Government of India Ministry of Mines

DRAFT NATIONAL MINERAL POLICY, 2008

(For non - fuel and non - coal minerals)

1. PREAMBLE

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. Just as these goals and perspectives are dynamic and responsive to the changing global economic scenario so also the national mineral policy has to be dynamic taking into consideration the changing needs of industry in the context of the domestic and global economic environment. It is imperative that allocation of mineral resources is done in a fair and transparent manner resulting in equitable distribution of national wealth to sub serve common good. Mining needs to be carried out in a sustainable manner giving due regard to environment and inter-generational equity. An efficient regulatory mechanism with high penetration of IT and e-governance shall be put in place.

2. BASIC FEATURES

2.1 The country is blessed with ample resources of a number of minerals and has the geological environment for occurrence of many others. To explore the country's entire geological potential, it is important that scientific and detailed prospecting is carried out in search of its mineral resources. It shall be ensured that regional and detailed exploration is carried out systematically in the entire geologically conducive mineral bearing area of the country using state-of-the-art techniques in a time bound manner. Minerals being a valuable resource, extraction of mineral resources has to be optimized through scientific methods of mining and upgradation of mining technology and also ensuring that the entire run-of-mines is used through beneficiation and economic utilization.

2.2 To achieve the goals of large scale prospecting and optimal mining, large investments will be required together with the latest technologies. The regulatory environment will be improved to make it more conducive to investment and technology flows Capital market structures will be developed to attract risk investment into prospecting and exploration. Transparency in allocation of concessions with an assured security of tenure and realization of the complete value of the extracted minerals will be the goal. The development of a proper inventory of resources and reserves, a mining tenement registry and a mineral atlas will be given priority. Enforcement of mining plans for adoption of proper mining methods and optimum utilisation of minerals will be ensured. For these purposes, the Geological Survey of India (GSI), the Indian Bureau of Mines (IBM) and the State Directorates of Mining & Geology will be strengthened

with man power, equipment and skill sets upgraded to state of the art levels.

2.3 Mining is closely linked with forestry and environment issues. A significant part of the nation's known reserves of some important minerals are in areas which are under forest cover. Further, mining activity is an intervention in the environment and has the potential to disturb the ecological balance of an area. However, the needs of economic development make the extraction of the nation's mineral resources an important priority. Therefore, a framework of sustainable development will be designed which takes 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 tribal populations through developing models of stakeholder interest based on international best practices. Project affected persons will be protected through comprehensive relief and rehabilitation packages in line with the National Rehabilitation and Resettlement Policy.

2.4 As the country develops and industry grows, assured availability and proximity of mineral resources will play an important role in giving a competitive edge to Indian industry. The multiplier effect of minerals processed into metals on downstream industrialisation cannot be over emphasised. Value addition will, therefore, be actively encouraged. However, such value addition will go hand in hand with the growth of the mineral sector as a standalone industrial activity. While, appropriate linkages between exploitation of minerals and their end use including the development of industry based on the minerals will be established wherever feasible, a downward curve in an industrial sector using a particular mineral within the country need not be allowed to effect the growth of mining activity for that mineral. Hence employment and tertiary sector spin offs from both value addition as well as from mining will be encouraged so as to maximise the contribution of the mineral sector to the country's gross domestic product.

2.5 Mining infrastructure requires a special thrust as the economic efficiency of evacuation of minerals from pit mouth to user point or port or rail head is closely linked to the end use value of the mineral and of the viability of the industry using the mineral. Innovative structures for eco-friendly and efficient mode of evacuation/transportation will be encouraged and need to be devised and developed through stakeholder participation for developing and financing the infrastructure needs of the mining sector.

2.6 Ihdia is a federal structure with a single economic space. The legitimate fiscal interests of states which are mineral rich need to be protected. The revenues from minerals will be rationalised to ensure that the mineral bearing states get a fair share of the value of the minerals extracted from their grounds. States and state agencies involved in mineral sector development and regulation need to modernise in the areas of prospecting as well as regulation. The States will be assisted to overcome the problem of illegal mining through operational linkages with the Indian Bureau of Mines.

