

F. No. 10/75/2008-MV
Ministry of Mines
Government of India

New Delhi, dated 26th August 2011

**Inputs invited from concerned members of public
on
Draft Comprehensive Guidelines for Reporting of Mineral Reserves & Resources
under UNFC System**

In order to take a holistic view towards scientific and systematic mining in the country, comments of concerned members of the public are invited on the draft **Comprehensive Guidelines for Reporting of Mineral Reserves & Resources under UNFC System** (given below) at the following e-mail –anil.sub@nic.in or g.srinivas@nic.in or mines5.mom@nic.in by 15th September 2011.

-sd-

(Anil Subramaniam)

Under Secretary to the Government of India

Tele fax: 23383946

**COMPREHENSIVE GUIDELINES FOR REPORTING OF MINERAL
RESERVES & RESOURCES UNDER UNFC SYSTEM**

PREFACE

While the United Nations Framework Classification (UNFC) had been adopted by the Government in the year 2003, and the Indian Bureau of Mines (IBM) had issued guidelines for various stakeholders from time to time for adopting the UNFC, there was a felt need to prepare comprehensive guidelines to ensure better compliance to UNFC as enunciated in the National Mineral Policy, 2008. It is expected that the guidelines would not only assist governments in strengthening their framework for management of mineral bearing areas but would also assist the prospectors in planning and supervision of exploration programmes, and encourage a responsible and accountable reporting of resources/ reserves that provide wider investor acceptability. These guidelines are also aimed at prospectors and mining lease holders with historical exploration data obtained in non-UNFC format, with a view to ensure that the same is systematically re-assessed as per UNFC. These guidelines also enunciate the best practices for a Recognized Qualified Person to report in UNFC system. Exploration results should be summarized and reported in a Technical Report of good professional quality in accordance with the UNFC and requirements under Mineral Conservation and Development Rules, 1988 and Mineral Concession Rules, 1960. It is expected that these guidelines would lead to development of a database in commonly accepted reporting standards which could be independently regulated in a sustainable manner.

NATIONAL MINERAL POLICY, 2008

2. The National Mineral Policy, 2008 (NMP), states that conservation of minerals shall be construed not in a restrictive sense of abstinence from consumption or preservation for use in the distant future but as a positive concept leading to augmentation of reserve base through improvement in mining methods, beneficiation and utilisation of low grade ore and rejects and recovery of associated minerals. The NMP further mandates that there shall be an adequate and effective legal and institutional framework mandating zero-waste mining as the ultimate goal and a commitment to prevent sub-optimal and unscientific mining, and non-adherence to the Mining Plan based on these parameters shall carry repercussions. The Policy also states that 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 external markets for such minerals. In order to do so, the Policy enunciates development of a proper inventory of resources and reserves, based on a comprehensive and up to date review of exploration data. The Policy further enunciates that the resource inventory will be in accordance with the latest version of the UNFC system showing reserves and remaining resources. It is held that this data, alongwith a Tenement Registry would assist not only in planning and executing exploration programs in the country for identification of new mineral deposits, but also ensure optimum utilisation of the identified resources/reserves already allotted under mining leases.

UNITED NATIONS FRAMEWORK CLASSIFICATION-Background

3.1 The United Nations Framework Classification for Fossil Energy and Mineral Resources (UNFC) is a universally applicable scheme for classifying petroleum and solid minerals (including energy minerals) reserves and resources through the

use of a three-digit code clearly indicating the essential characteristics of energy and mineral commodities in market economies. The Government adopted the UNFC vide Gazette Notification No.185 dated 17.4.2003, through amendment to Mineral Conservation & Development Rules, 1988. Detailed guidelines, definitions, etc. concerning UNFC were issued by IBM on 3 June 2003 and also published by IBM in the latest edition of Mineral Conservation & Development Rules, 1988, and are available on the website of the Indian Bureau of Mines (<http://ibm.nic.in>). The classification of reserves/ resources of various minerals based on UNFC system were first prepared by IBM as on 1.4.2000 and later, as on 1.4.2005. Reserves/resources are now available mineral wise in State Reviews and grade wise and state wise in Mineral Reviews in the Indian Mineral Yearbook published by the IBM annually.

