CALL FOR WATER RESOURCES MODELLING HACKATHON

1. **Introduction**

Rwanda Water Resources Board (RWB) is inviting university students to participate in the 2025 water resources modeling and erosion control hackathon. The main objective of this competition is to promote innovative solutions for sustainable water use and management and enhance Biodiversity conservation in Rwanda.

2. **Participants**

The competition will be free to all undergraduate and master's students enrolled in universities, IPRCs and other high learning institutions in water resources, climate, urban planning and geography related programs for **Water Allocation Modeling** and Internet of things, software engineering, computer science and engineering, data science and programming for **erosion control**

3. **Hackathon**

a. **Water Allocation Modeling**: Participants will apply either hydrological or Water Evaluation and Planning System models (HEC-HMS, QSWAT or WEAP) to analyze and simulate water availability, distribution, and dynamics for sustainable water resource management for Mbirurume sub -catchment.

The competitors will use a set of data from the available data sources local or global datasets.

b. **Erosion Control**: Participants will extract and analyze radical terraces from satellite imagery using R or Python programming. This will involve leveraging geospatial techniques to identify and map terraces, demonstrating their role in controlling soil erosion, conserving water, and preserving biodiversity. RWB will make available the satellite image or LIDAR image for the analysis.

4. **Entry and pre-selection**

- The registration period to the competition is from 23th January to 2nd February 2025.

- Participants are required to submit a filled form available at www.rwb.rw together with a valid student card.

- Students who have been awarded in the first edition of the Water Modelling Hackathon 2024 are not allowed to apply

- The pre-selected students will be notified not later than 5th Feb,2025

5. Submission

a) Model Submission

The submission will include:

- PDF documents describing the sub catchment, data used, model parameterization, calibration, model results and Discussion.
- Zipped developed model with all its contents.

b) Erosion control

The submission will include

- Pdf document describing the steps followed, tools used, images used with their source and how it was processed, Maps and visualization of identified terraces.
- Scripts: provide a readable code (R or Python scripts used for analysis and mapping Well-commented and organized for clarity that can reproduce the analysis.
- A README file listing all required libraries, software versions, and installation instructions

Submissions will be done via RWB's official email, hackathon@rwb.rw, copy to info@arcosnewtork.org not later than 7th March 2025 at 17h00 Rwandan time and the first 14 performers (7 for each topic) will present their findings on 19th March 2025 to select winners to be awarded on world water Day .

6. Evaluation criteria

a) Water Allocation modelling

The evaluation of model and model report will be based on:

- Source and quality of data
- Model parameterization
- Model calibration
- Results interpretation and its use in water resources management

b) Erosion control

- code quality (organization, readability, and commenting of the code. Script reproducibility (can the code be executed without errors?).

- Methodology: Clear description and execution of the approach used to map terraces and Justification of methods and tools chosen.
- Accuracy of the results

7. Awards

The six best candidates will be awarded. The winners will be arranged by topic. For each topic, the first winner will be awarded one million Rwandan Francs (1,000,000 RWF), the second will be awarded Seven hundred and fifty thousand Rwandan Francs (750,000 RWF) and the third winner will be awarded five hundred thousand Rwandan Francs (500,000 RWF).