2.7 To enable the use of state of the art exploration techniques, scientific mining and optimal use of minerals through ore dressing and beneficiation technologies it is necessary not only to promote research and development in minerals but to simultaneously establish appropriate educational and training facilities for human resources development to meet the manpower requirements of the mineral industry. These matters will receive prime importance and a comprehensive institutional framework for Research & Development, and Training will be developed.

2.8 These aspects constitute the essentials of the new National Mineral Policy, 2017. A more detailed approach towards putting these essentials into practice and details of other associated features of the Policy are spelt out in the following paragraphs.

3. REGULATION OF MINERALS

3.1 Management of mineral resources is the responsibility of both the Central Government and the State Governments in terms of Entry 54 of the Union List (List I) and Entry 23 of the State List (List II) of the Seventh Schedule of the Constitution of India. The Central Government in consultation with State Governments shall formulate the legal measures necessary for giving effect to the National Mineral Policy, 2017, to ensure basic uniformity in mineral administration across the country and to ensure that the development of mineral resources keeps pace, and is in consonance with the national policy goals. The regulation of mines and development of mineral resources in accordance with the national goals and priorities as spelt out in the policy and the legal framework shall be the responsibility of both the Central and the State Governments.

3.2 The Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act), lays down the legal frame work for the regulation of mines and development of all minerals other than petroleum and natural gas. The Central Government has framed rules under MMDR Act for regulating grant of reconnaissance permits (RP), prospecting licences (PL), prospecting licence-cum-mining lease, and mining leases (ML) in respect of all minerals other than atomic minerals, hydro carbon minerals and minor minerals. The State Governments have framed the rules in regard to minor minerals. The Central Government has also framed rules for conservation and systematic development of minerals. These are applicable to all minerals except coal, atomic minerals and minor minerals. The aforesaid Act and rules have undergone a major revision to eliminate discretion, improving transparency in allocation of mineral resources, simplifying procedures, eliminating delay in administration and obtaining for the government an enhanced share of the value of mineral resources. As and when the need arises, they can be revised again, in line with the NMP 2017.

3.3 In order to make the regulatory environment conducive to private investment, the procedures for grant of mineral concessions of all types, such as Non-exclusive Reconnaissance Permits, Prospecting Licenses, prospecting licence-cum-mining lease,

and Mining Leases, shall be transparent and security of tenure shall be guaranteed to the concessionaries. Prospecting and mining shall be recognized as independent activities with transferability of concessions playing a key role in mineral sector development.

3.4 The advantages of IT and remote sensing technology shall be leveraged for ensuring a monitoring system which is transparent, bias-free, and one that has minimum human interface and effective deterrence effect. An effective follow-up action at various levels through effective coordination among various agencies will ensure prevention and curbing of illegal mining. In order to reduce human interface to obviate discretion and to promote transparency physical inspection of mines shall be gradually replaced by virtual inspections by utilizing interventions from the areas of information technology, space technology, and IT enabled services.

4. ROLE OF THE STATE IN MINERAL DEVELOPMENT

The role to be played by the Central and State Governments in regard to mineral development has been extensively dealt in the Mines and Minerals (Development and Regulation) Act, 1957 and Rules made under the Act by the Central Government and the State Governments in their respective domains. The provisions of the Act and the Rules will be reviewed and harmonised with the basic features of the new National Mineral Policy. In future the core functions of the State in mining will be facilitation and regulation of exploration and mining activities of investors and entrepreneurs, provision of infrastructure and tax collection. In mining activities, there shall be arms length distance between State agencies (Public Sector Undertakings) that mine and those that regulate. There shall be transparency and fair play in the reservation of areas to State agencies on such areas where private players are not holding concessions for exploration or mining, unless security considerations or specific public interests are involved.

