Kabukuri Wetlands and the surrounding rice paddies on the Osaki plains of Miyagi prefecture Tohoku Japan is an example of local community members' collective efforts to restore wetland ecosystems and increase biodiversity of both the natural floodplain wetlands and the rice paddies – human-made wetlands, surrounding the natural wetland by promoting environmentally-sound agricultural practices.

An example of wetland restoration and win-win solutions for human and wild-life food security, this initiative is a pioneer of PES in agriculture in Japan.

It has led eco-labeling, forged innovative partnerships with the private sector and NPOs, and has led new policy initiatives both in the community and on a national level.

Kabukuri Weltands Win-Win Solutions for Conservation and Development Osaki City, Miyagi, Japan

Overview

The Kabukuri Wetlands and Winter-flooded paddies, initiated in 1996 as a result of growing concern among migratory bird conservationists about the shrinking wetlands in Miyagi prefecture. Joined by local farmers, this core group worked to convince local policy makers of the need for an initiative to not only preserve Kabukuri Wetlands acreage but increase winter feeding grounds for migratory birds by working with farmers to restore surrounding rice paddies into semi-natural man-made wetlands during the non-farming winter months. And thus, the initiative was born on this historic Osaki plain of Miyagi prefecture, 30 km from the Pacific Ocean in what is referred to as Tohoku (northeastern) Japan.

Although this initiative contributes to supplying, regulatory, cultural an provisional ecosystem services, habitat provision for wildlife (regulatory service) and provisions of new social networks among the multiple actors, recreational activities such as eco-tourism and/or experiential agri-tourism activities and educational services that include biological surveys of the winter-flooded rice paddies among the local children and consumer groups from urban centers stand out as ecosystem services of note with this initiative.

Figure 1. Schematic representation of the key players

Parallel to these local movements, national policy efforts to address environment and agriculture have also developed, partly in response to local initiatives, but also multilateral environmental agreements such as the Ramsar Convention, the Convention on Biological Diversity and FAO Globally Important Agricultural Heritage Systems (GIAHS) Project.

Figure 2. Satoyama Satoumi of Noto Photo: Anne McDonald
Figure 3. Kabukuri Wetlands, (photo: Osaki City) and their location

Background

Driven by development and human food security needs, approximately 60% of the wetlands in Japan were degraded during the 20th C, floodplain wetlands being the most affected. In Miyagi prefecture, an area with large floodplains, 92% of wetland ecosystems were lost, the largest in any prefecture in Japan. Technological advancements and agricultural policies aimed at increasing agricultural productivity and efficiency in the latter part of the 20th C further degraded the reclaimed wet paddies which had provided minimal wetland-like functions such as serving as a semi-natural wetland habitat for wetland dependent wildlife, specifically migratory birds, by further converting the wet paddies into dry-fields for non-rice crops and re-engineering the drainage system of rice paddies.

Increased awareness in Japan of the interdependence of agriculture and the environment have led policy makers to question the long term viability of intensive conventional agricultural practices and assess its aggregate impacts on the natural environment, local landscapes and their communities. Further, there is discernable growing awareness among policy makers that sustainable agriculture and food security solutions will need to be developed locally, ensuring place specific environmental, socio-economic and cultural relevance.

Since the mid-1990s, policy responses to environmental degradation in agriculture have grown not only at the national level, but also local levels in Japan. Degradation of ecosystem services in rural communities driven by depopulation, aging and under-management of natural resources have called attention to the need to develop comprehensive rural revitalization policies that address agri-environmental issues under the umbrella of sustainable community development. In 1994 the Japanese Ministry of Agriculture, Forestry and Fisheries established a national committee for the promotion of environmentally-sound agricultural practices. Developing guidelines for environmentally-sound agriculture and disseminating the guidelines through town meetings and study sessions held in farming communities with the cooperation of JA famers cooperative around the country on a regular strategic basis between 1994 and 1999 act as the backdrop to this initiative.

1996 marks the beginning of this initiative. Traditionally interest groups of conflict, conservationists and farmers joined forces to oppose plans by the government to dredge Kabukuri wetlands. The conservationists argued that migratory geese were critical to the future sustainability of agriculture. Sensitive to environmental change, it was argued that the winter feeding grounds for 80% of the migratory geese from the north-eastern region of the Asian continent, were a barometer not only of healthy wetlands but healthy rice paddies. Increased awareness about the negative impacts of conventional agricultural practices was growing among farmers helped facilitate this new partnership. Another potential motivator for farmers was declining domestic rice prices and the realization among farmers that in an increasingly competitive market, adding value to one's product was a way to gain a competitive advantage over other producers. Thus, some farmers saw a new way forward by adopting environmentally-sound agricultural practices.