3.2 The UNFC consists of a three-dimensional system with three axis- Geological Assessment, Feasibility Assessment and Economic Viability. The process of geological assessment is generally conducted in stages of increasing details. The typical successive stages of geological investigation, i.e., reconnaissance, prospecting, general exploration and detailed exploration, generate resource data with a clearly defined degree of geological assurance. These four stages are, therefore, used as geological assessment categories in the classification. Feasibility assessment studies form an essential part of the process of assessing a mining project. The typical successive stages of feasibility assessment, i.e., geological study as initial stage followed by prefeasibility study and feasibility study/mining report are well-defined. The degree of economic viability (economic or sub-economic) is assessed in the course of prefeasibility and feasibility studies. A prefeasibility study provides a preliminary assessment with a lower level of

accuracy as compared to that of a feasibility study which assesses the economic viability in detail.

HOW DOES THE UNFC SYSTEM WORK

4.1 The broad objective of UNFC system is to classify mineral reserves and/resources, inclusive of sub-economic categories of mineralization along the three axes namely, economic, feasibility and geological. This approach has been simplified through the use of a three-digit code clearly indicating the essential characteristics of extractable mineral commodities in market economies, notably:

- Degree of Economic/Commercial viability, represented as E-Axis
- Field project status and feasibility, represented as F-Axis
- Level of geological knowledge, represented as G-Axis

4.2 The first set of categories (the E axis) designates the degree of favorability of social and economic conditions in establishing the commercial viability of the project, including consideration of market prices and relevant legal, regulatory, environmental and contractual conditions. The second set (the F axis) designates the maturity of studies and commitments necessary to implement mining plans or development projects. These extend from early exploration efforts before a deposit or accumulation has been confirmed to exist through to a project that is extracting and selling a commodity, and reflect standard value chain management principles. The third set of categories (the G axis) designates the level of certainty in the geological knowledge and potential recoverability of the quantities.

REPORTING SYSTEMS FOR RESOURCE & RESERVES UNDER UNFC

5. Vide amendment in the Mineral Conservation and Development Rules, 1988, as per Rule 45, it is mandatory for all concession holders of non-coal major minerals to report their mineral reserves/resources as per UNFC. It is also mandatory for all successful applicants for mining lease to submit Mining Plans giving details of the reserves/ resources in the area proposed to be allotted to them in terms of UNFC. The UNFC practice guide mentioned in the MCDR illustrates the conditions to be satisfied for classification of exploration information vis a vis UNFC Codes for resource and reserve.

REPORTING FOR RECONNAISSANCE OPERATIONS

5.1 Reconnaissance operations in the country are carried out by Government agencies-the Geological Survey of India, Atomic Minerals Directorate for Exploration and Research of Department of Atomic Energy of Central Government (AMD), the State Directorate of Geology and Mining (by whatever name called), and holders of Reconnaissance Permit granted in terms of the Mines and Minerals (Development and Regulation) Act, 1957. All the reconnaissance operations are required to be conducted in terms of the Reconnaissance Scheme (Rule 3A of MCDR, 1988), which shall be prepared in terms of the “Field Guidelines for adoption of UNFC” as given in the MCDR. In order to ensure scientific reconnaissance operations and monitoring of the reporting by the RP holder, the IBM shall forward a copy of the Reconnaissance Scheme to the GSI at the beginning of the year of the commencement of the reconnaissance operations or within 15 days of submission of the reconnaissance scheme by the holder of the reconnaissance permit, whichever is later.

5.2 After completion of the reconnaissance operations, it is mandatory for all persons or agencies conducting reconnaissance prepare a Reconnaissance Report along with the specimen of drill core or sampling or pitting mineral, containing details on activities conducted and results thereof in the G4 Axis and G3 Axis activity, if any (supported by laboratory results and physical evidence), assessment of the explored area in F3 Axis and E3 Axis, and report as follows:

(i) In case of a reconnaissance operation conducted by a Reconnaissance Permit holder, a copy of the Reconnaissance Report shall be submitted to the State Government, GSI and IBM, within three months of completion of the reconnaissance operations (rule 7(1)(iii) of MCR, 1960). In case of atomic minerals, copy of the Report shall also be submitted to the AMD. The Reconnaissance Report shall contain details on the financial expenditure on reconnaissance operations on yearly basis. Specimen of drill core or sampling or pitting shall be submitted to the GSI by the holder of the reconnaissance permit. The Government (through the GSI) shall reserve all rights to release the Reconnaissance Report in public domain after two years of the reconnaissance operations in terms of the provisions of the Rule 7(1)(iii) of MCR, 1960.