5. PROSPECTING AND EXPLORATION

5.1 The Geological Survey of India is the principal agency for geological mapping and regional and detailed mineral resources assessment of the country. It shall be responsible for drawing up action oriented plans towards these ends in close cooperation with all other agencies engaged in this task. Detailed exploration on land is done by the Mineral Exploration Corporation, Directorates of Mining and Geology of the State Governments and various Central and State Public Sector Organisations. In conducting exploration for minerals special attention will be given by these government agencies to the exploration of energy critical minerals, fertilizer minerals, precious metals and stones, and strategic minerals through systematic investigation of potential sources which are otherwise difficult to access.

5.2 While these Government agencies will continue to perform the tasks assigned to them for exploration and survey, the private sector would in future be the main source of investment in reconnaissance and exploration and government agencies will expend public funds primarily in areas where private sector investments are not forthcoming despite the desirability of programmes due to reasons such as high uncertainties. To expedite completion of reconnaissance work for the entire country as early as possible an open sky policy of non-exclusivity for reconnaissance work will be adopted. At the same time to attract large investments and state-of-the-art technology a new instrument will be introduced with assured concessionaire regime with the ease of transfer.

5.3 It is necessary to ensure that India's exclusive economic zone is explored and exploited to the maximum possible extent. The Ministry of Earth Sciences (MoES) and its agencies are entrusted with the task of sea-bed exploration and mining. Cooperation between MoES and GSI will be institutionalised so as to achieve this objective within a time bound framework. The task of mapping out the extended economic zone will be expedited and completed within the time prescribed by the International Sea Convention so that no area of sea bed mining is lost to the country.

5.4 Particular attention will be given to the survey and exploration of minerals in which the country has a poor resource-cum-reserve base despite having the geological potential for large resources. Minerals for which there is demand within the country either for use or for export after processing will be prioritised. Exploration for base metals, noble metals, diamonds, fertilizer mineral sand REE and high grade Ilmenite will be put on the fast track.

5.5 Coordination of the regional exploration work by government agencies is at present being done by the Central Programming Board of the Geological Survey of India. The disaggregated projects are generally discussed in the State Level Committees and other technical forums before being incorporated into the annual programme. The existing arrangement shall be revamped to ensure that projects and programmes are prioritised in line with the national policy goals and are chalked out after taking into account the exploration work undertaken by the private sector.

6. DATA BASE OF MINERAL RESOURCES ANDTENEMENTS

6.1 National inventory of mineral resources will be based on a comprehensive and up to date review of exploration data. In coordination with Geological Survey of India, the Indian Bureau of Mines will maintain a database in digitised form comprising both a Resource Inventory and a Tenement Registry. The resource inventory will be in accordance with the latest version of the UNFC system showing reserves and remaining resources. The Tenement Registry will give information of both Leasehold Areas as well as Freehold Areas in terms of green field, brown field and relinquished areas including areas given up by the GSI and other RP/PL holders as not pursued. The data would be maintained online giving instant information to prospective investors on

what is available for reconnaissance, prospecting and mining. Summaries of work done by public agencies will be kept in the form of meta-data in the public domain and detailed reports will be made available to interested investors on cost recovery basis.

6.2 Data filing requirements will be rigorously applied and all concession holders will be subjected to detailed monitoring in this regard. The lock-in arrangements will be assured and released data will be integrated with the data generated by the state agencies and made available to other prospectors.

7. STRATEGY OF MINERAL DEVELOPMENT

7.1 *General Strategy*

The 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. The guiding principle in the strategy of development of any mineral or mineral deposit at any location shall ordinarily be the economic cost of recovery i.e. extraction cost relative to market price and will hence be determined by the market. However, a disaggregated approach in respect of each mineral will be adopted and a mineral specific strategy will be developed. To maximise gains from the comparative advantage which the country enjoys *intra se* mineral development will be prioritised in terms of import substitution, value addition and exports, in that order.

