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| Mandela Mining Precinct is a programme of the Department of Science and Innovation and the Minerals Council of South Africa, which is hosted and managed by the CSIR and the Minerals Council |

**Mechanised Mining Systems (MMS) Programme**

**PROPOSAL FOR THE CONCEPT DESIGN AND PROTOTYPE DEVELOPMENT OF RAPID INCLINED ACCESS DEVELOPMENT EQUIPMENT FOR NARROW REEF HARD ROCK UNDERGROUND MINES**

**CFP No:** **002/07/052021**

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| --- |
| Contact Details of Applicant |
| Organisation: |  |
| Address: |  |
| Contact Person: |  |
| Telephone No: |  |
| Fax No: |  |
| Email: |  |
| Authors: |  |
| Date: |  |

Date

**Instructions:**

The completed application and any queries should be submitted by email only to Vuyo Tsotsotso, email: vtsotsotso@csir.co.za

# Executive Summary

*In half a page or less, summarize the main reasons for performing the project, the objectives, the extent of the design or research that your company/team aims to achieve. Highlight the technical proposal and management approach (e.g. include project period, final budget etc.)*

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# Introduction

## Organisational Profile

*Please provide a brief profile of your organisation (include B-BBEE status, attach certificate).*

### B-BBEE status

*Please provide the companies B-BBEE status and attach certificate.*

## Background and Motivation

*This section should demonstrate the company’s/team understanding of the technical problem/s. Provide a background and motivation for the project (what makes the project different?). What are the existing gaps and challenges in the market and how does your project address these challenges.*

## Market/Industry Opportunity

*Please provide details of the market/ Industry opportunity emanating from the project. Include a market research or information gathered relevant to the project.*

## Administrative and Technical evaluation factors

*Please complete the following tables:*

1. *Table 1: Administrative factors for assessing project proposals*
2. *Table 2: Additional information required for information purposes only*
3. *Table 3: Technical evaluation factors*

Table 1: Administrative factors for assessing project proposals

|  |  |  |
| --- | --- | --- |
| **Administrative Factors** | **Yes** | **No** |
| South African registered company |  |  |
| Valid tax clearance certificate |  |  |
| Completed proposal template |  |  |
| Is the application complete? |  |  |
| Submission of CFP Terms of Reference (this document) |  |  |

Table 2: Additional information required for information purposes only

|  |  |  |
| --- | --- | --- |
| **No** | **Required parameter** | **Response** |
| 1 | Estimated cost estimate for concept design (ZAR) |  |
| 2 | Estimated duration of concept design (Weeks) |  |
| 3 | Estimated cost estimate for prototype development (ZAR) |  |
| 4 | Estimated duration of prototype development (Weeks) |  |
| 5 | Estimated total funding requirement (ZAR) |  |

