

International Standards for Exploration Targets & Results



1

---- Lets' Adopt International Standards of Reporting

Disclaimer

The particulars presented in this presentation are cited from the IMIC 2019, NACRI Code of ethics, NACRI Charter 2019, IMIC Training material/ MEAI Bylaws 2018 and/ or any other published material. The presenter is in no way accountable for any losses or damages that might be sustained by the RCPs or their clients due to acceptance of the material presented here. The IMIC practitioners or RCPs may please refer to the original documents for detailed and exact appreciation of the subject matter.

2

International Standards for Exploration Targets & Results

➤ Whether Recent Amendments in Act and Rules helped Our Mining Industry ????

Auction Rules , National Mineral Policy, NMET and MEMC Rules were added and modified --- but the status is

- ❖ *Exploration is still being continued by Govt Agencies and State Govts, though Private participation will be given even opportunity in NMP. Rules framed does not reflect intent of NMP .*
- ❖ *No of Shelf of deposits / Mineral Blocks are not available for investors to choose, which indicates the pace of exploration and the strategies . The progress made so far is not conducive .*
- ❖ *Thrust is given only to Schedule-IV minerals that too Iron Ore and Limestone, while deep seated and minerals of strategic importance are neglected.*
- ❖ *Exploration strategies for deep seated mineralization are not as per international standards. Still believed in classical and age-old methods, though discussed about advanced methodologies in NMP.*
- ❖ *Just for the sake of auctioning of mining blocks, exploration is being carried out in the adjoining/ in-between known areas of existing mining properties and mineralization.*
- ❖ *No new geological milieus of deep-seated mineralization have been identified nor explored.*
- ❖ *Data provided for bidding for Composite license and mining lease is very limited /Sketchy to take investment risk. Information provided to participate in bidding process is based just on exploration results including uneconomic mineral presence with in the listed block.*
- ❖ *Thoughts on Junior Mining Companies who can take up exploration and assure mineral property worthy for investment was never given a thought for consideration.*

3

International Standards for Exploration Targets & Results

➤ What is an International standard of Reporting?

❖ International Reporting Template (IRT) is a document that draws on the best of the CRIRSCO-style reporting standards, such as the JORC Code (Australasia), SAMREC Code (South Africa), PERC Reporting Standard (Europe), CIM Guidelines (Canada), SME Guide (USA) and Certification Code (Chile). **These reporting standards are recognised and adopted world-wide for market-related reporting and financial investment.**

➤ Are these standards are being followed to invite global investors in mining in India ? --- **NO**

➤ Still following UNFC (a classifying system of mineral resources / reserves) just for getting approvals of mining plans by IBM, for day to day mine operations and submitting various annual returns by mine operators and to maintain National Mineral Inventory (NMI) which is not a clear public document for investors to take investment risks .