There are a number of factors that will promote the continued availability of mineral and metal resources. While the pace of growth in demand dictates that virgin materials will remain the primary source of mineral and metal commodities, another important source is recycled materials. Because of their value, consistent performance characteristics, durability, chemical properties, and versatility of use, many minerals and metals can be re-used almost without limit. As a consequence, recycled materials are a vital secondary source of supply, and are traded on national and global markets based on long-term contracts or at spot market prices. The fact that recycling generates environmental benefits is an added and important dividend. Recycling extends the efficient use of metals, reduces pressures on landfills and incinerators, and results in major energy savings relative to the level of energy inputs required to produce metals from primary sources.

7.2. Conservation and Mineral Development

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/resource base through accelerated rate of exploration, improvement in mining methods, beneficiation and utilisation of low-grade sub-grade ore and mineral rejects and recovery of

associated minerals. There shall be an adequate and effective legal and institutional framework mandating zero-waste mining as the ultimate goal and a commitment to prevent sub-optimal and unscientific mining. Mineral sectoral value addition through latest techniques of beneficiation, calibration, blending, sizing, concentration, pelletisation, purification and general customisation of product will be encouraged by providing fiscal and non-fiscal incentives. A thrust will be given to exploitation of mineral resources in which the country is well endowed so that the needs of domestic industry are fully met keeping in mind both present and future needs, while at the same time exploiting the demand of external markets for such minerals.

7.3 Scientific Methods of Mining

Mine development and mineral conservation as governed by the rules and regulations will be on sound scientific basis, with the regulatory agencies, viz. IBM and the State Directorates, closely interacting with R&D organisations and scientific and professional bodies, to ensure optimal Mining Plans. Conditions of mining leases regarding extent of area/size, shape, disposition with reference to geological boundaries and other mining conditions shall be such as to favourably predispose the leased areas to systematic, scientific and optimum, and complete extraction of minerals. The regulatory agencies, namely the Indian Bureau of Mines and the State Directorates will be suitably strengthened through capacity building measures in terms of adequate manpower, equipment and skill-set.

7.4 Mining as an Industry with Linkages

Mining sector independently contributes to the generation of income, output and employment in the country and should therefore be treated as an economic activity in its own right and not merely as an ancillary activity of manufacturing industry. Domestic processing industry receives supplies of mineral resources produced by the mining industry at market prices prevailing from time to time. In order to be assured of uninterrupted supply of the mineral raw material from domestic sources the user industry will be encouraged to develop long-term linkages with the mineral producing units. The mineral processing unit should not only get an assured supply of the mineral raw material but should also have close links with the production and marketing agencies of the mineral based end products.

7.5 Mining Machinery and Mineral Beneficiation Equipment

Use of equipment and machinery which improve the efficiency, productivity and economics of mining operations as well as mineral beneficiation process and safety and health of persons working in the mines/beneficiation plant and surrounding areas shall be encouraged. Import of such equipment and machinery shall be incentivized and freely allowed. At the same time capacities shall be developed for indigenous industry for manufacture of mining machinery and mineral beneficiation equipment

and machinery for which induction of foreign technology and participation shall be allowed.

7.6. Human Resource Development

In order to improve the competitive edge of the national mining industry, emphasis shall be laid on mechanisation, computerisation and automation and adoption of state of the art technology in/of the existing and new mining units. The human resource development programme shall be suitably reoriented for the purpose. Existing facilities for basic and specialised training shall be constantly reviewed and upgraded from time to time to ensure that adequately trained manpower at all levels is available for the development of mines and minerals. As the mining sector takes off, the country will need more and more mining engineers, and geologists, geo-physicists, geo-chemists and geo-instrumentation specialists software professionals. A comprehensive review of the sector's man power needs will be undertaken and educational institutions will be geared to meeting these requirements of the sector in the medium and long term.