(ii) In case of a reconnaissance operation conducted by a Government agency other than GSI, the Reconnaissance Report shall be uploaded on the official website within six months of the completion of the reconnaissance operations or within three months of preparation of the Reconnaissance Report, and a copy of the Reconnaissance Report shall be submitted to the GSI and IBM.

(iii) In case of a reconnaissance operation conducted by the GSI, the Reconnaissance Report shall be uploaded in the GSI portal within the next Field season of the reconnaissance operation, and a summary of the reconnaissance

operation to be uploaded on the GSI portal within the Field season of the reconnaissance operations itself.

5.3 The IBM shall furnish details of the reconnaissance schemes submitted and the details of reconnaissance operations that have commenced in the reporting year by the 1st May of the year following the reporting year to the GSI, which shall also be available on its website, in the following form:

Details of the reconnaissance operations that have commenced in the year ____.

Sl no.	Name of the person or agency conducting reconnaissance operations	Date of commencement of the reconnaissance operation	End date of reconnaissance operation	Whether a Reconnaissance Scheme submitted by RP holder to IBM	Whether a copy of Reconnaissance scheme given by IBM to GSI	Action taken for violation of non submission of reconnaissance scheme or non reporting of commencement of reconnaissance operations	Remarks

5.4 The GSI shall furnish a statement of all the reconnaissance operations that have been undertaken in a particular reporting year to the IBM and the concerned State Government, which shall be also published in its portal, in the following form:

Sl no.	Name of the person or agency conducting reconnaissance operations (to indicate GSI, if	State in which reconnaissance operations is being	Date of commencement of reconnaissance operation	Annual financial expenditure committed for the reconnaissance operation in column 1	Whether final reconnaissance report in terms of the UNFC has been submitted to the GSI (In case of GSI	Date when the final Reconnaissance Report shall be available in the public

	GSI itself is conducting the reconnaissance operations)	undertaken			operations, whether data has been filed in the portal in the Field season)	domain
1	2	3	4	5	6	7

Whether data generated in 334 or 333	If in 333, whether 334 data upgraded to 333	Remarks
8	9	10

5.5 All the holders of reconnaissance permits and any other Government agency conducting reconnaissance operations shall report the total financial expenditure on reconnaissance operations in a particular year to the GSI by 30th April of a year for the preceding financial year. The GSI shall maintain an annual statement of total expenditure undertaken on reconnaissance operations in the country based on the Reports filed to it on its portal as follows:

Expenditure on reconnaissance operations as on _____ (give year)

State	Opening balance (total expenditure on reconnaissance in the previous financial year)	Expenditure on reconnaissance operations in the financial year	Closing balance (total of opening balance and expenditure in the financial year)
Andhra Pradesh			

5.6 In case the holder of a reconnaissance permit holder fails to report as required above, IBM or GSI may recommend to the concerned State Government to take suitable action to cancel the Permit or deny the grant of Prospecting Licence to the holder of Reconnaissance Permit, for violation of MCDR, 1988 or MCR, 1960, as the case may be.

REPORTING FOR PROSPECTING, GENERAL AND DETAILED EXPLORATION

6.1 The prospecting, General exploration and Detailed exploration, referred to as prospecting operation for the purpose of this guidelines, is carried out generally by the Mineral Exploration Corporation Limited (MECL), State Directorate of Mining and Geology (by whatever name it is called) and a holder of a prospecting licence in the country. All the prospecting operations (including prospecting, General exploration and Detailed Exploration) shall be conducted as per a Prospecting Plan prepared in terms of the “Field Guidelines for adoption of UNFC” given in the MCDR.