A new partnership gradually grew to include farmers, bird and other conservationist groups, researchers, local government officials among other local actors to restore the wetland value of the rice paddies by flooding the paddies surrounding the 150 ha Kabukuri Wetlands to provide increased biologically-diverse agricultural wetlands. This led to the official designation in 2005 of the Kabukuri Wetlands and the surrounding rice paddies totaling 423 ha as a wetland protected under the Ramsar Convention.

The Kabukuri Wetlands and Winter-flooded Rice Paddy Project is an example of community-based activities driven dually by local needs and in response to global movements. Ramsar Convention designation was critical in bringing together conservationists, farmers and policy makers, and has also been indispensible in building and maintaining activities in Osaki city.

Investing in Environmental Services

The providers
Re-evaluation of the trade-offs of wetland conversion is gradually changing the eco-agricultural landscapes and agro-environmental schemes in Miyagi. Increased understanding of both the non-monetary services of wetlands and their economic value has catalyzed change.

When the initiative first started up in 1996, farmers with rice paddies surrounding Kabukuri Wetlands who were willing to reduce chemical fertilizers and pesticides and qualify for eco-farmer certification – established by the guidelines developed by the national committee for the promotion of environmentally sound agricultural practices, the national government (MAFF) and the Japanese Agricultural Standards Association (JAS), and carry out biological surveys of their rice paddies were eligible for financial support. Initially, farmers received the following financial support from the local municipal government to adopt practices that contributed to **restoration and continued management and conservation of rice paddies as substitute habitats of floodplain wetlands:**

-conversion of paddies to pesticide and chemical free winter-flooded rice paddies (8,000 JPY per 1000m^2)
-post-harvest winter flooding and non-tilling (6,000 JPY per 1000m^2),
-obligatory third-party certificate for organic farming (5,000 JPY per 1000m^2, currently 30,000JPY per farmer),
-action plan developed by local stakeholders which provides monies for collective work among farmers for improvements in farmland as well as efforts to improve water and environmental conservation (4,4000 JPY per 1000m^2).

Payments to farmers involved in this project has changed in recent years. The bottom-up approach from Osaki and other pro-active rural communities has now been met by national government initiatives to support farmers and their communities throughout the archipelago. In 2011, Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF) established a 5 year national program of direct payments to support environmentally-sound farming which includes payment to both individual farmers and community-based farm groups who employ organic farming methods, winter-flooded rice paddy methods and/or grow cover crops. Thus, MAFF now covers 50% of total payments to farmers.

The beneficiaries of ES
The financial foundations have come mainly from locally initiated municipal **government subsidies from Osaki City** supporting these farmers with grants to help offset the reduction in yields as a result of the changes in agricultural practices, and the adoption costs of improved practices. Under the newly established national government support measures, 50% of the monies paid out to farmers come from the national government.

A local sake brewery, Ichinokura Sake Company, now purchases rice made by the winter-flooded rice paddies, paying a premium to farmers to produce a limited edition sake sold under the label Winter-flooded Rice Paddy Sake.

Local NPO Tambo received funding from Osaki City to work with farmers to develop monitoring standards and carry out the biological surveys. As the project has matured, NPO Tambo has taken on new roles, for example as mediator and coordinator among local, national and international NPOs involved in environmental education, eco-tourism, and wildlife conservation activities. Working closely with the local schools, NPO Tambo has also been instrumental in developing experiential learning through participation in biological surveys in collaboration with farmers.

Figure 4,5,6: Osaki City Winter-flooded Rice Paddy, migratory birds and Kaburki Wetlands Photo: Masayuki Kurechi
Figure 7: Ichinokura Limited Edition Winter-flooded Rice Paddy Sake
Photo: Ichinokura Sake Company

Figure 8. Kabukurinuma winter-flooded rice label
Figure .: Sado Japanese crested ibis rice label
Figure 10. Toyooka city label
For more information and examples of national JAS label and prefecture government labels: www.ecofarm-net.jp

Investing in ES: turning experience into replication

A similar initiative in Sado Island, Niigata, a remote island on the northwest coast of Honshu Island in the Japan Sea, networks among farming communities in Japan is adding strength and momentum to PES related initiatives from the field to the national level. Networking and information sharing about alternative agricultural methods that contribute s to wildlife conservation Not only do the political leaders have close contact, but regular meetings between community leaders, farmers and researchers such as Dr. Izumi Washitani from Tokyo University whose research contributes to the scientific findings of the work being doing in the field, have been key in moving the PES agenda forward not only in these three cities, but nationally.