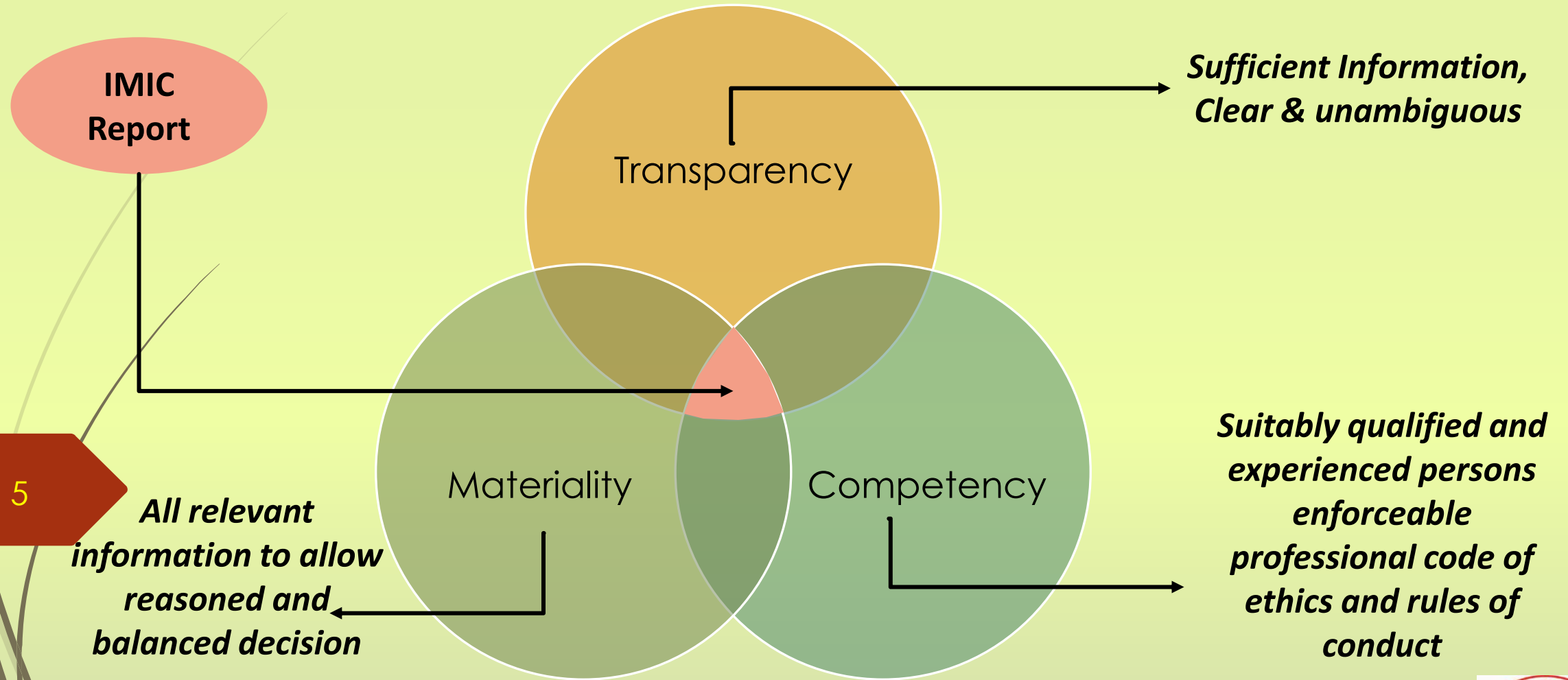
4

➤ ***India is the 14th member recognized by CRIRSCO on 1st August 2019 to adopt and practice international standards of Public Reporting of Exploration Results , Resources and Reserves of Mineral commodities.***