6.2 After completion of the prospecting operations, it shall be mandatory for all persons or agencies conducting prospection to prepare a Prospecting Report (giving details on prospecting, General exploration and Detailed exploration work carried out) along with the specimen of drill core or sampling or pitting mineral, supported by laboratory analysis and physical samples. In case of a prospecting operation conducted by a holder of a Prospecting Licence, a copy of the Prospecting Report shall be submitted to the State Government and IBM. In case of atomic minerals, Report shall be also submitted to the AMD. The Government (through the IBM) shall reserve all rights to release the Prospecting Report in public domain after two years of the prospecting operations in terms of the

provisions of the MCR. In case of Prospecting operation conducted by a Government agency on promotional basis, the Prospecting Report shall be uploaded on its official website within six months of the completion of the prospecting operations or within three months of preparation of the Prospecting Report, and a copy of the Prospecting Report shall be submitted to the IBM and details on activities conducted and results thereof in the G3, G2 and G1 Axis (supported by laboratory analysis and physical evidence), assessment of the explored area in F2 and F1 Axis, and assessment in E2 and E1 Axis (where assessment is not possible in F1 Axis and E1 Axis, the reasons must be clearly recorded). In case prospecting operations are being conducted based on reconnaissance data, the holder of prospecting licence shall indicate whether data was generated through reconnaissance operations conducted previously or procured from Government.

6.3 The IBM shall publish on its website details of the prospecting operations carried out in a particular year in the following form:

Details of prospecting operations conducted in the financial year _____(give year)

Sl no.	Name of the person or agency conducting prospecting operations	Date of commencement of prospecting operation	Whether Prospecting Plan has been filed with the IBM	Date of completion of prospecting operations	Whether the prospect or has renewed the prospecting licence, if so date of completion of prospecting operations.	Whether final Prospecting report in terms of the UNFC has been submitted to the IBM	Date when the final Prospecting Report shall be available in the public domain

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

Whether prospecting is based on reconnaissance operations	If so, details of the reconnaissance operations	Remarks
9	10	11

6.4 In case the holder of a Prospecting Licence fails to report as required above, IBM may recommend to the concerned State Government to take suitable action to cancel the Licence or deny the grant of Mining Lease to the holder of Prospecting Licence, for violation of MCDR, 1988 or MCR, 1960, as the case may be.

REPORTING OF EXPLORATION DATA BY MINING LEASE HOLDERS

7.1 In case of a holder of mining lease, and any Government agency conducting mining operation, the Mining Plan or Mining scheme shall clearly indicate the annual exploration work that shall be carried out along with mining operations. The results of all the exploration work so carried out shall be reported to the IBM and State Directorate General of Mining and Geology, giving details of the mineral exploration in G3, G2 or G1 Axis, F2 or F1 Axis, and E2 or E1 Axis in the form given below. In case of no find, the same shall be also reported as ‘Nil’ report giving details of the exploration activities carried out.

Details of exploration conducted during mining operations

Sl no.	Name of the person or agency conducting mining operations	Whether Mining Plan/ Scheme has been filed with the IBM	Reserves identified (111,121,123, 221,222)	Resource identified (223, 224, 331, 332, 333, 334)	Remarks

	Mine code				
1	2	3	4	5	6

7.2 In case the holder of a mining lease fails to report as required above, IBM may recommend to the concerned State Government to take suitable action to cancel the Mining Lease for violation of MCDR, 1988 or MCR, 1960, as the case may be.

Best Practices for Exploration for holders of RP and PL

8.1 These best practices aim to assist the licensees in the planning and supervision of exploration programs which will be reported under UNFC. All exploration programs carried out by a must be under the supervision of Qualified Experts, i.e an Mining Engineer, Geoscientist or a Recognized Qualified Person (RQP), who will be responsible and accountable for the planning, execution and interpretation of all exploration activity as well as the quality of reporting. This set of “best practices” has been framed to ensure a consistently high quality of work that will maintain investor’s confidence and assist regulators. The guidelines are not intended to restrict any original thinking or application of new approaches that are essential for any successful mineral exploration.