In Miyagi, migratory birds are the flagship species used to capture consumers and civil societies attention and support. Developing labels with visuals – colorful illustrations or photographs, which capture the eco-icons, has proven to be an effective marketing tool. To add to product reliability and traceability of farming methods, individual farmers and community-based farmer cooperatives apply for certification to use labels developed by prefectural governments and/or the Japanese Agricultural Standards Association JAS. For example, in Miyagi prefecture, there are 4 colour-coded labels which inform consumers about agricultural methods; specifically amounts of chemical fertilizer and pesticides.

Proving to be powerful tools in marketing and consumer consciousness-raising, Sado has taken eco-icon power to a new level. In the case of Sado Island, toki, the Japanese crested ibis – a once extinct bird, re-introduced to the wild in 2007 – has become a national eco-icon and multifaceted symbol. It symbolizes loss of a species and human-induced biodiversity loss and habitat degradation driven by industrialization, socio-economic change and conventional agricultural practices, but also species regeneration and habitat restoration by incorporating agri-environmental schemes.

Learning from the initiative in Osaki city, in 2008 the local Sado government initiated eco-labeling to ensure higher profits for rice. As an incentive to farmers the local government offered subsidies of 27,000 JPY per 1000m^2 to promote post-harvest winter flooding of paddies and no-tilling farming as well as compensate for lost profits due to reduced yields.

Working to promote diffusion of a certified environmentally sound agricultural system, referred to as the program for certified Japanese crested ibis brand rice, after lengthy discussions with farmers, the local government of Sado developed a certification systems based on the following requirements:

(1) implement agricultural practices that nurture and conserve biodiversity through restoring ecosystems and increasing populations of small organisms on agricultural lands, such as frogs and loaches, that serve as prey species for the Japanese crested ibis;
(2) reduce by at least 50% pesticides and chemical fertilizer inputs;
(3) recipients must be certified as eco-farmers by the government of Niigata Prefecture; and
(4) biological field surveys must be conducted twice a year on all rice paddies producing rice sold using the Japanese crested ibis brand label.

Osaki and Sado have also be joined by Toyooka city and are often referred to in agricultural circles as the three sister cities. Initially it was informal interaction among farmers in the three cities who were interested in alternative agriculture and sharing information about agricultural methods aimed at wildlife conservation and ecosystem-based approaches to resource management. Through these sessions, researchers and gradually local government officials became involved. Collaborative field-based research activities, co-organized about sustainable agriculture, eco-tourism, education for sustainable development, among other topics related to sustainable rural futures and interaction among government officials and political leaders in the communities are landmarks of the three city network.

Achievements

Since the grant scheme was introduced in 1999, migratory geese roosting in Kabukuri wetlands and the surrounding rice paddies has increased threefold. Monitoring of migratory birds by researchers and farmers has resulted in an accumulation of data from the field. This data collection which are testimony to the tangible impacts/benefits of this initiative has helped facilitate the rationalization of continued support from the city and more recently support from the national government.

In June 2012, one year after Sado was designated as an FAO GIAHS site, farmers and local government officials looked on as 3 chicks were hatched in the wild for the first time in 36 years. Since then, discussions about eco-labeling have been taken to a new level as the local government has begun to propose a more detailed labeling on rice packages that informs consumers about the agricultural methods applied but also includes a list of flora and fauna recorded in the mandatory biological field surveys. **Sado may yet forge a new era in eco-labeling in Japan.**

Designing incentives for farmers and working to change their consciousness about the relationship between agricultural practices and the natural environment are definite landmarks in this initiative.

Annual yields did drop as a result of changes in agricultural practices, successful branding of the winter-flooded rice paddies rice as a premium rice has resulted in higher profits per kilogram for farmers. Designated as a pilot model site for eco-tourism in Japan, visitors to observe the migratory birds morning and evening flights from and to the winter-flooded rice paddies in from late October to early February. This has contributed to farmers incomes during what were traditionally non-farming income months. Farmer restaurants and inn promoting agri-tourism in Osaki have grown.