Table 3: Technical evaluation factors

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Technical evaluation factor | Scoring | Score | Weight | Weighted Score |
| ( /10) | (%) |  |
| **Co-Funding** | **The applicant commits the following co-funding as a percentage of the total project funds:*** More than 80% of the total project funding (assigned score 10)
* Between 50% and 79% of total project funding (assigned score 8)
* Between 25% and 49% of total project funding (assigned score 5)
* Less than 25% of total project funding (assigned score 0)
 |  | **10** |  |
| Quality and Feasibility | **Quality and overall direction of proposal:*** The proposal successfully addresses all applicable aspects, no limitations (assigned score: 10)
* The proposal addresses the criterion thoroughly, but with a small number of limitations (assigned score: 8)
* The proposal broadly addresses the criterion, but there are significant weaknesses / limitations (assigned score: 5)
* The proposal fails to address the criterion and/or cannot be assessed due to missing or incomplete information (assigned score: 0)
 |  | 5 |  |
| **Are the objectives and methodology appropriate for the proposed work?*** The proposal successfully addresses all applicable aspects, no limitations (assigned score: 10)
* The proposal addresses the criterion thoroughly, but with a small number of limitations (assigned score: 8)
* The proposal broadly addresses the criterion, but there are significant weaknesses /limitations (assigned score: 5)
* The proposal fails to address the criterion and/or cannot be assessed due to missing or incomplete information (assigned score: 0)
 |  | 5 |  |
| **Does the applicant have the relevant technical expertise and mining industry experience to undertake the project (attach company profile):*** More than 10 years (assigned score: 10)
* 5 – 10 years (assigned score: 8)
* Less than 5 years (assigned score: 5)
 |  | 5 |  |
|  | **Time required to develop the prototype once contracting is finalized (attach project schedule detailing timeframes for different milestones):*** Prototype already developed and is ready for testing (assigned score: 10)
* Prototype development is in progress and will be completed within 3 months (assigned score 8)
* Concept design is available and the prototype can be developed within 6 months (assigned score: 5)
* Concept design is available and the prototype can be developed in more than 6 months (assigned score: 0)
 |  | 10 |  |
| Compliance with legislation and standards | Compliance of the envisaged rapid inclined access development equipment prototypes with legislation and standards:* Compliance with the Mine Health and Safety Act No. 29 of 1996 and applicable regulations; Occupational Health and Safety Act of 1993 and regulations (specifically ergonomics regulations of 2019); Relevant South African Bureau of Standards (SABS) and International OHS standards that are relevant to mining equipment (assigned score: 10)
* Compliance with the Mine Health and Safety Act No. 29 of 1996 and applicable regulations and any two of the following: Occupational Health and Safety Act of 1993 and regulations (specifically ergonomics regulations of 2019); Relevant South African Bureau of Standards (SABS) and International OHS standards that are relevant to mining equipment (assigned score: 8)
* Compliance with the Mine Health and Safety Act No. 29 of 1996 and applicable regulations and any one of the following: Occupational Health and Safety Act of 1993 and regulations (specifically ergonomics regulations of 2019); Relevant South African Bureau of Standards (SABS) and International OHS standards that are relevant to mining equipment (assigned score: 5)
* Not complying (assigned score: 0)
 |  | 10 |  |
| Advance rate | Envisaged monthly advance rate of the rapid inclined access development equipment prototype (assume a 22 day month with 2 X 8 hours shifts):* Advance rate of at least 60 meters per month (assigned score: 10)
* Advance rate of between 45 meters and 59 meters per month (assigned score: 8)
* Advance rate of between 30 meters and 44 meters per month (assigned score: 5)
* Advance rate of less than 30 meters per month (assigned score: 0)
 |  | 10 |  |
| Manoeuvrability | The ideal equipment should be:1. **Compatible with existing hard rock underground mine infrastructure (including the shaft system and existing excavations)**
2. Self-propelled (i.e. should be able to move from point A to B on its own without the need to be transported by another equipment)
3. Trackless

Conformance of the equipment to requirements 1, 2 and 3:* Conforms to all requirements (assigned score: 10)
* Conforms to requirement 1 and either of 2 or 3 (assigned score: 8)
* Conforms to requirement 1 only (assigned score: 5)
 |  | 5 |  |
| Rock breaking mechanism | Rock breaking mechanism:* Non-explosive (rock cutting, thermal spalling, diamond wire cutting, etc.) (assigned score: 10)
* Drilling and blasting (assigned score: 5)
 |  | 5 |  |
| Operational functionality | Equipment operational functionality:* Autonomous equipment (assigned score: 10)
* Remote controlled equipment (assigned score: 8)
* Manually operated equipment (assigned score: 5)
 |  | 5 |  |
| Energy source | Equipment energy source in operation (power system):* Electric or battery powered (assigned score: 10)
* Hydropower (assigned score: 8)
* Pneumatic (assigned score: 6)
* Diesel (assigned score: 5)
 |  | 10 |  |
| Multi-functionality | Multi-functionality of the equipment:* Equipment capable of executing face drilling or rock cutting, support drilling, support installation, cleaning and development of secondary infrastructure such as breakaways and cubbies (assigned score: 10)
* Equipment capable of executing face drilling or rock cutting and any two of the following support drilling, support installation, cleaning and development of secondary infrastructure such as breakaways and cubbies (assigned score: 8)
* Equipment capable of executing face drilling or rock cutting only (assigned score: 5)
 |  | 10 |  |
| Availability | Envisaged availability of the equipment:* At least 85% (assigned score: 10)
* Between 75% and 84% (assigned score: 8)
* Between 60% and 74% (assigned score: 5)
* Less than 60% (assigned score: 0)
 |  | 10 |  |