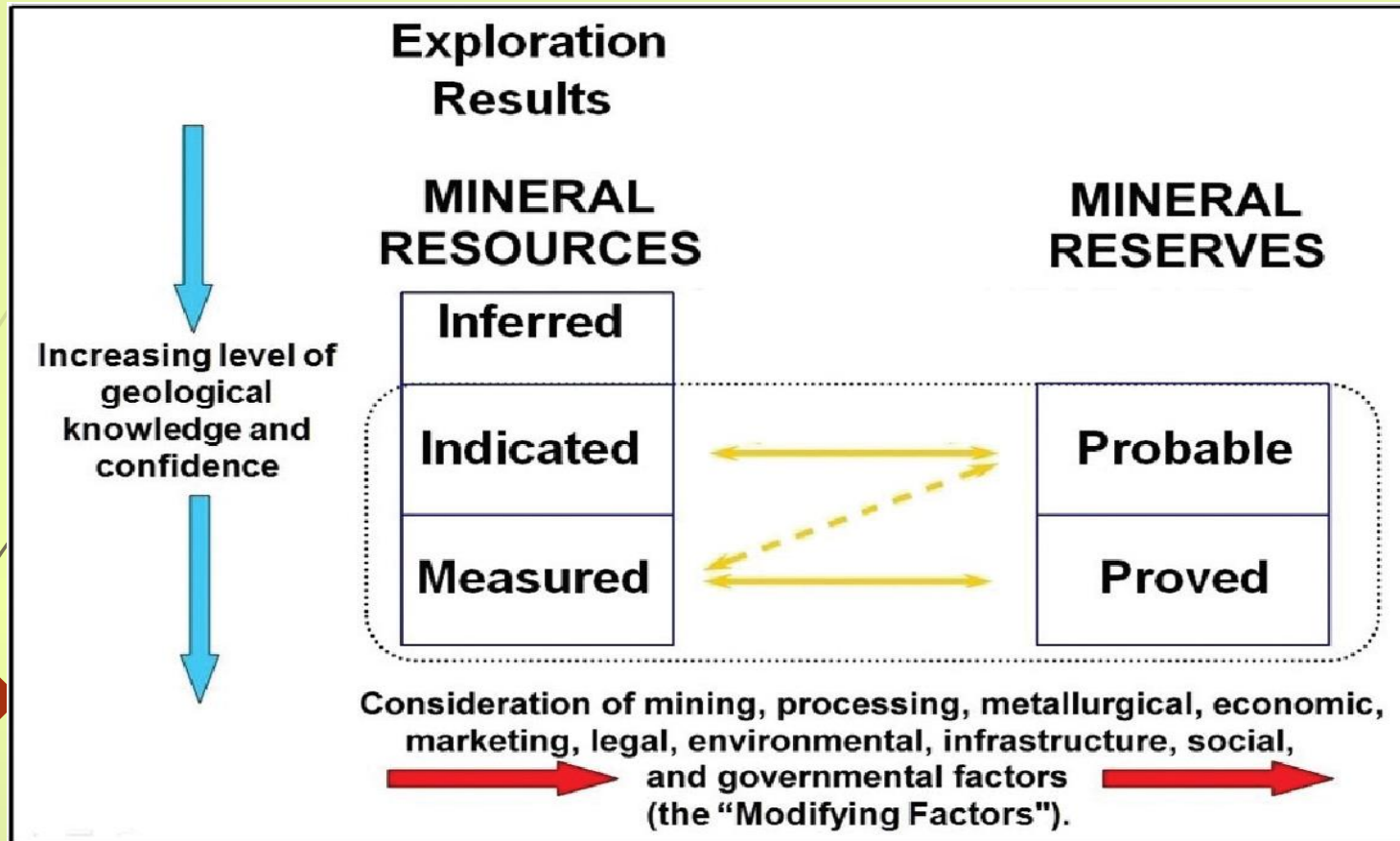
➤ ***NACRI is the NRO and MEAI is the Professional Organization for India . Developed Country specific Codes known a Indian Mineral Industry Code (IMIC-2019) drafted by Domain experts accepted by CRISCO as an international standard . NACRI imparts training to Mining industry Professionals***

International Standards for Exploration Targets & Results

➤ Concepts of Public Reporting on International Standards are based on



International Reporting Standards Template –(IRT)-CRIRSCO



- **Transparency**
- **Materiality**
- **Competence**

6

Exploration Targets

- Exploration Target is *a statement or estimate of the exploration potential of a mineral deposit in a defined geological setting where the statement or estimate, quoted as a range of tonnes and a range of grade or quality, relates to mineralization* for which there has been insufficient exploration to estimate Mineral Resources.
- Discuss on strategy in terms of *target size and type*.
- Information must be expressed clearly so that it is *not misrepresented or misconstrued as an estimate of a Mineral Resource or Reserve* and such are not to be used in this context.
- Exploration Target details *should not appear in any form in Mineral Resources statements* or not be included in a Scoping Study, Pre-Feasibility or Feasibility study.

