



## Restoring agricultural wetlands benefits both farmers and geese

**Author:** Hiroshi Nishimiya

**Short title:** Flooding rice paddies for migrating birds, Japan

**Key Message:** The Kabukuri-numa wetlands have been restored as agricultural wetlands and the goose population has increased because of paddy field flooding in the winter.

**Suggested citation:** TEEBcase by Hiroshi Nishimiya (2010) Flooding rice paddies for migrating birds, Japan, available at: [TEEBweb.org](http://TEEBweb.org).



Picture 1: Geese in Kabukuri-numa  
Courtesy: Kiichiro Hayashi

### What is the problem?

Since the beginning of the 20<sup>th</sup> century, most Japanese wetlands have been converted to rice paddies (Kurechi, 2010). Historically, this change involved converting wetlands to wet paddy farms. However, over time, dry paddies have gradually become the norm – due to the influence of new civil engineering technologies. Recently, however, restoration of wetland habitat through wet-paddy rice farming is occurring. In the Kabukuri-numa wetland and surrounding paddies in the Miyagi prefecture in the northern part of the country, 423ha of paddies have been registered as protected wetlands under the Ramsar Convention in 2005.

Modern rice production methods that keep rice paddies dry during winter (in pursuit of higher productivity and efficiency), seriously impact many wetland-dependent species (Kurechi, 2010).<sup>1</sup> Restoration, therefore, involves flooding rice paddies during winter. In this particular

<sup>1</sup> Also, information provided by personal communication with Osaki City at the site visit in Nov. 2009.

case, both the rice paddies and the wetlands were registered under the Ramsar convention, demonstrating that both the wetlands and wet paddy farms provide wetland habitat.<sup>2</sup>

### **Which ecosystem services were examined? And how?**

According to Osaki City<sup>3</sup>, restoration is not intended to restore wetlands to some previous “natural” state, but rather to restore the wetland function of these areas through winter-flooding. These changes in practice demonstrate that agricultural systems can work in tandem with non-agricultural systems. Through appropriate land management and rice paddy practices, rice paddies once again become habitat for migrating birds. Currently, around 100,000 geese come every winter – as well as other birds.<sup>4</sup> In fact, the number of geese that use the Kabukuri-numa wetlands for roosting has tripled since 1999 (Kurechi, 2007).

### **What policy uptake resulted from examining the ecosystem services?**

Changes in agricultural practice has also opened the door for the production of a premium brand of rice: Fuyumizu-tanbo-mai (winter-flooded paddy rice). At present, costs to the farmer for producing this brand are still somewhat high. For this reason, farmers are compensated with subsidies.

Since 2009<sup>5</sup>, farmers who convert to pesticide and chemical fertilizer free winter-flooded paddies by the “fuyu-mizu-tambo” method, are offered local development grants of 8,000 JYen/1,000m<sup>2</sup>.<sup>6</sup> Osaki City also offers a grant of 5,000 JYen/1,000m<sup>2</sup> to assist with the acquisition of required third-party certificates for non-use of pesticides and chemical fertilizers, and also for winter-flooding of rice fields. There are two other grant categories: a grant for an Action Plan for Improvements in Farmland and a grant for Water and Environmental Conservation. These grants entitle farmers to 4,400 JYen/1,000m<sup>2</sup> for cooperative work and 6,000/1,000m<sup>2</sup> for winter-flooding and non-tilling.

Rice production dropped from 540kg/1,000m<sup>2</sup> to 420kg/1,000m<sup>2</sup> after the introduction of the new scheme. This is largely due to the fact that the change in practices involves planting smaller bunches of seedlings in order to grow disease-resistant crops (MAFF, 2007).<sup>7</sup> While the scale of production has decreased, however, sludge worms (that create a slimy fecal layer as a result of putting rice bran and crushed soya into the fields) inhibit weed growth.

Fuyumizu-tanbo-mai is sold at a premium price of 23,000-24,000 JYen, compared to approximately for conventionally grown rice (MAFF, 2007).<sup>8</sup> Rice products, including Japanese rice wine, are also sold as luxuries.

According to Osaki City<sup>9</sup>, farmers previously believed migrating birds might inhibit rice production, but they have changed their minds. In fact, as it turns out, the birds are an asset to human agricultural activity. For this reason, farmers are now increasing the number of winter-flooded rice paddies.

---

<sup>2</sup> Information provided by personal communication with Mr. Shigeki IWABUCHI at the site visit in Nov 2009.

<sup>3</sup> Information from Osaki City at the TEEB-D2 Nagoya Workshop in Nagoya, Japan in May 2010.

<sup>4</sup> Information provided from Osaki City at the above TEEB-D2 Workshop.

<sup>5</sup> Information provided by personal communication with Osaki City at the site visit in Nov. 2009

<sup>6</sup> Exchange rate was as of 2 Sep 2010; 1US\$=84.1874JPY

<sup>7</sup> Confirmed by Osaki City through personal communications with Osaki City via email in August, 2010.

<sup>8</sup> Confirmed by Osaki City through personal communications with Osaki City via email in August, 2010.

<sup>9</sup> Information from Osaki City at the TEEB-D2 Nagoya Workshop in Nagoya, Japan in 20 May 2010.

**Acknowledgements:**

The author would like to thank Osaki City, Mr. Masayuki Kurechi, Mr. Shigeki IWABUCHI, Prof. Kiichiro Hayashi and many others for their valuable inputs for finalizing the paper.

**References:**

Kurechi, M(2007)Restoring Rice Paddy Wetland Environment and the Local Sustainable Society -Project for Achieving Co-existence of Rice Paddy Agriculture with Waterbirds at Kabukuri-numa, Miyagi Prefecture, Japan, *Global Environmental Research*, Association of International Research Initiatives for Environmental Studies, Vol11 No.2, p.141-152

Kurechi, M.(2010) Winter-flooded Rice Paddy as a Wise Use of Wetlands. *Environmental Research Quarterly*, June/2010, No.157 (in Japanese)

Ministry of Agriculture, Forestry and Fisheries(MAFF) (2007) Guidebook for Agricultural Production Infrastructure Technologies for the Promotion of Environment-Friendly Agriculture, p.154-159 (in Japanese only)