7.7. Infrastructure Development

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. Innovative, eco-friendly and efficient mode of evacuation/transportation apart from the conventional means of transport like rail and road, shall be encouraged. An enabling environment will be created to allow mining companies to undertake construction of transportation infrastructure on their own.

While local evacuation network will be encouraged to be built in an integrated manner along with developing the mineral blocks, dedicated National Mineral corridors shall be planned to facilitate transport of minerals from distant mining areas. Other environmental friendly options like use of coastal ways, inland shipping, slurry pipelines etc will be promoted. This would not only reduce long term costs associated with mining but also help in mitigating the damage to the environment. To increase investment scenario across the nation (other than mineral rich states) special incentives or priority movement by railways /port/coastal shipping must be encouraged.

7.8 Financial Support for Mining

Mining is an eligible activity for obtaining financial support from financial institutions. However, at present only those mining projects which have a

substantial component of mining machinery, equipment and buildings are being financed. Steps shall be taken to facilitate financing of mine development and also of exploration integral to the mining project for which mining shall be granted the status of industry.

Prospecting being a high risk venture, access to "risk funds" from capital markets and venture funds will be facilitated. Early stage Exploration and Mining companies will be encouraged and differential listing requirements through segmented exchanges will be explored. Induction of foreign technology and foreign participation in exploration and mining for high value and scarce minerals shall be pursued. Foreign equity investment in joint ventures for exploration and mining promoted by Indian Companies will be encouraged. Investment in strife torn and un-developed areas should be encouraged by providing incentive to the industry.

7.9 Small Deposits

Small and isolated deposits of minerals are scattered all over the country. These often lend themselves to economic exploitation through small scale mining. With modest demand on capital expenditure and short lead-time, they provide employment opportunities for the local population. However, due to lack of economies of scale they can also lead to sub-optimal mining and ecological disturbance. Efforts will be made for promotion of small deposits in a scientific and efficient manner while safeguarding vital environmental and ecological imperatives.

Where small deposits are not susceptible to viable mining a cluster approach will be adopted by granting the deposits together as a single lease within a geographically defined boundary. Efforts would be made to grant such mineral concessions to consortia of small scale miners so that such clusters of small deposits will enable them to reap the benefits of economies of scale.

In grant of mineral concessions for small deposits in Scheduled Areas, preferential right shall be exercised by Scheduled Tribes singly or as cooperatives while extending enabling environment to secure financial and technical support to carry-out mining operations in systematic and efficient manner.

7.10. Mineral Development & Protection of Environment

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. The Government shall identify the areas that are critically fragile in terms of ecology and declare them out of bounds for mining. This will help in avoiding wasteful expenditure on prospecting and exploration in such areas.

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 erosion due disposal of solid wastes like overburden and so on, all affecting the ecological balance of the area. Prevention and mitigation of adverse environmental effects due to mining of minerals and repairing and re-vegetation of the affected forest area and land covered by trees in accordance with the latest internationally acceptable norms and modern afforestation practices shall form integral part of mine development strategy in every instance. All mining shall be undertaken within the parameters of a comprehensive Sustainable Development Framework which will ensure that environmental, economic and social considerations are integrated effectively in all decisions on mines and minerals issues. The guiding principle shall be that a miner shall leave the mining area in an ecological shape which is as good as it was before the commencement of mining.

Mining operations shall not ordinarily be taken up in identified ecologically fragile and biologically rich areas. Strip mining in forest areas should be avoided and it should be permitted only when accompanied with comprehensive time-bound reclamation programme.

No mining lease would be granted to any party, private or public, without a proper mining plan including the environmental management plan approved and enforced by statutory authorities. The environmental management plan should adequately provide for controlling the environmental damage, restoration of mined areas and for planting of trees according to the prescribed norms. As far as possible, reclamation and afforestation will proceed concurrently with mineral extraction.

Efforts would be made to convert old disused mining sites into forests and other appropriate forms of land use.

