**APPENDIX #1 RESEARCH PROPOSAL FORM AND GUIDELINE**

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**MINING RESEARCH GRANT**

**“NAME OF RESEARCH PROJECT”**

**RESEARCH PROPOSAL**

**Funding parties: Oyu Tolgoi LLC and Rio Tinto Mongolia LLC**

**Name of School: ………………………………**

**Principle Investigator: .............................................. /surname, given name/**

*signature*

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| **CONTACT INFORMATION** | | |
| **Name of Principle Investigator:** |  |
| **Position:** |  |
| **Academic Title:** |  |
| **School affiliated to:** |  |
| **Tel:** |  |
| **E-mail:** |  |
| **Address:** |  |

**Ulaanbaatar**

**/Date of submission/**

**RESEARCH PROPOSAL FORM AND GUIDELINE**

**Standard grant proposal format and application requirements:**

[Please note that projects that do not meet the proposal requirements will be rejected]

**Font:** Arial Font

**Size:** 11

**Frame:** 2.5 cm on left side and 2.0 cm on all sides

**Line spacing:** 1.0

**Language:** The project will be submitted in English.

**Submission:** The research project should be submitted in electronic format in pdf format to [research@must.edu.mn](mailto:research@must.edu.mn) by Sept 26, 2022, along with an official letter supported by the affiliated school and department.

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| **А. SUMMARY OF RESEARCH PROJECT** | |
|  | **Name of research project** |
|  | **Type of research proposal**  (please check)**:**   * Basic research * Program targeted * Commissioned * Core technology * Technology experiment and piloting * Joint research with international institutions |
|  | **Which priority area/s stated in 5.1 of the MRG Operation Guide does it cover?** (Please check relevant area/s)**:**   * Area 1 * Area 2 * Area 3 * Area 4 * Area 5 |
|  | **Status of proposed project**  (Please check)**:**   * new * reapplying |
|  | **Scientific field**  (Please check it according to <https://www.shorturl.at/apsuK> page. 68-72)   * Natural sciences * Engineering and technology * Medical sciences * Life sciences * Social sciences * Arts * ................................................ (Please write it, if other) |
|  | **Total requested funding** (in Tugrugs): |
|  | **Duration of project**  (maximum duration up to 24 months):  ....... months |
|  | **Name of school and department**  School: .........................................................................................  Department: ..................................................................................................  (If professors from several schools and departments are involved, please put the major school first and other schools in an alphabetical order.) |
|  | **Project team:** Project team willselect the Principle Investigator. Please note that Principle Investigator must be a full time professor at MUST.  **Principle Investigator (PI):**   1. Surname, given name, title, school, department, and position:......   Research areas:................................... Tel:....................  e-mail: ............................. Register number:..........................  **Co-Investigator (CI):**  2. Surname, given name, title, country, school, department, and position :......  Research areas:................................... Tel:....................  e-mail: ............................. Citizenship:................. Passport number………….  **Members of project team:** (please note that there is no limit of the number of investigators)  3. Surname, given name, title, school:...............................  4. Surname, given name, graduate student, program, school:......................................... |
|  | **Project summary**  **А.** Write the summary of the research project understandable to non-professionals. (Write in the table below with a maximum of 400 words) |

**11. Plan on how to meet the requirements set forth in the Operation Guide:** How to meet the requirements specified in the Operation Guide for the implementation of the MRG, and list the evidence according to the table below.

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| **B. REQUIREMENTS FOR THE RESEARCH PROJECT** | |
| **Operation guide requirements** | **Applicant's plan**  (Write evidence and explanation of how to meet the requirements) |
| The research team must include Co-Investigator who is professors from foreign universities or research institutions, more than 2 full-time and part-time professors, researchers and staff of the Mongolian University of Science and Technology, and more than 1 graduate (master, doctor) student. |  |
| Professors and researchers from foreign universities and research institutes shall visit the Mongolian University of Science and Technology as visiting professors at least once during the project implementation period |  |
| One research team leader, one deputy leader, and one research team member will not participate in more than two projects of MRG; |  |
| There should be no breach of the rights and obligations of the Principle Investigator, Co-investigator, and members of the project contract previously covered by the MRG; |  |
| The proposed research project should choose a clear, relevant and appropriate research approach and methology in accordance with the announced priority areas; |  |
| It would be an advantage to be able to obtain intellectual property certification as a result of the project; |  |
| Authorize the financier and contractor to possess and use the outcomes of the research project; |  |
| The maximum amount of funding required for the project is $ 100,000 or its equivalent; |  |
| The implementation period of the research project should not exceed 24 months; |  |
| **Requirements for the research team** | |
| The number of members of the research team is not limited, and the members of the research team should be teachers, scientists, researchers, staff, graduate students, engineers and technicians from foreign and domestic universities and research institutions. |  |
| The team must include the following members:   * Assign full-time professors of foreign universities and research institutes as Co-Investigator; * In addition to the PI, more than 2 full-time and part-time faculty and staff members of the MUST should be involved; * More than 1 graduate student (master, doctor) of the Mongolian University of Science and Technology. |  |
| **Principle Investigator:**   * + - * To be a full-time professor, teacher and researcher of MUST;       * Hold a doctoral degree or higher;       * Holding professional license or expertise certificate in the given topic would be an advantage.       * Ability to prepare reports and presentations in English.   **Co-Investigator:**   * Be a full-time employee of a foreign university or research institution; * Hold a doctoral degree or higher; * The co-investigator's organization has a memorandum of understanding with the MUST; * Published a research paper on the proposed project in an international database (Web of Science and Scopus); * Co-investigator must agree to support Principle Investigator to work as co-investigator at MUST and visit MUST at least once during the project implementation period. |  |