## Literature Review

*Please provide a description on how you identified the needs and requirements for your project as well as supporting literature that will assist in understanding the problem. Do not provide a list of relevant literature.*

## Project Goal

*The project goal is a statement that summarizes what the project is going to achieve. It can be general, technical and non-technical but must provide a direction for the project.*

## Project Objectives

*Define the scope of the work and clearly state the project objectives.*

## Strategic Nature of Project

*Discuss the strategic nature of the project; make reference to specific policies/documents that highlight the importance of undertaking this project. Indicate to what government policy and/or strategic document the project/technology contributes to.*

## Technology Readiness Level (TRL)

*Please specify the current TRL value of the technology being proposed. Please provide a brief motivation for the TRL value indicated.*

*(See* <https://en.wikipedia.org/wiki/Technology_readiness_level> *for more information about TRLs if unfamiliar with the concept)*

# Project Management

## Description of Task Phases

*Please provide a brief description of the tasks/phases required to successfully complete this project.*

## Deliverables

*Specify all deliverables/outcomes expected upon completion of the project.*

## Timeline

*Please provide a timeline with milestones i.e. Gantt chart*

## Budget (VAT Excluded)

*Please provide a complete breakdown of the budget (manpower, equipment, running costs etc.)? What contribution will be made by the applicant? Complete the table below. Link tasks/phases and deliverables mentioned above to budget items.*

*A complete budget must be submitted separate from the Proposal – PART 2: Pricing Proposal, B-BBEE and other Mandatory Documentation as indicated in the Call for Proposals.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | **Mandela Mining Precinct Contribution** | **Applicant Contribution** | **Total** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

### Co-funding

*Please indicate if the company will provide any co-funding.*

## Roles and Responsibilities

*Describe the division of responsibilities amongst team members. An organogram will be beneficial. Main point of contact for projects, contracts etc. should be provided.*

## Reporting

*This section is for information only:*

*Report guidelines will be provided by Mandela Mining Precinct. The reports will include a workplan, submitted one month after commencement of project and a minimum or two interim progress reports as well as a final report upon completion of project.*

## Declaration of Additional Funding Received or Applied For

*Please declare all additional funding applied for or received for this project*

#  Impact and Benefits

## Potential Industry and Organisational Benefit

*What are the major benefits of this project to the mining sector and your organisation?*

## Human Capital Development

*Will there be job creation or job retention if this project is supported? Will there be any personnel to be trained as part of the project? Indicate the number of expected jobs potentially retained, created or personnel to be trained.*

## Skills and Knowledge Transfer

*Will any skills and/or knowledge be transferred to industry at the completion of the project? Is there a willingness to host workshops and training sessions to inform industry about the technology developed?*

## Project Outcomes in Support of Achieving the Programme’s Goals

*Explain how the outcome of this project will assist Mining Manufacturing Supplier Development Programme in achieving its goals?*

## Partners and Collaborators

*Please list all prospective partners and collaborators. Be specific on the type of partner/collaborator is e.g. SMMEs, tertiary institutes. What capacity will they be involved in and what is their level of involvement? Note: A letter confirming collaboration between all parties, if any, is required (attach to this proposal)*

# Additional Information

*List here any other information or comments which may be important in consideration of this project*

# Supporting Documentation

*Please provide any supporting documentation that will assist with the project proposal (include BBBEE and tax certificates)*

*The B-BBEE and other Mandatory Documentation must be separate from the Proposal – PART 2: Pricing Proposal, B-BBEE and other Mandatory Documentation as indicated in the Call for Proposals.*

# Signatory

## Signature

I hereby confirm that the information provided in the proposal is accurate, and understand that the Mandela Mining Precinct is under no obligation to approve the proposal, should the management committee of the Mandela Mining Precinct conclude that the project does not meet the Mandela Mining Precinct mandate.

|  |  |
| --- | --- |
| Signature |  |
| Name: |  |
| Position: |  |
| Date: |  |
| Telephone number: |  |
| Email: |  |

# References

# Appendices