7

Exploration Targets

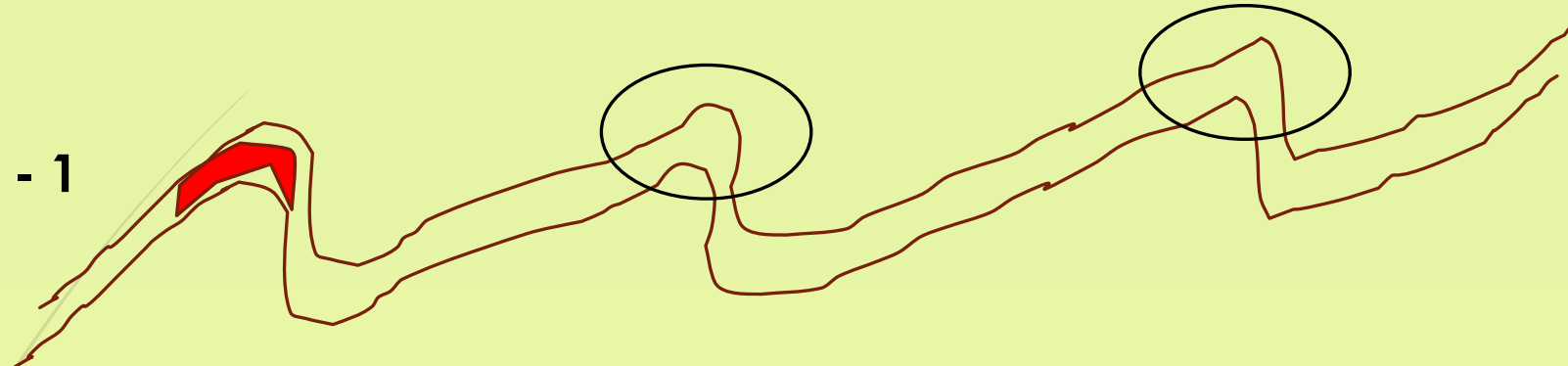
- A Public Report on Exploration Target must accompany Registered Competent Person's statement owning responsibility for the form and context in which Exploration Target appears.
- Potential quantity and grade of an Exploration Target must be expressed as ranges and must include explanations on:
 - ✓ Specific description of level of exploration activity already completed, the
 - ✓ Geological model on which it is based
 - ✓ Procedures used to estimate ranges of tonnage and grade or quality; and
- In a public Report, a clarification statement to be incorporated as the first reference of an Exploration Target stating that the potential quantity and grade is of conceptual in nature, that there has been insufficient exploration to estimate a Mineral Resource and also it is uncertain if further exploration will result in estimation of a Mineral Resource

Exploration Targets

- Basis for making a statement of a target must be made to the possible extent, discuss the *geological setting, exploration strategy, exploration activity already completed and the presence of or lack of information on i) mineralized outcrops and assays ii) geochemical survey results, iii) surface and subsurface geophysical survey results, and iv) drill holes, test pits and underground workings etc.*
- If a Public Report includes an Exploration Target, the proposed exploration activities designed to test the validity of an exploration target must be detailed and the *timeframe within which these activities are expected to be completed* must be specified.
- For an Exploration Target based on Exploration Results, *a summary of the relevant exploration data* available and the nature of the results should also be stated, including a disclosure of the current drill hole or sampling spacing and relevant plans or sections.
- In any subsequent upgraded or modified statements on the Exploration Target, the *Registered Competent Person should discuss any material changes to potential* scale or quality arising from completed exploration activities.

