RIVER MONITORING TECHNOLOGY COMPETITION

WATER LEVEL · RAINFALL · TELEMETRY SENSOR CATEGORIES · SOIL MOISTURE · WATER QUALITY

WHAT ARE THE REQUIREMENTS?

01 Sensors that monitor the parameters, such as flow, velocity, water level, rainfall, soil moisture and/or water quality of the Mekong, are normally installed within their own stations and placed outdoors on riverbanks, often in agricultural areas. Competing teams need to design a station that is appropriate for its terrain, location, weather, and functions.

02 The sensors should be able to collect and send real-time telemetry data from the station to a server.

03 The sensors must be operable with solar power.

04 The water quality sensors should be able to monitor turbidity, pH, and oxygen.

05 Ideas from the Internet of Things (IoT) are encouraged.

HOW IS EACH PROJECT JUDGED?

01 Accuracy (25%): The sensor shows evidence of consistent test results.

02 Durability (25%): The sensors are designed in such a way that they can withstand harsh weather conditions.

03 Cost Effectiveness (25%): The sensor can be manufactured locally at an affordable cost.

04 Innovation (25%): The sensor is produced from a new and innovative concept, or further enhances existing sensor technologies.

WHAT ARE THE RULES?

- Competitors need to build and ensure their equipment works. A real-world test must be conducted and the results documented.
- Off-the-shelf or ready-made commercial technology cannot be purchased and modified; only electronics parts are allowed for assembly and construction. Teams will need to identify the cost and source of all individual parts, as well as submit a total production costing.
- Teams will need to submit a design document with the schematic design of the sensors.
- Teams will be required to update the MRC on the progress of their prototype development with short videos.

WHO ARE ELIGIBLE?

- Undergraduate and graduate students from selected universities are welcome to participate as individuals or in teams.
- Students may be from an engineering programme or any related field.
- Children of MRC employees are not eligible to participate.

TIMELINE

Date	Activity
05 October 2022	Competition is officially launched
10–31 October 2022	Roadshow to meet university professors, administrators and students. Registration will take place concurrently
03 November 2022	Team representatives travel to Bangkok to present their concepts to MRCS and receive feedback
08–17 November 2022	R&D funds are transferred to universities (USD 800)
09 January 2023	First video progress report is submitted
20 February 2023	Second video progress report is submitted
06 March 2023	Final prototype video is submitted
29–30 March 2023	Team representatives travel to Vientiane to present prototypes to main jury and winners are chosen
02 April 2023	Four winning teams present or display prototypes at the MRC International Conference
05 April 2023	Four winning teams present prototypes at the 4th MRC Summit

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WHY THIS COMPETITION?

More than 70 million people today rely on the Mekong River, partly or entirely, for their livelihoods, and its central role in sustaining the economies of the four Lower Basin countries is enormous.

But the Mekong's enduring role as a source of life and livelihoods is facing multiple threats. Historic low flow in recent years has created hardship for riverine communities, their livelihoods and ecosystems, thanks to the combination of climate change — namely, the extremes of flooding and drought — coupled with the increasing use of hydropower, which regulates the retention and release of water downstream. Such irregularities can also affect things like the movement of nourishing sediment and breeding of migratory fish.

At the same time, the Mekong River Commission has long relied on importing expensive, outdated technology from foreign partners that only monitored water flow manually — and just once a month. When there were sudden changes in water flow, there was little timely warning for the riverine communities downstream and upstream.

Though the MRC is now modernizing the system, by installing new monitoring stations and experimenting with technology that automatically measures water flow every 15 minutes, we seek an effective, cost efficient and sustainable technology. Ideally, a solution that's homegrown.

Now it's time for us to rethink our sustainability, as the private sector does, to bolster our competitive advantage. Especially, to encourage the younger generation to step up and share responsibility for safeguarding a river that's the lifeblood for millions of fishing and farming families.

That's why, the MRC is inviting university students to prove that the technology used to measure the Mekong can be developed and produced right here on local soil.

WHAT IS THE COMPETITION ALL ABOUT?

Over a dozen eligible universities throughout Cambodia, Lao PDR, Thailand, and Viet Nam will each form a team made up of their best and brightest technology students. Working together to analyze the problems of existing monitoring tools and come up with new approaches to measuring the Mekong, the teams will conceive of, and produce, innovative technology that will compete against the ideas of other regional teams.

Between October and March, teams will develop prototypes with technical and financial support of the MRC. Team representatives will travel on all-expense-paid trips to Bangkok and Vientiane to pitch their projects.

In the end, four winning teams will receive prizes of USD 5,000 each, an opportunity to present their ideas to the four Lower Mekong prime ministers and other dignitaries at the 4th MRC Summit and its International Conference, and the chance for high-level exposure among the world's experts in water resource management.

HOW DOES IT WORK?

1. Once the competition is launched in October, the MRC Secretariat team will travel to various universities to promote the competition.
2. Universities decide in which sensor category their students will compete, alongside the MRC.
3. Universities and students identify the members of their teams, including a professor in an advisory role.
4. Teams develop their concepts and can request technical support from the MRC during the process.
5. Teams submit an official registration form, which includes a basic explanation of their concept.
6. Team representatives (two students plus their advisor) travel to Bangkok for a pitch session with the MRC Secretariat and will be given feedback on how to improve upon their ideas.
7. Teams receive USD 800 to further develop their projects and create a prototype.
8. Teams submit short videos to update on the progress of their development.
9. Team representatives (two students plus their advisor) travel to Vientiane and demonstrate their concepts to the main jury. The four winning teams (one team per category) are decided by the jury and announced, each receiving USD 5,000.
10. The four winning teams present their concepts again at the MRC International Conference and the 4th MRC Summit in front of regional heads of state and other dignitaries.
11. The MRC will install the winning teams' technology on Mekong riverbanks alongside existing stations in order to prove their efficacy.

TELEMETRY SENSOR CATEGORIES