7.11 Sustainable Development Framework

To ensure sustainable development in the mining sector, environmental, economic and social considerations must be taken into account as early as possible in the decision-making process. To meet this challenge, the Government developed the Sustainable Development Framework in 2011 envisioning mining that will be "financially viable, socially responsible, environmentally, technically and scientifically sound with a long term view of development with the following key principles:

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;

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;

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;

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;

v. Community engagement, benefit sharing and contribution to socio-economic development. This 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 as provisioned for in the amended MMDR Act. 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.

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;

vii. Ethical functioning and responsible business practices. This principle underlines the need for ethical business practises and a strong sense of corporate responsibility among mining companies. It recommends companies to go beyond legal compliance; and

viii. 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.

The 'Star Rating' system instituted through Indian Bureau of Mines (IBM) in which star rating will be awarded to the mining leases for their efforts and initiatives taken for implementation of the Sustainable Development Framework (SDF) should be monitored for effective implementation.

7.12 Relief & Rehabilitation of Displaced and Affected Persons

Mining operations often involve acquisition of land held by individuals including those belonging to the weaker sections. In all such cases a social impact assessment will be undertaken to ensure that suitable Relief and Rehabilitation packages are evolved. While compensation is generally paid to the owner for his acquired land, rehabilitation of affected persons in the form of substitute land, land for housing, and jobs is not always adequate.

In areas in which minerals occur and which are inhabited by tribal communities and weaker sections it is imperative to recognize resettlement and rehabilitation issues as intrinsic to the development process of the affected zone. Thus all measures proposed to be taken will be formulated with the active participation of the affected persons, rather than externally imposed. A careful assessment of the economic, environmental and social impact on the affected persons will be made. A mechanism will be evolved which would actually improve the living standards of the affected population and ensure for them a sustainable income above the poverty line. For this purpose, all the provisions of the National Rehabilitation and Resettlement Policy or any revised Policy or Statute that may

come into operation, will be followed.

Models protecting stakeholder interests in the mining operation, especially in situations where the weaker sections like the local tribal populations are likely to be deprived of their means of livelihood as a result of the mining intervention, shall be devised to ensure financial security, employment guarantee and provision of basic health and education services.

The Mines and Mineral (Development and Regulation) Act, 1957 has been amended to provide for the establishment of District Mineral Foundation ("DMF") in each mining district with the objective of working for the interest and benefit of persons, and areas, affected by mining related operations. The objectives for devolution of mining benefits for development of project affected persons and areas should be guided by the Pradhan Mantri Khanij Kshetra Kalyan Yojana ("PMKKKY") for (a) to implement various developmental and welfare projects/programs in mining affected areas, and these projects/ programs will be complementing the existing ongoing schemes/projects of State and Central Government; (b) to minimize/mitigate the adverse impacts, during and after mining, on the environment, health and socio-economics of people in mining districts; and (c) to ensure long-term sustainable livelihoods for the affected people in mining areas.

7.13 Mine Closures

Once the process of economical extraction of a mine is complete there is need for scientific mine closure which will not only restore ecology and regenerate bio mass but also take into account the socio-economic aspects of such closure. Where mining activities have been spread over a few decades, mining communities get established and closure of the mine means not only loss of jobs for them but also disruption of community life. Whenever mine closure becomes necessary, it should be orderly and systematic and so planned as to help the workers and the dependent community rehabilitate themselves without undue hardship.

Mine reclamation seeks to rehabilitate a mine site to a viable, and wherever practicable, self-sustaining, ecosystem that is compatible with a healthy environment and other human activities. In this context, the Government has a role in ensuring the reclamation of currently operating and future mine sites. Consequently, it will ensure that:

- post-production mine decommissioning and land reclamation are an integral part of the mine development process;
- financial provisions for the costs incurred in mine closure are accorded a level of priority by the industry similar to that given to start-up investment costs; and

Consistent approaches, including continuous improvement based on the principle of best practices, are essential for efficient and effective mine reclamation. The Government will ensure that comprehensive plans for the reclamation of mined out areas are developed,

including the provision of satisfactory financial assurances to cover the costs of reclamation and, where necessary, long-term maintenance.