Although farmers talk about yields and production capacity, they have a raised awareness about the interdependence of ecosystem services and agricultural practices. One testimony to the changes in attitudes and behaviors is that according to the Osaki city office, over the last 3 years (2009-2012) there were no application for payments to farmers for damaged agricultural lands and/or reduction in agricultural yields due to the migratory birds.

Governments are often criticized for not being innovative nor responsive to the needs of farmers in a timely manner. Taking on responsibility for developing an easily recognizable eco-label that conveys eco-friendly biodiversity conservation and taps into the emotional mindsets of consumers as the return of the Japanese crested ibis to the wild is a powerful marketing message manifest in the eco-label, the local government has also worked with farmers to sell the certified rice.

Ownership

http://www.giahs.org/giahs-sites/en/
http://www.youtube.com/watch?v=Q8JkeJcrmqk

Lessons learned

Critical to the strength, growth and sustainability of this initiative has been the collaborative efforts of individual farmers, JA famer cooperative (both the local, regional and national offices), local private business interests, NPOs, researchers and local to national government officials, including non-elected and elected officials. A commitment built on human relationships are at the core of this initiative and some would argue, it is the human relationship element that is the critical key. Conservationist interests tireless efforts in the beginning years to initiate and build dialogues among individual farmers and the local JA office representatives and city officials is the cornerstone. A willingness to listen to conflicting interests among the different interest groups has also been key. Moreover, ensuring policy that was built on discussions and having enough flexibility to modify policies to meet new and emerging challenges has also been critical. Some have also commented that because the city has connected this project to national and international initiatives, it is not an isolated local project, but a project with firm foundation planted in the field, strengthened and grown by movements beyond the municipal borders. Growing a project requires the ability to objectively review your strengths and weakness, as well as assess where you may need to re-direct efforts to meet emerging challenges once certain goals have been achieved.

Linking local, national efforts with international organizations is an extended lesson in action. It is within these movements that application to FAO GIAHS grew. As mentioned earlier in this paper, though application took a top-down approach as it was initiated at the national level, because there were local initiatives already in motion in Sado and Ishikawa prefecture that were complementary to the aims and objectives of GIAHS, partnering among the local and national levels was possible. Since designation in June 2011, collaborative policy efforts both between the designated sites and with the national government have gained momentum. Of note is the national and local government collaborative inventory of policies and programs to identify those that support GIAHS activities. Promotion of environmentally sound agricultural practices among 28 other policies and programs at both the national and local level have been identified. The challenge now is to develop an integrative platform between the local and national levels to promote and grow GIAHS related activities.

To this end, the national government included GIAHS designation and potentials in their annual White Paper and the yet published MAFF strategy for biodiversity conservation. Though yet too early to make any conclusive remarks, endorsing GIAHS related activities on the national level has legitimized agri-environmental scheme developments and reinforced local government efforts towards more active implementation. Sado and Ishikawa prefecture announced in December 2011 the establishment of a joint committee to design and promote integrated policies to support GIAHS activities.

Time is needed to nurture these movements, but by forging global efforts with national and local efforts aimed at the same end, that of realizing sustainable agriculture and community development to ensure food security for future generations, **GIAHS designation in Japan may prove to be the catalyst for a much needed paradigm shift that ends current unsustainable development practices and puts local and global society on the road to sustainable futures.**

Lessons learned

Disasters can be powerful catalysts of change

Dienmu typhoon of June 2004 destroyed all the crops of the 850km2 Sado Island and what had been a stable income for this well-known rice producing island off the north-eastern coast of Japan, became unstable and uncertain. The market closed down to Sado rice and for three consecutive years 5,000 tons of the island's premium rice brand 'Sado Koshihikari Rice' did not sell. Learning from the initiative in Osaki city and driven by economic realities, the local Sado government initiated their certified brand label for rice grown employing alternative agricultural methods aimed at restoring the eco-agricultural landscapes and foraging habitat for the Japanese crested ibis.

In the aftermath of the Tohoku earthquake and tsunami of March 2011 approximately 24,000 ha of coastal farmland was damaged. Osaki city took the initiative to extend subsidies for winter-flooded rice paddy methods applied to coastal rice paddies as part of their efforts to work with coastal community famers to desalinize the degraded rice paddies. Two years have passed and although it is too early to say whether or not the winter-flooded rice paddy methods have been successful in regenerating coastal eco-agricultural landscapes, there is inspiration to be drawn from this example of Osaki city wherein a local government goes beyond its borders of governance in applying their PES related subsidies and those provided by the national government to local activities and support to regenerate degraded agro-ecosystems.

