

Why Should We Use Winter-flooded Rice Farming?

Migratory birds leave their feces in rice paddies. Rice straw and stubble are decomposed by fungi and tubificidae in winter to form a natural compost and nutrient source for algae, such as filamentous green algae, in the spring.

Projects have started to make the most of these natural organisms, as a means of replacing conventional farming dependency on pesticides, herbicides and chemical fertilizers.

Rice from winter-flooded paddies is also in high demand for the table.

Winter-flooded rice paddies also contributes to the natural restoration of *satoyama* by enhancing biodiversity, water purification and recharging ground water.

◆ Environment (multi-function of the rice paddy = external economy)

- Recovering wetlands rich in organisms
- Enhancing biodiversity (including birds, insects, and aquatic organisms)
- Feeding and/or roosting sites for geese, ducks, swans, shorebirds and other fowls.
- Groundwater re-charging
- Water purification
- Oxygen from algae

環境

農業

Expected Benefits of Winter-flooded Rice Farming



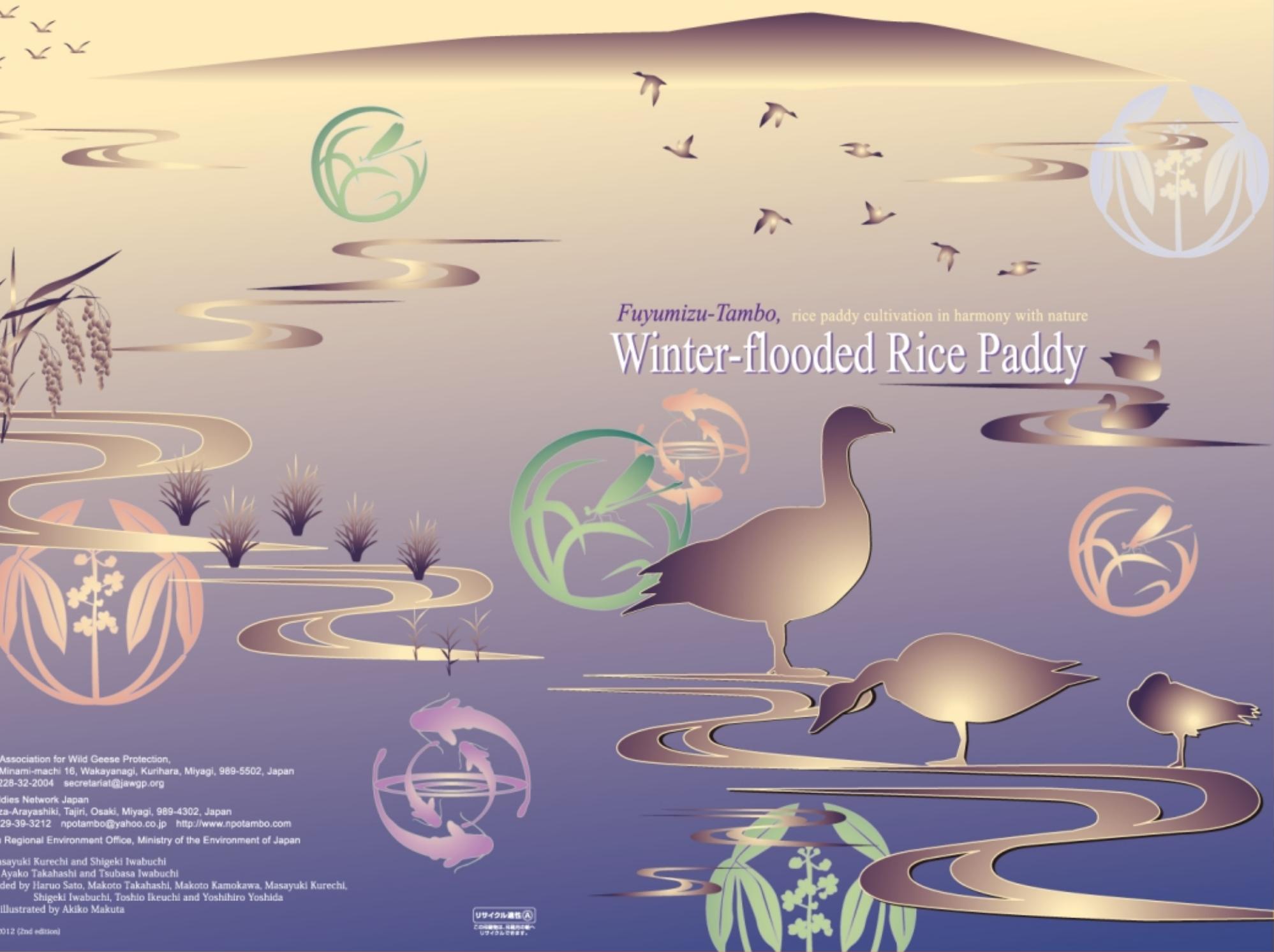
• City Government Support of Winter-flooded Rice Farming in Tajiri, Osaki (Miyagi Prefecture)

Farmers and others in Tajiri, Osaki, discussed the promotion of rice paddies that provide additional resting sites for more than a hundred thousand of White-fronted Geese overwintering in the Kabukuri-numa wetland. This wetland supports various organisms including fish, frogs and worms. In 2004 the city government, and later the national government, began financial supports for environmentally friendly farming based on winter-flooded rice paddies that do not use pesticides, herbicides and chemical fertilizers.



▲ Winter-flooded Rice Paddy in Tajiri, Osaki

Winter-flooded Rice Paddies Enrich Soil and Nurture Organisms



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Winter-flooded Rice Paddy - Rice Paddy Filled with Water during Winter

Winter-flooded rice farming has been practice in Japan since the Edo period (1603-1868)

Winter-flooded rice farming is both a traditional and innovative agricultural technique. The word *Tafuyumizu* first appears in an agricultural manual, *Aizu Nousho*, published in 1684.

This is an agricultural method that the author, Yojemon Sase, tried himself. In the manual he explains that it is a good idea to flood a rice paddy during winter whether it be located in the mountains or the plain.

The advice suggests that he was aware that winter flooding increased productivity by encouraging growth of organisms including fungi, tubificidae worms and chironomidae.

Winter-flooded rice farming has now been re-introduced as a way to promote harmony between farming and nature.

Rice fields in winter
Organisms accumulated in the dry ground
Fermenting good soil
(Yojemon Sase)

Snow-blown petals of flower
Birds and the wind
Waves over a pool of rice
Like the water surface
(Sigeaki Iwabuchi)

Wild Geese, Swans, Cranes and Storks,
and Their Connection to Winter-flooded Rice Paddies

Besides being an innovative agricultural method, winter-flooded rice paddies are also important for many wintering waterbirds, including migratory geese, swans and cranes, that use them for roosting and feeding. Ibis and storks also use them as feeding sites. There are now many projects to restore damaged or extinct species such as the Japanese Crested Ibis, the Oriental White Stork and other species, depending on rice paddies.

► Japanese Crested Ibis (Sado City, Niigata Prefecture)



▲ Winter-flooded rice paddies in Spain



► White-fronted Geese and Whooper Swans (Tajiri, Iwate City, Miyagi Prefecture)



► Whooper Cranes (Umita City, Saitama Prefecture)