The framework for scientific closure of mines has undergone structural changes in 2017. The penal provisions for non-compliance with rules governing mine closure have been revised to provide for enhanced punishments.

In addition to the need to address issues related to present and future mine sites, the Government must also deal with problems associated with past practices that are no longer permitted. Such practices have led to numerous abandoned and orphaned mine sites some of which pose a risk to the environment, human health, or public safety.

The Government is aware of the need for action to clean up those abandoned and orphaned mine sites that represent an unacceptable risk to the environment or human health and safety. In addition, more information on the number and condition of these sites is required. The Government will work with state governments and industry to evaluate and develop alternative financing mechanisms for mine reclamation and rehabilitation that are acceptable to all stakeholders.

7.14. Mine Safety

Mining operations are hazardous in nature. Accidents happen and often result in the loss of life or limb of persons engaged in it. Efforts must be directed towards the development and adoption of mining methods which would increase the safety of workers and reduce the accidents. Towards this end, participation and cooperation of mineworkers shall be secured. Steps will also be taken to minimise the adverse impact of mining on the health of workers and the surrounding population. DGMS should be strengthened through adequate manpower, equipments, and skill sets in order to carry out the regulatory role for ensuring mine safety effectively.

8. FOREIGN TRADE

Minerals continue to be an important source of foreign exchange earnings. The policy of export shall keep in view the dynamics of mineral inventories as well as the short, medium and long term needs of the country. Efforts shall be made to export minerals in value added form as far as possible. The indigenous mineral industry shall be attuned to the international economic situation in order to derive maximum advantage from foreign trade by carefully anticipating technology and demand changes in the international market for minerals.

The import of mineral based material shall be coordinated as far as possible with the indigenous development of mineral based industries. Areas of cooperation with countries with complementary resource base shall be developed for mutual

advantage. The approach shall be to make available mineral based materials to domestic users at reasonable prices as determined by market forces.

9. FISCAL ASPECTS

It will be the endeavour of government, within the context of the budget, to design fiscal measures conducive to the promotion of mineral exploration and development including beneficiation and other forms of product refinement. In the context of the changing mineral scenario and the economies of mineral development and products, both at the national and international level fiscal changes will be examined from time to time consistent with the general tax structure and through the normal budgetary process. Mineral prices should reflect their true value and the royalty structures will be designed to ensure that the consumer pays the actual value of the minerals produced and consumed.

10. RESEARCH AND DEVELOPMENT

10.1. General Approach

Research and development in the mineral sector has to cover the entire gamut of activities from geological survey, exploration, mining, beneficiation, concentration of minerals to development of materials. Efforts will be directed towards the development of new technologies for conversion of existing mineral resources into viable economic resources which can be used both in domestic markets as well as exports. Appropriate technologies shall be developed to enable indigenous industries to utilise the mineral resources with which the country is abundantly endowed and as substitutes for minerals whose reserves are poor. R&D efforts shall be directed to find new and alternative uses for minerals whose traditional demand is on the wane. Indigenous technology has to be upgraded through research and appropriate absorption and adoption of technological innovations abroad. Research and development efforts shall be made to improve efficiency in process, operations and also the recovery of by-products and reduction in specification and consumption norms. Efforts will also be directed to evolve low capital and energy saving processing systems.

10.2. Research in Mining Methods

Mining methods determine the safety, economy, speed and the percentage of extraction of the ore reserves from a mine. Research and development thrust shall be directed specially in the areas of rock mechanics, ground control, mine design engineering, equipment deployment and maintenance, energy conservation, environmental protection, safety of operations and human engineering.

