Background

China is home to 11 of the 38 sites currently designated as part of Globally Important Agricultural Heritage Systems (GIAHS). The GIAHS programme, launched by the Food and Agriculture Organization of the UN in 2002, aims to promote dynamic conservation in places that represent a “living, evolving system of human communities in an intricate relationship with their territory, cultural or agricultural landscape or biophysical and wider social environment”.

All GIAHS sites reflect common traits of rich biodiversity, sustainability and environmental stability and adaptability, although each is unique in its specific character.

In China, the sites are valuable ecologically and economically, contributing to the food and livelihood security of local communities. They also reflect traditional Chinese thought about the unity of humanity and nature, and have become attractive places for tourism. This is changing the lives of the local people, which in turn could threaten farming practices and agricultural biodiversity in the sites.

To forestall any possible negative impacts, and to derive broader lessons, Bioversity International collaborated with the Institute of Geographic Sciences and Natural Resources Research of the Chinese Academy of Sciences to assess on-farm management of agricultural biodiversity at two GIAHS sites in China.
Our approach

Three locations in two GIAHS sites were selected for study: Baohua and Xinjie in the Hani Rice Terraces system of south-east Yunnan Province and Longxian in Zhejiang Province, which manages a system of rice–fish culture.

Bioversity International worked with the local government, extension agents, farmers and tourism companies to understand historical and current practices regarding the management of the farm systems. We developed questionnaires and conducted interviews and focal group studies to compare the current status with baseline data.

Our progress

Value chains and livelihoods

The most important product of the Hani Rice Terraces is red rice. We found that the value of the crop has increased, with government support in the form of subsidies and free seeds to encourage farmers to grow more red rice.

Companies have helped to develop value chains for local varieties and processed products, and have promoted their value in the market.

One farmer in Baohua created a specific brand for the eggs laid by the ducks that feed in his rice terraces. Guo Wuliu won the GIAHS Conservation Practice Award for his branding efforts, and his eggs now sell for 5 yuan each, up from 2 yuan in 2014.

Market value also increases as a result of more general labelling and certification as part of the GIAHS programme, and although the process can take a long time, the farmers have found it worthwhile. The Rice–Fish Culture Production Cooperative obtained the National Green Food Certification in 2014.

Resilience indicators developed and tested

We developed a set of 24 indicators to assess the resilience of the farming systems and monitor future changes. These indicators cover the five aspects of natural capital: human capacity (H); natural resources (N); physical capital (P); social ability (S); and economic benefits (E).

So, for example, we ask about the extent to which households and the community maintain a diversity of local crop varieties and animal breeds, perhaps in community seedbanks and animal breeding groups. Are they doing anything to enhance plant diversity on their farms, such as...
crop rotation or intercropping? How diverse is the diet, with respect to different crops and varieties? All these (and others) feed into a summary measure of natural resources.

Using these indicators and plotting the results on radar charts showed that in Baohua in the Hani Rice Terraces system, there were increases in social ability, physical capital and, especially, economic benefits. Natural resources and human capacity barely changed (Figure 1).

In Longxian in the rice–fish culture system, there were slight increases in human capital, natural resources and social ability and greater increases in physical resources and, again, economic benefits (Figure 2). In both places, farmers and local government recognized the importance of the GIAHS farming system. We would caution, however, that as tourism on the rice terraces has developed so recently and so rapidly, its influence is still unpredictable.

**Policy suggestions to increase benefits**

Because each GIAHS site is essentially unique, there can be no standard model for dynamic conservation and effective management, although there are replicable principles and processes. Clearly the communities who manage the sites must be motivated and must benefit directly from their management and conservation efforts.

External interventions may be important, especially at the beginning, to raise awareness and mobilize the resources needed. The Chinese government is aware of the need to support food security and ecological conservation and is developing policies on monitoring, eco-labelling and ecological agriculture. Eco-tourism to agricultural landscapes is also being promoted. Bioversity International sees good potential to integrate specific policies into the proposed policy changes so that these will support the Hani Rice Terraces, the rice–fish culture system and, potentially, all GIAHS sites.

**Looking ahead**

Agricultural biodiversity is being recognized as an important component in the development of sustainable agriculture. The practices and experience of managing agricultural biodiversity in GIAHS sites could be replicated in other similar areas in China and the rest of the world. Bioversity and partners plan to adapt and use some of the lessons learned in the test sites and apply them in other similar areas in China to assess their value. In this way, we hope to reduce poverty and improve the environment while empowering more women and men in rural areas, improving food security and enhancing livelihoods.
Partners
The Institute of Geographic Sciences and Natural Resources Research of the Chinese Academy of Sciences, Beijing
Agricultural Division of Qingtian County, Zhejiang Province
Agricultural Division of Honghe County, Yunnan Province
Communities of Rice-Fish Farming System, GIAHS site, Qingtian County, Zhejiang Province
Communities of Hani Rice Terrace System, GIAHS site, Honghe County, Yunnan Province

References
Yongxun Zhang, Qingwen Min, Canqiang Zhang, Lulu He, Su Zhang, Lun Yang, Mi Tian, Ying Xiong, 2017, Traditional culture as an important power for maintaining agricultural landscapes in cultural heritage sites: A case study of the Hani terraces, Journal of Cultural Heritage, 25:170-179

For more information, see:
Factsheet 7: Site visit – Hani Rice Terraces in Honghe

Red rice. Credit: Sengai Podhuvan

Bioversity International is a CGIAR Research Centre. CGIAR is a global research partnership for a food-secure future. www.cgiar.org
Bioversity International is registered as a 501(c)(3) non-profit organization in the US. Bioversity International (UK) is a Registered UK Charity No. 1131854.

Contacts:
Bioversity International – China
c/o CAAS, 12 Zhongguancun Nandajie
Beijing 100081, China
Email: bioversity-caas@cgiar.org
Phone:+86-10-82105686
www.bioversityinternational.org