

RECOVERING POLLUTED WETLANDS IN PERU USING NANOTECHNOLOGIES

An innovative initiative calling the attention of the specialized Latin American press is the [cleansing of a polluted wetland in Peru](#) thanks to nanotechnologies and citizens' participation.

Thanks to this initiative in 2014 the Peruvian scientist Marino Morikawa earned the *Medalla de la Orden al Mérito a la Investigación e Innovación Tecnológica* granted by the National Council of Science, Technology and Innovation (CONCYTEC), for being one of the three best scientists of Peru.

The project began in 2011 with the decision of the scientist Morikawa to experiment a complex system to recover El Cascajo wetland by using his own resources, know-how and the support of the community. This wetland, located in the Huaral Province, had such a dramatic level of pollution that local authorities had planned to cover it.

Beside de pollution of the waters, caused by nearby settlements, the stinky wetland had been covered by invasive aquatic weed, the *Pistia stratiotes* known as *water lettuce*, which had dislodged the flora, as well as the birds and fish that inhabited the wetland.

Based on the knowledge acquired at Japan's Tsukuba University, Morikawa designed a complex system combining a cleaning/filtering action to contrast invasive aquatic plants, nanotechnologies and ecological systems made by using local materials, to purify the water in a more cost-efficient and rapid way compared to current options in the market.

The first phase of the work, which was carried out with the participation of local inhabitants, consisted in cleaning the wetland of invasive plants. In cooperation with the Municipality 290 tons of water lettuce removed from the wetland have been used as organic compost to recover arid and desert areas for agriculture.

To order to clean it from the aquatic weeds, the wetland was divided in 8 sectors using pieces of bamboo. This structure was used as a physical barrier to detain aquatic plants from invading the waters that were cleansed.

The most technological phase of the project consisted in the implementation of a system developed by Morikawa in Japan which articulates the technique of Nano-bubbling with biological filters. The Nanotechnology device pumps the micro bubbles towards the surface. On their way to the



surface they trap bacteria, metals and other contaminants until they evaporate and the bio-filters reduce the pollutant load by their property of adsorption

Features of the technological aspects of this system are not disclosed and a great debate among the specialists of water purifications is worldwide underway. Nevertheless results can be observed by every visitor of the territory, as many species of migratory birds and fish returned to inhabit the wetland.

In 2014 Morikawa and other partners founded in Peru the company NanoPlus7 to apply the technology to other interested territories of the country. According to the founding members it is possible to decontaminate up to 70% of the natural habitats of the country using more than 20 systems which the company can dispose without using any chemical components.

Projects are being planned by Morikawa with the participations of local administrations and actors to decontaminate the Alalay Lagoon, the Titicaca Lake, the Chira River and other polluted waters of Peru by the use of nanotechnologies.

To know more

[El Cascajo wetland in Facebook](#)

[Article in etiquetanegra.com.pe](#)

[Article in actualidad.rt.com](#)

[Article in ciencia.utero.pe](#)

[Article in ecoinventos.com](#)

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