8.2 All exploration work shall be required to be designed and carried out under the supervision of an engineer or geoscientist with at least five (5) years experience in mineral exploration, mine development, mine operation or project assessment, or an RQP and has experience relevant to the subject matter of the project or report. In planning, implementing and supervising any exploration work, such Qualified Experts should ensure that the practices followed are based on criteria

that are generally accepted in the industry or that can reasonably be justified on scientific or technical grounds.

8.3 The geological premise on which any exploration work is conducted including the deposit type, geological setting and style of mineralization sought, should be supported by minimum data and a reasoned scientific approach as prescribed in the guidelines for UNFC reporting in the Mineral Conservation and Development Rules, 1988.

8.4 Throughout the process of mineral exploration, the Qualified Experts should ensure that a minimum quality control checks are in place and that such quality control measures are implemented. Quality checks should be systematic and apply to all types of data acquisition, across the full range of values measured and not only high or unusual results.

8.5 All field work should be planned and implemented under the direct supervision of a Qualified Expert, and data should be properly recorded and documented at appropriate scales. All data points should be accurately located with respect to known reference points, especially Geo-referencing coordinates. The Qualified Expert supervising this work should ensure that any work by employees, contractors or consultants is done by competent personnel and that appropriate quality assurance programs and security procedures are practised. Whenever several persons carry out similar duties or when the data has been collected over a period of time, care should be taken to ensure the quality and consistency of the data being used.

8.6 The exploration process including planning, mapping, sampling, sample preparation, sample security and analysis or testing should be accompanied by detailed record keeping setting out the procedures followed, the results obtained and the abbreviations used. In addition to paper records, all data shall be stored in digital format, excluding any physical limitations (like storage of core samples). Each exploration should specify a set of process for data verification to confirm the validity of exploration data that are entered into the database. A summary of records should be invariably prepared and documented as prelude to the exploration reports. All practices and procedures used should be well documented and justified.

8.7 The practices and procedures used in every sampling exercise should be appropriate for the objectives of the exploration plan. All sampling exercise should be carried out in a careful and diligent manner using scientifically established sampling practices designed and tested to ensure that the results are representative and reliable. Samples should be collected under the supervision of a Qualified Expert. Needless to add such sampling exercises should have quality control checks, planned and implemented through the exploration, including such measures as external blanks, standards and duplicate samples. Where the volume of individual samples is reduced prior to shipping to a laboratory for analysis, appropriate reduction procedures to obtain representative subsamples should be applied and verified.

8.8 The drilling method selected by a Qualified Expert should be appropriate to the material being investigated, the objective of the program and local drilling conditions. The drill hole size selected, subject to the minimum allowed in terms of the EIA notification 2006 (issued by the Ministry of Environment and Forests),

should provide sufficient representative sample material for analysis and reference. Surface and down-hole locational surveys should be undertaken using techniques appropriate for the hole size, angle and length of holes. A representative fraction of the drill sample material should be retained, however if material is not retained, the licensee or the Qualified Expert should report and explain the reason for this decision. Drill logs, forms or software specifically suited to the type of drilling, the particular geological situation, and the minerals being sought, should be used for detailed geological logging of core or cuttings. Logs should be appropriately detailed for the type of drilling being conducted, the geological setting, type of mineralization, and geotechnical conditions. Core or sample recoveries should be noted on the logs. Cross sections depicting basic geology and hole data, including correlation with surface geology and any nearby holes should be developed and updated as drilling proceeds. Any down-hole geophysical information or other such surveys should also be kept with the drill log. A photographic record of the core is recommended, where appropriate.

8.9 The security of samples from sample acquisition to its final analysis in lab is a vital component of the sampling exercise. Procedures should include the use of secure core logging, sampling, storage and preparation facilities, as appropriate, and the prompt, secure and direct shipping of samples to the laboratories. The Qualified Expert should invariably put in place the best security procedures practical, given the geographic and topographic conditions and the logistics created by the site location.