Exploration Targets

Case - 1

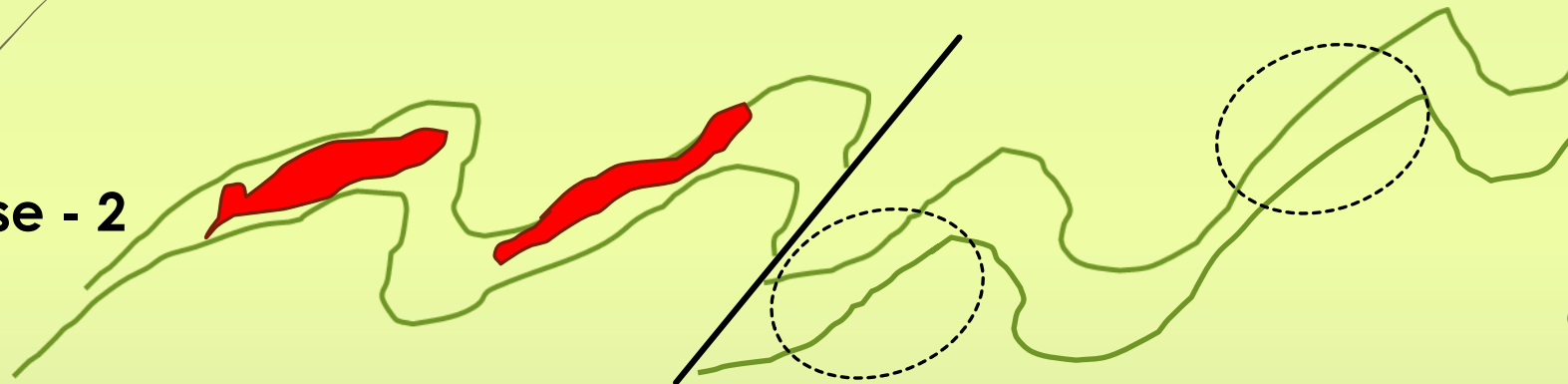


Conceptual

Size and Type

Strategy

Case - 2



Estimated Range

Level of exploration
already completed

10

Proposed exploration with time
frame

Courtesy Dr AK Sarangi

Exploration Results

- Exploration Results include data and information generated by mineral exploration programs that might be of use to investors, but which do not form part of a declaration of Mineral Resources or Mineral Reserves.
- Generally, in the early stages of exploration when distribution and quantity of data available is not that sufficient, it is incorrect to make any reasonable estimates on tonnage and grade.
- Instead It shall be amply clarified on i) results of outcrop sampling ii) geological mapping, iii) assays of drill hole intercepts iv) geochemical test results, and v) geophysical survey anomalies and results thereof.
- Exploration Results are the outcome of various inputs to establish mineral presence, its nature of deposition and ultimately its grade and quantity.
- It shall not be construed that every exploration will culminate in establishing resources. Few may be unsuccessful campaigns.

Exploration Results

- Exploration Results must include **both positive and negative data** and relevant information relating to the mineral property.
- Assumed continuity of mineralization of the property and the interest **must be based on at least some physical information**
- To be justified by Registered Competent Person/ Competent Person/ Qualified person.
- **Historical data and information** shall be included. If such information in the considered opinion of the Registered Competent Person is relevant and reliable, shall be included with proper reasons for such conclusions.
- **Public reports of Exploration Results must include relevant information** including exploration context, type and method of sampling, sampling intervals and methods, relevant sample locations, distribution, dimensions and relative location of all relevant assay and physical data, data aggregation methods, land tenure status etc.
- Public Reports of Exploration Results **must not be presented in such a way that which will unreasonably imply that potentially economic mineralisation has been discovered.**

Exploration Results

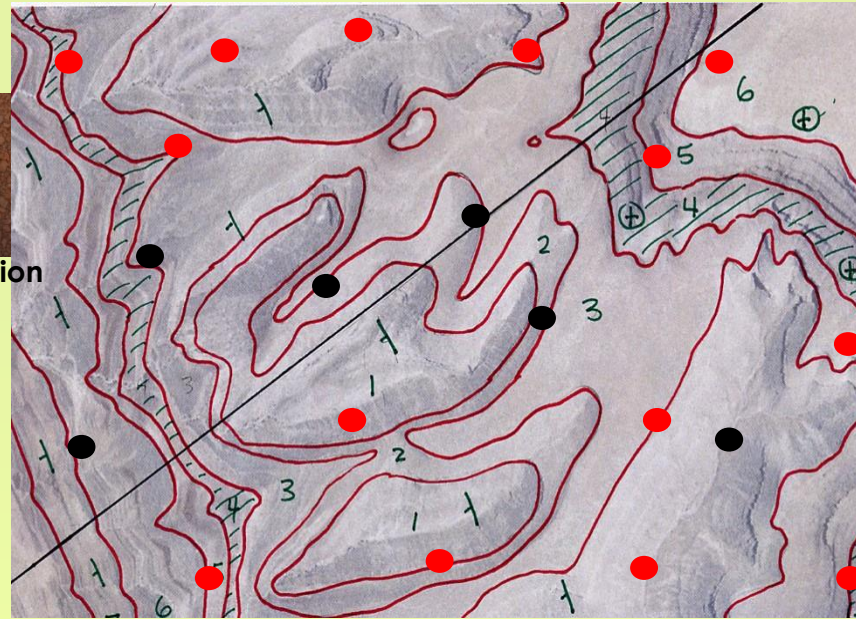
- In Public Reports True widths of mineralized zones must be reported where it cannot be reported, appropriate qualification must be included .
- Assay and analytical results are to be reported either by listing all results, along with sample intervals (or size, in the case of bulk samples), or by reporting weighted average grades of mineralized zones, indicating clearly how the grades were calculated
- **Reporting of selected information without placing in proper perspective in public report is unacceptable.**
- **RCP while preparing the report shall observe the Checklists & Guide lines provided along with codes (which are again not prescriptive)**

