

# Team patents system for building inflatable hydraulic dams, easy to assemble and disassemble

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Above image: This shows the three inventors of the University of Granada. From left to right, Fernando Delgado Ramos, Jose Antonio Moreno Perez and Manuel Nuñez de Castro, with the river Castril behind. Credit: University of Granada

Researchers from the University of Granada have patented a new

system, based on placing modules as the foundations for building cheaper, inflatable hydraulic dams, which can be assembled and dismantled very easily.

This technique, which is the first of its kind in the world, enables a hydraulic [dam](#) to be assembled and dismantled in a question of hours, with no specialized machinery required and minimizing [environmental damage](#), since it does away with the awkward job of installing a solid cement floor. Furthermore, it is reusable.

The [invention](#), patented through the University of Granada Office for the Transfer of Research Results (OTRI), can be installed in sections of river that are difficult to reach and be easily transported to emergency zones or [developing countries](#).

## Concrete blocks

The system is one of modular foundations, made up of cuboid blocks, manufactured using a material that is both resistant and heavier than water, preferably concrete, placed on a base on which, using elements that run through the aforementioned blocks, the inflatable part of the dam that holds the water back.

"With this set-up, we manage to create a horizontal support for the pneumatic element, as well as obtaining an anchorage that is more resistant to the force of the [water flow](#)", explains the university lecturer from the University of Granada Department of Structures Mechanics and Hydraulic Engineering, Fernando Delgado Ramos, one of the authors of this patent.

The prefabricated elements the dam is built from "are of a lower weight and size, and can be transported in 4x4s, small trucks, or even in containers that can be carried by [helicopters](#)", which means that they can

be put in place quickly and easily. In addition to this, the installation process has practically no effect on the environment of the place of location.

The University of Granada researchers point out that, currently, "there is no other foundation system that has the same technical, structural or overall characteristics similar to those of this invention".

As well as Delgado Ramos, this patent has also been developed by the University of Granada lecturers, Jose Antonio Moreno Perez and Manuel Nuñez de Castro Martin.

Provided by University of Granada

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