8.10 The selection of sample preparation procedures should be approved by a Qualified Expert and should be appropriate to the material being tested. All

samples that are reduced or split should be processed in such a manner that the fraction analyzed or tested is as representative of the whole sample as possible. Representative fractions of the material to be analyzed or tested should be retained for an appropriate period of time, to be noted in the exploration report, and as decided by the Qualified Expert.

8.11 Analysis and testing of samples should be done by a reputable and preferably accredited laboratory qualified for the particular material to be analyzed or tested. The selection of a laboratory, testing or mineral processing facility and the analytical methods used will be the responsibility of the licensee or the Qualified Expert. The analytical methods chosen must be documented and justified. All analytical or test results should be supported by duly signed certificates or technical reports issued by the laboratory or testing facility and should be accompanied by a statement of the methods used. The reliability of the analytical and testing results should be measured using the results of the quality control samples inserted in the process by the Qualified Expert. Duplicate analyses at other laboratories should be undertaken.

8.12 A comprehensive and ongoing interpretation of all the exploration data is an essential activity at all stages of the exploration and should be undertaken to assess the results of the work. This interpretation should be based on all of the information collected to date, be systematic and thorough, describe and document the interpretation and discuss any information that appears at variance with the selected interpretation. The density of the exploration data should be critically assessed as to its ability to support the qualitative and quantitative conclusions.

8.13 Estimation of a mineral resource and a mineral reserve are both fundamental steps in project development. The classification and categorization of these estimates must be done in accordance with UNFC and be prepared by a Qualified Expert. A mineral resource can be estimated for material where the geological characteristics and the continuity are known or reasonably assumed and where there is the potential for production at a profit. Reserves can be estimated when a positive prefeasibility or feasibility study as defined in the UNFC has established the technical, economic and other relevant factors that indicate that these resources can be produced at a profit or cost plus basis.

8.14 All field work should be conducted in a safe, professional manner with due regard for the environment, the concerns of local communities and with regulatory requirements as required under the Sustainable Development Framework.

8.15 The interpretation and assessment of the Exploration results at the end of each phase should determine if the program objectives have been met and if further work is justified. Any plan for further work should identify exploration targets, recommend an exploration program and present a budget and schedule. Any changes in working hypotheses and objectives should be recorded and immediately reported to the IBM and the State Government concerned.

8.16 A comprehensive technical report, Reconnaissance Report in the case of a Reconnaissance permit and a Prospecting Report in the case of a Prospecting Licence, signed by the Qualified Expert should be prepared on completion of a particular phase or stage of work as declared by the licensee in the Reconnaissance Plan or Prospecting Plan as submitted to the IBM or the State Government concerned.

Guidelines for reporting of Resources and Reserves

9. Mineral Resources and Reserve estimation requires collation of work carried out by numerous professional disciplines and must be based on or demonstrated by the results of (at least) a Preliminary Feasibility Study. The mineral resources and reserves form the basis for the National Mineral Inventory maintained by the IBM. In order to improve the quality of the reporting of the mineral resources and reserves, the following guidelines should be invariably applied:

- (a) All licence holders and exploration agencies are encouraged to provide information that is as comprehensive as possible in Technical Reports on exploration.
- (b) Fundamental data such as commodity price used and cut-off grade applied must be disclosed.
- (c) Problems encountered in the collection of data or with the sufficiency of data must be clearly disclosed.
- (d) Modifying factors applied to estimation such as inclusion of high grades or estimation arising out of reconciliation of lab data extrapolated for the exploration must be identified and their derivation documented.
- (e) Tonnage and grade figures should reflect the order of accuracy of the estimate by rounding off to the appropriate number of significant figures.
- (g) Technical Reports of a Mineral Resource must identify one or more categories of Reconnaissance (STD 334), 'Inferred' (STD 333), 'Indicated' (STD 332) and 'Measured' (STD 331) and similarly Technical Reports of Mineral Reserves must specify one or both categories of 'Proven' (STD 111) and 'Probable' (STD 122). Categories must not be reported in combined form unless details of the individual categories are also provided. All categories should always be reported separately.