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| **C. DETAILED PROJECT PROPOSAL** | |
| **12.** | **Rrationale and contribution of project**  (*When developing a detailed proposal for the project, please include the details specified in a and b below. Please note that the proposal does not necessarily have to be filled in this form. If it is written in the separate document to include text, graphics, tables, and pictures, please write in the order of this form specifying the numbers and names of sections)*  a.Define the intended problems to solve, the main solutions to the problem, the project outcomes, the practical impact on the industry, and the contribution to educational and professional development and knowledge creation (max 500 words)  b. Provide information about whether the project team has previously studied the proposed research area (if researched, please mention the outcomes of the research, prototypes, whether it has been secured by intellectual property rights, and it is not duplicated) |
| **13.** | **Project purpose and objectives**  Please state the purpose, objectives of the project.  (а) Project purpose (not exceeding one sentence)  (б) Project objectives (not exceeding 300 words) |
| **14.** | **Analysis of the current situation**  A. Provide information about the current situation in the society related to this project, the needs for the implementation of the project, and the conditions. Pictures, facts, and research can be attached to demonstrate the current situation. Carry out a SWOT analysis.  B. List the laboratory and main equipment available to carry out the research project. Describe the plan for how these laboratories and equipment will be provided. (maximum 400 words) |
| **15** | **Research work plan and methodology**   * Research work plan and methodology * A Gantt table showing a research work plan on a single page of A4. If necessary diagrams, pictures, and tables of up to two pages. * Bibliography (bibliography cited in sections in APA format) |
| **16.** | **Project outcomes**  **a.** Write the expected outcomes to be achieved by the project and how the outcomes will improve the current situation. The outcomes should be written in a clear, measurable, realistic, and timely manner. For example:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | № | Expected outcomes of project | number | indicator of outcomes | time | | 1 | .............. secure copyright | 1 | Copyright  certificate  awarded | 2023.06.01 |   **b.** Plan and write down the academic outcomes of the project.   * Academic papers(International ☐ number, national ☐ number) * Academic works (monograph ☐ number, textbook ☐ number, other ☐ number) * Patents (novel works ☐ number, prototype ☐ number, copyright certificate ☐ number) * Technology transfer (license contracts ☐ number, start-ups ☐ number) * Training researchers (masters students ☐ number, doctoral defence ☐ number) * Other (please write other works not stated above)   **c.** Project impacts (not exceeding one page of A4)  (Answer should include identifying research stakeholders and beneficiaries, how they will benefit, how to measure the effects other than academic impact, and what can be done to make the outcomes effective during and after the project)  **d.** Dissemination plan of project outcomes:Describe how project outcomes can be disseminated to production and services (a maximum of 800 words) |