10.3 Mineral Processing and Beneficiation

Attention will be given to beneficiation and agglomeration techniques to bring lower grades and finer size material into use. Research organisations, including the National Mineral Processing Laboratories of the Indian Bureau of Mines will be strengthened for development of processes for beneficiation and mineral and elemental analysis of ores and ore dressing products. There shall be cooperation between and coordination among all organisations in public and private sector engaged in this task. Research and development shall be oriented to ensure maximum economic recovery of the associated minerals and valuable metals.

10.4 Development of Automated Equipment

To meet the objective of safety and economic production attention will be given to the development of robotics, automated equipment and system for mining, especially for deep mining and transportation to surface.

10.5. Deep Sea Mining

India is a pioneer investor and has been allocated a mine site of 150,000 square kilometres in Indian Ocean for exclusive survey and exploration. Deep ocean resources represent an exceptionally large and potentially important mineral resource. Integrated systems for exploration, exploitation, mining and processing of these resources shall be expedited with the development/acquisition of necessary technologies. Appropriate mechanism for coordinating the survey and exploration of Deep Sea Bed Area will be established by the Ministry of Earth Sciences.

10.6 Production of Materials of High Purity

Research will be directed towards raw materials required for production of materials of high purity for use in advanced technology applications such as semi-conductors, photo-voltaic, lasers, special sensors, high temperature new ceramics, hard and high temperature materials, superconductors, insulators, very thin films, glasses and liquid crystals and metal and mineral fibres.

10.7. Coordination of Research Organisations

Research and development activities in the mineral sector are carried out in the national laboratories, educational institutions and R&D units of public and private sector enterprises. Pooling of resources and expertise available in the various R&D Organisations is imperative to meet the challenges and to fulfil the tasks ahead in the mineral sector. Linkages and interaction between the various institutions engaged in R&D in the mineral sector shall be strengthened to derive the maximum benefit. Interchange of scientists between institutions

shall be encouraged to accelerate the pace of interaction. It shall also be ensured that the research findings are made available to users expeditiously. There shall be cooperation between and coordination among all organisations in the public and private sectors engaged in this task.

Mining methods determine the safety, economy, speed and the percentage of extraction of the ore reserves from a mine. Research and development thrust needs to be directed in areas of such as rock mechanics, ground control, mine design engineering, equipment deployment and maintenance, energy conservation, environmental protection, safety of operations and human engineering. This has to be done in a holistic way so that inter-linkages are established to the advantage of each segment. To this end the diverse research, development and training initiatives within the public domain shall be reorganised into a single and cohesive R & D and Training institution of excellence to be known as the National Institute of Mineral Development. Organizations such as the National Mineral Processing Laboratories of the Indian Bureau of Mines, the National Institute of Rock mechanics, the Jawaharlal National Institute of Aluminium Research and Development, the R & D initiatives of the Geological Survey of India will be joined to provide a collective thrust.

11. INTER GENERATIONAL EQUITY

The policy recognizes that natural resources, including minerals, are a shared inheritance that needs to be preserved for future generations. Under the Public Trust Doctrine, the state is merely the trustee over natural resources on behalf of the people, especially the future generations. The concept of Intergenerational Equity requires the owners of natural resources to ensure that their future generations receive the same inheritance, or its equivalent capital value.

Mining impacts a bundle of inherited assets. The mineral itself has value. Royalty, auction premier and other mineral receipts are essentially compensation for the sale of the mineral. For the mineral value itself, intergenerational equity requires three steps: First, the full value of the minerals must be received by way of consideration – the citizens as owners must not suffer a loss. Second, a portion of the proceeds received by Government from mining should be deposited in new, "non-depleting" assets for the benefit of future generations. Third, since minerals are owned by the citizens, a part of the commons, so too are the new assets. Therefore, any income generated must only be shared equally with all as a right of ownership, a commons dividend. This follows property rights and is fair to all.

12. CONCLUSIONS

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 success of the third national mineral policy will depend largely on a national consensus to fulfil its underlying principles and objectives.

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