Reference to the project

Osaki City English website http://www.city.osaki.miyagi.jp/english/outline/

Eco-labels for JAS and

Kabukuri Wetlands and Winter-flooded Rice Paddies video produced by Osaki City, Miyagi http://www.youtube.com/watch?v=Ix-SR90v9dE

NPO Tambo http://npotambo.com (in Japanese but can contact Shigeyuki Iwabuchi in English for any inquiries at npotambo@yahoo.co.jp

Japanese Association for Wild Geese Protection website http://www.kt.rim.or.jp/~hira/jawgp/ (in Japanese but can contact Masayuki Kurechi in English for any inquiries at son-goose2@ybb.ne.jp)

Tajiri Honami Kosha Co. seller of eco-labelled Kabukuri Wetland Fuyu-mizu Tambo Rice with delievery services throughout Japan (in Japanese) http://www.honamikousya.com/index.php

Ichinokura Sake Company brews special limited edition sake using the rice grown by farmers in the winter-flooded rice paddies surrounding Kabukuri Wetland http://www.ichinokura.co.jp/english.html

Miyagi Prefecture Farmer's Inns and Restaurant Link for Osaki City http://www.pref.miyagi.jp/soshiki/nh-sgsin-e/kankoushisetu20noukaresutorann.html (Japanese)

References to other relevant projects

Japanese Ministry of Agriculture, Forestry and Fisheries English website http://www.maff.go.jp/e/

Japanese Ministry of Agriculture, Forestry and Fisheries eco-labeling guidelines link http://www.maff.go.jp/j/press/kanbo/kankyo/100331_1.html (Japanese)

Japanese Ministry of the Environment website on PES in Osaki City http://www.biodic.go.jp/biodiversity/shiraberu/policy/pes/en/satotisatoyama/satotisatoyama01.html

Japanese Ministry of the Environment website on PES in Sado http://www.biodic.go.jp/biodiversity/shiraberu/policy/pes/en/satotisatoyama/satotisatoyama03.html

Sado Island, Japan FAO GIAHS designated site link http://www.giahs.org/sites/south-east-asia/sados-satoyama-in-harmony-with-japanese-crested-ibis-japan/en/

Noto Peninsula, Japan FAO GIAHS designated site link http://www.giahs.org/giahs-sites/south-east-asia/notos-satoyama-and-satoumi-japan/en/

video on YouTube about Noto GIAHS site http://www.youtube.com/watch?v=Q8JkeJcrmqk

Resource persons

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Works closely with Shigeki Iwabuchi of NPO Tambo. As one of the initiators of the Kabukurinuma Project, was involved in compiling data and laying the foundations for the rice paddy resolution adopted by the Ramsar Convention in November 2008 with NPO Tambo Shigeki Iwabuchi, researchers, local and national policy makers in collaboration with Korean partners.

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A leading ecologist in Japan, Dr. Washitani has carried out the most extensive in-depth ecological-based research of Kabukuri wetland restoration and winter-flooded rice paddy project.

Future Outlook

Building a sustainable future from the field through human capacity building has been a constant in the Kabukuri Wetlands and Winter-flooded paddies initiative since its inception in 1996. Workshops aimed at increasing knowledge and awareness about ecosystem services in agriculture among farmers and government officials is viewed as a key element in ensuring effective implementation of sound long-term policy. With a look to the future, Osaki city also believes in educating the next generation of farmers and through work with the local schools, NPO Tambo and other conservation groups, is in investing in the future. Experiential learning through biological surveys and other field-based learning experiences aimed at building the awareness of the future generation of Osaki city

At Rio+20 FAO sent a clear message to the global community about its commitment to ensuring sustainable futures for farming and fishing communities. FAO also called for the need for more policies that create incentives for sustainable resource use and management practices, such as payment for ecosystem services (PES), to work towards wider application of ecosystem approaches, both on land and in coastal and marine ecosystems.

Key to mainstreaming RPE/PES are the three levels of intervention; global, national and local. FAO's message and commitment to sustainable agriculture has been instrumental in building policies in Japan at the local and national level to achieve this end. Further, the government views FAO initiatives such as GIAHS – a global project reflecting diversity – socio-economic, political, cultural and biological diversity inclusive, dynamic conservation and adaptive management among the sites, flexibility in implementation modality as key in developing local potentials and model of rural sustainability integral to the global development agenda.

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