- (h) Technical reports on Resource and Reserve estimation must not be reported in terms of contained metal or mineral content unless corresponding tonnages, grades and mining, processing and metallurgical recoveries are also presented.
- (i) While in no circumstances should estimates for Resources and Reserves be reported as a combined figure, in unavoidable cases where estimates for both Resources and Reserves are reported, a clarifying statement must be included that clearly indicates whether Resources are inclusive or exclusive of Reserves.
- (j) In estimating Reserves, the basic data on Resources, where available should be also invariably included.
- (k) Where Reserve estimates are reported, commodity price projections, operating costs and mineral processing/metallurgical recovery factors are important and must be included in Technical Reports.
- (l) When reporting a Mineral Reserve mineable by open pit methods, the waste-to-ore ratio should be disclosed.
- (m) All Reports should refer to the appropriate categories of Resources until technical feasibility and economic viability have been established for a mineral estimate by the completion of at least a Preliminary Feasibility Study.
- (n) Broken mineralized inventories, as an example, surface and underground stockpiles, must use the same basis of classification outlined in the UNFC.

STRATEGY FOR IMPLEMENTATION OF UNFC

10.1 The entire landmass of the country, where mining activities are possible and the land is not presently under any other competing land use, maybe divided into two major categories- Non-freehold areas and Free-hold areas. The non-freehold areas would consist of areas that are held under any mineral concession, and would include such areas which have been applied for grant of prospecting licence or a mining lease after completion of earlier stage of exploration activity, or where an

applicant has been selected for grant of a mineral concession and the concession is yet to be granted, or any such area where the Government has issued notification reserving the area for conservation or exclusive exploitation by PSUs or such areas where notification has been issued for promotional exploration by the Government. The remaining areas could be classified as freehold areas.

Strategy for implementation in non-freehold areas under mining lease

10.2 In case of non-freehold areas that are held under a mining lease, in all such cases where the resources or reserves have not been categorized in terms of UNFC, the mining lease holder shall be required to categorize his entire lease area into such areas that are covered under a mining scheme and such area which are not covered under a mining scheme. In case of areas covered under a mining scheme the lease holder shall be required to submit details of the exploration plan in the mining scheme, indicating the annual targets for completion of the exploration activity.

10.3 In terms of directives issued to the State Governments vide Ministry of Mines letter no.10/75/2008-MV dated 23rd December 2010, whereby in exercise of the powers under Rule 27(3) of the Mineral Concession Rules, 1960, all the State Government have been requested to impose a special condition in all the existing and future leases in the country for major minerals (excluding coal minerals) as follows:

“The owner of a mining lease shall:

- (a) ensure that prospecting work is carried out in his lease area at his own cost in such mining lease where:*

- (i) *prospecting has not been done and a Prospecting Report has not been filed with the Indian Bureau of Mines;*
 - (ii) *the Prospecting Report for the mining lease has been prepared in terms of standards that are materially different or incompatible with UNFC standards;*
 - (iii) *fresh prospecting work has become necessary for such minerals for which the threshold values have been revised by the Indian Bureau of Mines; and*
 - (iv) *fresh prospecting is required to prove the depth persistency of the ore or mineral deposit;*
- (b) *ensure that prospecting work, if required under clause (a) above, shall be completed as per the time-schedule given below:*

<i>Sl no.</i>	<i>Item</i>	<i>Time limit</i>
<i>1</i>	<i>All mining lease with an area of less than 10 hectares.</i>	<i>Within one year of the imposition of the condition in the mining lease.</i>
<i>2</i>	<i>All mining leases with an area more than 10 hectares and less than 50 hectares.</i>	<i>One half of the area within one year of the imposition of the condition in the mining lease and remaining half of the mining lease area within three years of imposition of condition in the mining lease.</i>
<i>3</i>	<i>All mining leases with an area of more than 50 hectares.</i>	<i>The mining lease area to be equally demarcated for prospecting work such that all the prospecting work is completed in a period of five years from the date of imposition of the condition in the mining lease.</i>

(c) *submit:*

- (i) *yearly report on the progress in the prospecting work alongwith the expenditure details and a copy of the interim Prospecting Report, where the prospecting Report is for a part area (as at serial number (2) and (3) of the sub-clause (b) above; and*
- (ii) *complete Prospecting Report with a feasibility report at end of the prospecting Report, to the Chief Controller of Mines, Indian Bureau of Mines, and concerned State Government”.*

10.4 Accordingly, all mining lease holders shall be required to adhere to the timelines mentioned above for reassessment of their resources and reserves in terms of UNFC, and report to the IBM as per table given in para 7.1 above.