Exploration Results Explanation

Green Field / Brown field



BH Location



● Negative BH ● Positive BH



FIG. 1 : GEOLOGICAL SECTION COMPLEX DEPOSIT

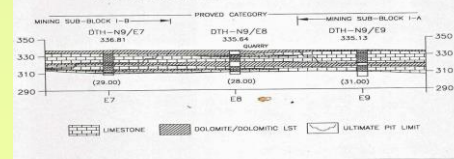
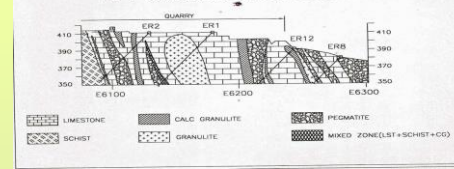
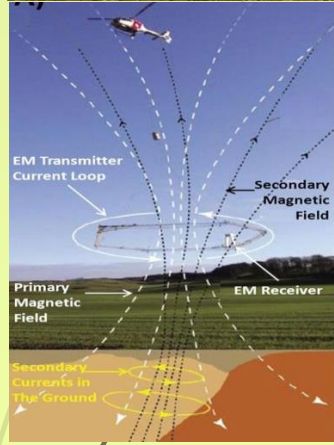


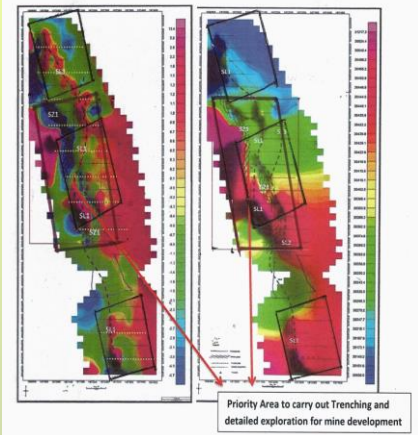
FIG. 2 : GEOLOGICAL SECTION INTRICATE DEPOSIT



Geological Sections



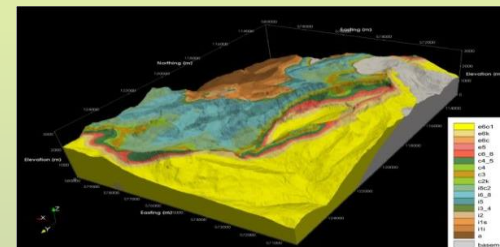
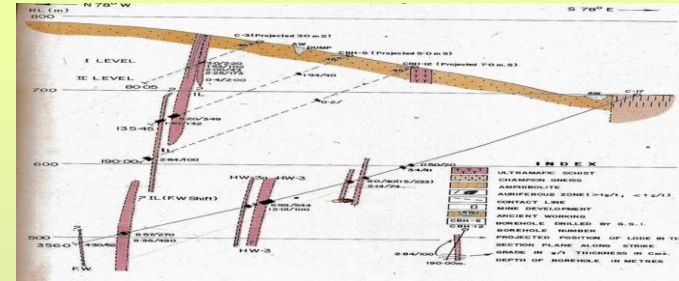
Aerial /Ground Geophysics



Priority Area to carry out Trenching and detailed exploration for mine development



