

PRESERVING GROUNDWATER BY FLOODING PADDY FIELDS IN JAPANESE KUMAMOTO REGION

By Kim Assaël

In 2013, Kumamoto City (Japan) was awarded the [Grand Prize for Best Water Management Practices](#) at the *UN's Water for Life Award Ceremony* held in Holland. Kumamoto City was the first applicant from Japan to be granted the award.

The city has been implementing a rice paddy flooding project, and garnered acclaim particularly for its inter-municipality cooperation aimed at preserving regional groundwater. The Award recognized the Kumamoto's long history of watershed forest preservation work and the *Kumamoto Groundwater Foundation* efforts to work for the region's groundwater protection.

Japan is a wet country but over-use of groundwater is occurring even there and some Japanese municipalities have been actively conserving water resources during the last few years with the establishment of relevant municipal ordinances.

The Kumamoto territory is home of the richest groundwater in Japan, but the Kumamoto city groundwater levels have declined in recent years due to the decreased number of wet rice paddies under cultivation. The amount of groundwater recharge in the Kumamoto district, which is an alluvial low land, easy to permeate, is 640 million tons a year, and one third of this amount comes from rice paddies. Rice paddies along the midstream of the Shirakawa River in particular provide 5 to 10 times more water than rice paddies in other areas.

However, the number of rice paddies functioning as part of the recharge system had decreased because the Japanese farmers have been encouraged to produce dry crops other than rice in their paddy fields to ease the fall of prices. These fields are known as *converted paddy fields*. Thus, the area of wet rice fields being planted was declining from 15,000 hectares in 1990 to 10,000 hectares in 2011.

Although the relevant ordinances established by the Kumamoto Prefecture and Municipality to decrease the volume of groundwater pumped by the different local actors, the amount of available water was continuing to sink and investigations showed that a groundwater recharge project was urgently needed.

Working cooperatively with local farmers, environmental NGOs and agricultural organizations, the project sought farmers who would cooperate by introducing water from the river into their



paddy fields during the off season so as to recharge the groundwater. The project foresees the use of abandoned paddies and protected watershed forests, also providing subsidies to encourage farmers to flood their *converted paddy fields* with water from the Shirakawa River every day, for one to three months, between May and October. Farmers may flood their fields after harvesting and before planting and growing crops. The amount of subsidies depends on the length of flooding periods.

Flooding is effective not only to recharge groundwater levels, but also to limit negative effects of weeds, insects, diseases, and continuous cropping troubles. Moreover, flooding helps to reduce the use of agricultural chemicals, prevents groundwater pollution and reduces financial costs by eliminating replanting failures. As a result citizens can also drink "mineral water from the tap".

Meanwhile, a movement to sell rice grown in these paddies as brand-name rice has actively shown that through the purchase of such local products, consumers can support the project contributing to maintaining groundwater resources. By eating this rice, local people can protect agriculture as well as groundwater.

In 2013, the Kumamoto city won the United Nations' Water Best Practices Award, "Water for Life," in recognition of its model efforts to utilize paddy fields to maintain water supplies in cooperation with various organizations. Kumamoto City's efforts to build this social mechanism earned them the award for having raised citizen's awareness, maintained and protected watershed forests, flooded in the converted paddy fields, also establishing a brand for agricultural products with a high ecologic value.

To know more

[Water best practices award](#)

[Article in Biodic.go.jp](#)

[Article in Gelk.info](#)

[Article in Waterworld.com](#)

[Article in Japanfs.org](#)

[Article in Ecology.com](#)