**17. Activities and Financial Plans:** The schedule can be changed depending on the planned activities.

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| **Descriptions of research activities** | **Start and end time**  **(year & month)** | **Outcomes** | **Sum of required funding**  (in Tugrugs) |
| **1st Period** /2023. 50% of funding/ | | | |
| Activity 1: |  |  |  |
| Activity 2: |  |
| Activity 3: |  |
| **2nd period /**2024. 50% of funding/ | | | |
| Activity 4: |  |  |  |
| Activity 5: |  |
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| **18**. **Cost plan:** The total cost of the work to be performed by the project is planned by type of costs. There are no maximum cost requirements, and the financier is flexible considering the research outcomes. However, when planning a cost, the research team should allocate the highest possible costs to the research related activities other than salary.   |  |  | | --- | --- | | (1) Salary of investigators | ₮\_\_\_\_\_\_\_ | | Rationale: |  | | (2) Paid service costs (laboratory tests, reagents, information procurement, translation, intellectual property declaration, other paid services) | ₮\_\_\_\_\_\_\_ | | Rationale: |  | | (3) Expenses for participation in scientific conferences, seminars and exhibitions | ₮\_\_\_\_\_\_\_ | | Rationale: |  | | (4) Domestic and international travel expenses: on-road travel and travel costs for the study area | ₮\_\_\_\_\_\_\_ | | Rationale: |  | | (5) Cost of purchase, installation and maintenance of equipment and laboratory spare parts | ₮\_\_\_\_\_\_\_ | | Rationale: |  | | (6) Other expenses for publishing books and works and project stationery | ₮\_\_\_\_\_\_\_ | | Rationale: |  | | (7) University overhead fee (10% of the total budget) | ₮\_\_\_\_\_\_\_ | | Rationale: |  | | (8) Other deemed costs | ₮\_\_\_\_\_\_\_ | | Rationale: |  | | **Total cost** | ₮\_\_\_\_\_\_\_ |   **Planned funding schedule:**   |  |  |  |  | | --- | --- | --- | --- | | **Description** | **2023** | **2024** | **Total** | | Project funding | ₮\_\_\_\_\_\_\_ | ₮\_\_\_\_\_\_\_ | **₮\_\_\_\_\_\_\_** |   **19. Financial estimates:** (This section is completed if the study findings are anticipated to be transferred to mining operation. If the outcomes are considered not to be transferred to mining operation, this section can be left blank. If financial efficiency estimate is provided, common financial analysis tables and graphs can be used). A complete financial estimate is made, including sales assumptions for the product or service, the cost of introducing the product or service, the estimate of initial investment, the break-even point, and the analysis of how to recoup the investment. If necessary, assistance should be sought from economic and financial advisors. |

**20. Risks and solutions:** Describe the risks involved in the successful implementation of the project and how they can be mitigated.

**21. Project sustainability and impact:** Describe how the sustainability of the project will be ensured after the project is completed, how to instil the findings into operation, how to put intellectual property into circulation, and how to transfer technology.

**22. Responsibilities of research team members:**

**a.** Indicate whether specific responsibilities have been assigned among the principle investigator and co-investigator.

* The principle investigator and co-investigator shall indicate hours per week spent on the project in the grant proposal.
* Principle and co-investigators’ information on previous research and grant proposals:
* the names of all programs funded in the last 3 years and the research work performed;
* the names of all funded ongoing research. Determine whether the project was part of a funded project and how the completed or ongoing project differs from the proposed project (maximum 400 words).
* It confirms that the co-investigator stated in the research project proposal has agreed to serve as the project team member. Attached is a signed official letter about the role of the co-investigator and the agreement made between MUST and researcher's affiliated school.

**b.** Names of project team members, their duties and responsibilities are reflected in the table below.

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| **№** | **Name, surname** | **Roles and responsibilities** |
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**23.** **Obtaining research ethics:**

1. The proposal of the research project will make  / will not make  a person the object of research.
2. Fill in the '' box if the principle investigator needs the required ethical and safety guarantees. Or make sure these requirements are approved by the university. Prior to the deadline for applications, the confirmation must be obtained from the relevant principle investigator.

|  |  |  |  |
| --- | --- | --- | --- |
|  | No guarantee requested | Guarantee requested | Guaranteed |
| (1) Animal Research Ethics |  |  |  |
| (2) Biosafety |  |  |  |
| (3) Safety of ionizing radioactive substances |  |  |  |
| (4) Safety of non-ionizing radioactive substances |  |  |  |
| (5) Chemical safety |  |  |  |
| (6) The ethics of involving a person as a research object (non-clinical) |  |  |  |

**24. Plagiarism detection search in the proposal of this research project**

 done

 not done (explain the reason)

**25.** **CVs of the research team members:** Each participant of the project should submit CV according to the template below and submit it with his/her signature. One person's CV should not exceed 2 pages. If it is not fitted, please include relevant experience for the last 3 years.

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| --- | --- |
| **CV (template)** | |
| Name of researcher:  Project role:  Organization:  Qualification:  Date of birth:  Duration of employment in the current organization.  E-mail:  Tel: .......................................... | Photo |
| **EDUCATION** | |
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| **THESIS OF DOCTORAL DEGREE**: “.............................................................................................................................................................” | |
| **Summary of thesis**  .............................................................................................................................................................  .............................................................................................................................................................  .............................................................................................................................................................  .............................................................................................................................................................  ............................................................................................................................................................. | |
| **WORK EXPERIENCE** | |
| Work experience that are most relevant to this study. If it is a long list, please Include the last 5 years | |
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| **PUBLICATIONS AND LICENSES** | |
| Research papers that are most relevant to this study. If it is a long list, please Include the last 5 years | |
| * ............................................................................................................................................... * ............................................................................................................................................... * ............................................................................................................................................... | |
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| **PROJECTS** | |
| * ............................................................................................................................................... * ............................................................................................................................................... * ............................................................................................................................................... | |

**Confirmation:** This confirms that the above information accurately reflects my knowledge, skills, and experience.

............................................................ /FULL NAME/

*signature*

DATE (year, month, day)