Pitting /Trenching



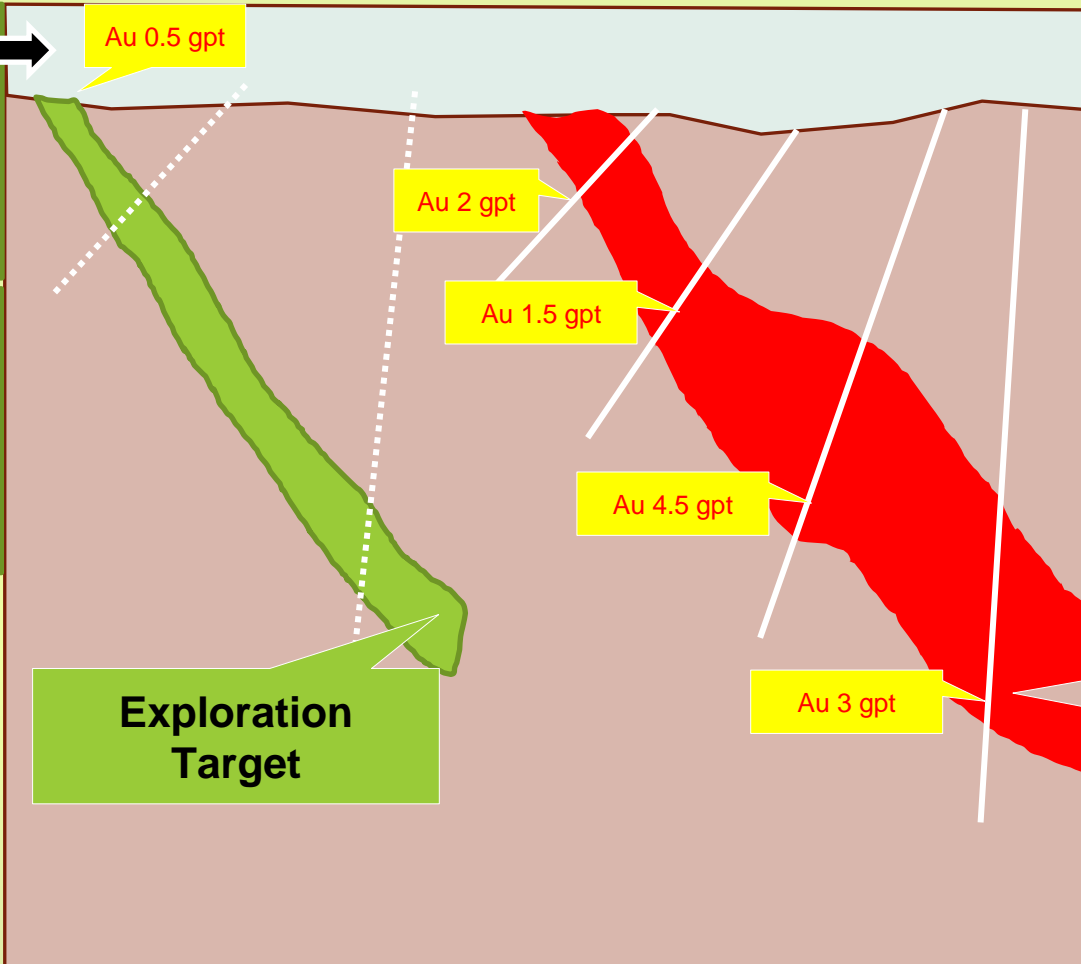
Geological Model

Exploration Targets & Results

Geochemical Anomaly, Geophysical Survey and Structural Mapping and Trenching indicated the presence of a mineralised body and geometry has been assumed.

Drilling has been proposed to establish the shape, geometry, grade, density, continuity and other geological characteristics. Data is inadequate to support a Mineral Resource statement.

Exploration Target 4 to 5 Mt with the expected average grade of 2 to 3 gpt.. It is conceptual in nature, insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource



Drilling has established the shape, geometry, grade, density, continuity and other geological characteristics and thereby a Mineral Resource statement has been produced.

Mineral Resource

Mineral Resource 5 Mt @ average grade of 3 gpt reported at 0.5 gpt cut-off

International Standards for Exploration Targets & Results

- **Benefits that can be derived out by adopting the international standards**
 - ❖ **A system of simple and easy codes to adopt and to understand.**
 - ❖ **These codes are not of prescriptive type (like UNFC) with restriction on RCP to have his/her judgment for proper reporting.**
 - ❖ **Transparent, dependable and comprehensible reports to all Stakeholders.**
 - ❖ **It gives the way for introduction of best practices for Public Reporting in mineral industry.**
 - ❖ **It will be a source of easy accessibility of Public reports to investors / Bankers / Stock exchanges.**

16

India having developed its own IMIC Codes, need not look for another CRIRSCO compliant standards like JORC to raise funds for investments in Mining- a justified action towards [Atma Nirbharata](#).

Namaste

Thanks

T.R Rajasekar

shekar52@yahoo.co.in

080-29526163 Mo:7892900961

17

Happy New Year 2023 – Greetings in advance