10.5 The IBM shall closely coordinate with the State Governments for ensuring imposition of special condition in all the mining leases and monitor the reports and ensure that all mining lease holders comply with the provisions of the special conditions.

Non-freehold areas under Prospecting licence and reconnaissance permit

10.1 All the holders of ongoing prospecting licence and reconnaissance permit shall be required to submit their exploration data in terms of the UNFC to the IBM or GSI and the State Government. The compliance shall be monitored by the GSI in terms of the table given under para 5.4 above.

10.2 In case of prospecting and reconnaissance operations that have already concluded and data has been filed with the IBM, GSI or State Government, the IBM in case of prospecting licences and the GSI in case of reconnaissance permit, shall be required to access the historical data so filed by the licensees, study the same and determine whether re-assessment of the data is necessary for compliance with the UNFC. To this effect, the IBM and GSI shall draw out a time-bound plan and if necessary shall also engage experts to complete this job on a turn-key basis.

Strategy for Free-hold areas

11.1 It is estimated that the total mineral potential area in the country is 5.70 lakh square kms, which is a sizeably large area. Leaving out the areas under concessions, the remaining area can be divided broadly as greenfield areas, where no exploration has been conducted till now, and all such areas where in terms of the provisions of the MMDR Act exploration has been or is being conducted by either GSI, State DGMs, or authorized Government agencies without obtaining a licence, the only requirement being that the area should be notified by the State Government for this purpose.

11.2 In such areas, where the GSI, State Governments or Government agencies are undertaking exploration activities, it would be mandatory for such agencies to file the data in UNFC system in digitized format, and upload the same on their websites for wider dissemination, unless State Government is proposing to reserve such areas for further State led exploration.

11.3 However, on areas that have already been explored in the past, one important challenge that is eminent is that the historical data generated is not well

documented or indexed, and is generally existing in non-digitized format. Such data could be classified generally as follows:

- (i) baseline data (geoscience survey data)
- (ii) pre-exploration data (comparable with reconnaissance data)
- (iii) exploration data (comparable with prospecting data)

11.4 While the baseline data is largely lying with the GSI, it shall be mandatory for the GSI to inventories all such data and digitize the same in a time bound manner as part of Mission I of reorganised mandate of the GSI. Each region of the GSI would submit its annual target, and the same would be completed either in-house or through out-sourcing to experts in the field. To this effect the GSI should identify a list of empanelled experts selected through competitive bidding process and appointed by each region for each job on case-to-case basis.

11.5 In case of pre-exploration data, the GSI would not only inventorise the data available with it, but also coordinate with the State Governments and other Government agencies to prepare a complete inventory of such data available in the country. Simultaneously the GSI would commence a systematic programme to convert the historical data into UNFC system based data in digital mode and make available the same on its portal. Alongwith this the GSI would set up Training programmes at State level for developing capacities in the State Directorate for converting the data into UNFC system. Needless to mention, the regional offices of GSI would also outsource this work to empanelled experts as part of Mission II activities for each year. The progress would be reported and monitored in the CGPB.

11.6 In respect of the exploration data, the IBM, which is the custodian of National Mineral Inventory, shall identify such historical data that needs to be converted, and in a phased annual program, as reflected in the annual targets, convert the data into UNFC system. IBM should invariably involve the State Governments in the exercise, which could be done through a Centrally Sponsored Scheme or Project mode.

12. To sum up it is expected that these guidelines would help the prospector and the regulators in achieving the objective enshrined in the National Mineral Policy, 2008, which enunciates that it will be ensured that regional and detailed exploration is carried out systematically in the entire geologically conducive mineral bearing area of the country using state-of-art techniques in a time bound manner and minerals being a valuable resource the extraction of mineral resources located through exploration and prospecting has to be maximised through scientific methods of mining, beneficiation and economic utilisation.