sambalpur</td>
<td>48.66</td>
<td>93%</td>
<td>Overall physical progress; 93%</td>
</tr>
<tr>
<td>11.</td>
<td>Sambalpur-Titlagarh</td>
<td>182</td>
<td>2013-14</td>
<td>Project transferred to RVNL in Dec. 2007 under ADB Phase-II loan. FLS by ECoR completed. RE of Rs. 950.84 crore is under scrutiny. Project is delayed due to delay of 2nd ADB loan which is yet to be sanctioned.</td>
</tr>
<tr>
<td>12.</td>
<td>Guntakal-Hospet</td>
<td>115.4</td>
<td>Completed.</td>
<td>Work is under NRVY. Renigunta-Nandalur (86 RKM) section commissioned. Balance work is being executed by RVNL through ADB funding.</td>
</tr>
<tr>
<td>13.</td>
<td>Guntakal-Reniguda doubling with electrification</td>
<td>308</td>
<td></td>
<td>Detailed estimate has been sanctioned for Rs.194.89 crore on 28.5.08. Land acquisition plans submitted for 21 villages. 4(1) notification issued for all villages except KTV. Three composite tenders for earthwork in formation, construction of major/minor bridges and ROB, supply of ballast and other connected works have been awarded and work has been started. Earthwork 8.06 lakh cum out of total 10.51, 1 major bridge out of total 7, 34 minor bridges out of total 59, 94573 cum ballast out of total 125199 completed. Overall physical progress: 32.08%</td>
</tr>
<tr>
<td>14.</td>
<td>Vizianagaram-Kottavalasa 3rd line</td>
<td>34.7</td>
<td>2011-12</td>
<td>Work transferred to RVNL. Detailed Estimate sanctioned for Rs. 261.69 crore dt 01.07.2009. Field work completed and work commenced in Mohaharpur-Posoita section (11.6 km) 1.11 lakh cum earthwork completed out of total 10.55. Overall physical progress; 10%</td>
</tr>
<tr>
<td>15.</td>
<td>Goelkera-Manoharpur 3rd line</td>
<td>40</td>
<td></td>
<td>Work transferred to RVNL. Detailed Estimate sanctioned for Rs. 261.69 crore dt 01.07.2009. Field work completed and work commenced in Mohaharpur-Posoita section (11.6 km) 1.11 lakh cum earthwork completed out of total 10.55. Overall physical progress; 10%</td>
</tr>
<tr>
<td>16.</td>
<td>Bhatapara-Urkura 3rd line (Bilaspur-Bhatpara 45 kms) in Phase-I executed by SECR has</td>
<td>60</td>
<td>Aug, 2011</td>
<td>Bilaspur-Bhatpara (45 kms) in Phase-I executed by SECR has</td>
</tr>
</tbody>
</table>
already been completed and commissioned in 2005-06. Bhatapara-Urkura (60 kms) section in Phase-II is under execution by RVNL through ADB funding where FLS & land acquisition have been completed. 10.35 lakh cum out of 11.32 lakh cum of earthwork and 4.36 lakh cum of blanketing have been done. 43 out of 52 minor bridges and 4 out of 10 major bridges are completed. 182928 cum out of 160500 cum of ballast collection and 46.025 km out of 67 km of track-linking have been completed.
Bhatapara-Hathbandh; Commissioned on 14.7.10.

Overall physical progress; 78%.