The resilience of agricultural heritage tourist sites: Xinghua Duotian in Jiangsu Province, China

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Introduction

In 2002, the Globally Important Agricultural Heritage Systems (GIAHS) was launched by the Food and Agriculture Organization (FAO) of the United Nations with the aim of establishing a basis for the global recognition, dynamic conservation and adaptive management of outstanding traditional agricultural systems and their associated landscapes, biodiversity, knowledge systems and cultures. These systems defined as “unique, remarkable traditional agricultural practices and evolving systems that demonstrate multiple goods and services to humanity and the environment”, and providing livelihood security for millions of poor and small farmers (FAO, n.d.).

GIAHS are historically resilient, based on traditional family-scale agricultural systems with high-value and environmentally sustainable ecosystems (Sonja BERWECK, et. al, 2011). Owing to their historical and prominent landscape attributes, GIAHS are often important tourism resources. Nevertheless, with the rapid development of modern economies, technologies, and urbanization, some of these important traditional heritage systems are facing damage and abandonment due to a lack of efficient conservation measures.

Many concerns for the protection and sustainable development of GIAHS have been raised by academic researchers. However, the growing environmental and social challenges of our contemporary world seem to indicate that the sustainable development paradigm cannot adequately coordinate the contradictions between the economic-social development and the resource preservation of heritage sites (Lew, 2013). The concept of resilience has recently been proposed as an alternative paradigm to sustainability (Davoudi, 2012). From a systematic resilience perspective, resilience in agricultural heritage tourist sites refers to the ability of these sites to effectively respond to unanticipated changes in their situation.

Characteristics and Values

As a special type of raised agricultural field, the total area of Xinghua Duotian in Jiangsu Province is 312 km\textsuperscript{2}, with a core area of 40 km\textsuperscript{2}. It is not only a model of humans living in harmony with nature, but also a main source of local livelihood, including vegetable farming and aquaculture that is unique to this wetland agricultural ecosystem.
Xinghua Duotian has a long farming history in the southeastern part of the North China Plain. Generally, it has gone through three historical stages: the floating field period (3000 years ago), the formation period (1000 years ago) and the expansion period (900 years ago). It is a kind of water-land utilization in a low-lying wetland that makes full use of the very limited fresh water and soil resources, while also being able to defend against floods, provide a safeguard for food security, and create an excellent environment for biodiversity.

Xinghua Duotian contains rich agricultural biodiversity and related biodiversity. There are many kinds of crops, vegetables and fruit, of which Longxiang taro, Xinghua chive and Xinghua oilseed rape are the three most famous farm products. In addition, over 100 species of wild animals, 300 species of wild plants and 56 varieties of fish live in this agricultural system. Xinghua Duotian uses traditional agricultural technologies. These technologies include traditional farming work (e.g., plowing and planting), irrigation methods (e.g., bailing water), organic fertilizer collection methods (e.g., dredging sludge, scraping sludge, gathering aqua-plants) and fishing methods (e.g., cormorant fishing, net fishing, tuck net fishing, cage fishing, and hurdle fishing).

Xinghua Duotian also has a colorful traditional culture. The local Longxiang taro has been embodied in the popular TV program of “A Bite of China.” A photo of Xinghua Duotian was printed on a stamp of the “Famous and Beautiful China” set. In addition, paintings of farmers, of lotus thrashing, and of temple fairs are representative of Xinghua Duotian’s characteristic traditional cultures, in addition to its unique landscape resources and traditional lifestyle.
Threats, Challenges and Influencing Factors

With the rapid economical and social development, many changes have taken place in recent years in Xinghua Duotian. These can be summarized in four aspects:

(1) Change in form: the shore has flattened, shortened and enlarged; the ditches are smaller, shallower and gradually silting up;
(2) Change in ecology: people rely more on chemical fertilizers; biodiversity is decreasing
(3) Change in operations: traditional farming methods have declined
(4) Change in quality: non-polluted, “green” and organic foods have decreased

Reasons for these changes generally consisted of the following:

(1) Farmers expanded cultivated land to make them more convenient to plant;
(2) A greater reliance on chemical fertilizers to increase crop productivity has resulted in water eutrophication problems;
(3) Many peasants have migrated to cities for work and are no longer willing to engaged in agriculture;
(4) Field in suburban areas have been gradually eroded by expanding industrial and urban land development.
Ongoing Efforts to Resilience

In recent years, local governments and the Xinghua Duotian scenic resort have taken many measures to make Xinghua Duotian more resilient in the face of these threats by adopting the following measures:

1. The Xinghua Duotian Agrosystem was identified as part of the first batch of China’s Nationally Important Agricultural Heritage Systems (NIAHS), and was nominated to be an FAO Globally Important Agricultural Heritage Systems (GIAHS) site by China Ministry of Agriculture in May 2013;
2. Two books were published to promote awareness of the site: “Prose Works on the Raised Fields” and “Magic Raised Fields”.
3. The formulation of new conservation and development plans:
   - (a) Inheriting Traditional Duotian Culture
     - This established the Research Association of the Xinghua Duotian Agrosystem, and
     - Included the construction of the “Duotian Cultural Museum”.
   - (b) Implementing Ecological Restoration
     - Establishment of a protection fund with an annual allocation of RMB 3,000,000 yuan (US$500,000) to dredge the rivers of Xinghua Duotian Agrosystem and restore its original appearance.
   - (c) Promotion and Education Plan
     - To strengthen the cultural awareness and sense of pride of Duotian farmers and to increase broader public support to care and protect the Xinghua Duotian Agrosystem.
   - (d) Promote Appropriate Operations and Practices
     - To encourage young people to join the agricultural labor force, to build new agricultural management practices, and to improve the productive organization of the system.
   - (e) Improve the Economic Benefit of the Agricultural System
     - Develop traditional agricultural products and a tourism industry through the industrialization form of “company + cooperative + farmer” or “company + base + farmers”, which will become a new growth point for the economy of Xinghua Duotian.
4. Exploring different values of Xinghua Duotian Agrosystem
5. Undertaking Promotional Activities of Agricultural Heritage
6. The 1st ERAHS Conference (East Asian Research Association for Agricultural Heritage Systems) was successfully held in the Xinghua Duotian area, April 7-10, 2014

Conclusions

Rapid economic development creates environmental, social and cultural threats for important traditional agriculture heritage sites due to industrialization, urbanization, tourism development, and the changing desires and needs of rural residents.

From a tourism perspective, Xinghua Duotian is at an early stage of the Tourism Area Life Cycle (TALC). The number of tourists are increasing and local residents generally support tourism development.
In this way, tourism has the potential to play an important role in protecting traditional agricultural heritage sites (Cui, 2013). To increase their resilience, agricultural heritage tourist sites, such as Xinhua Duotian, need to draw up explicit plans and adopt practical measures.

References


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Content

1. Introduction
2. Characteristics and Values
3. Threats and Challenges
4. Ongoing Efforts to Resilience
5. Conclusions
1. Introduction

• In 2002, the Globally Important Agricultural Heritage Systems (GIAHS) was launched initiatives by the Food and Agriculture Organization (FAO) of the United Nations with the aim of establishing the basis for the global recognition, dynamic conservation and adaptive management of outstanding traditional agricultural systems and their associated landscapes, biodiversity, knowledge systems and cultures.

• These systems defined as “unique, remarkable traditional agricultural practices and evolving systems that demonstrate multiple goods and services to humanity and the environment”, and providing livelihood security for million of poor and small farmers (FAO, n.d.)
• GIAHS are resilient systems, traditionally-based family-scale agro-systems and their associated high-value ecosystems are sustainable (Sonja BERWECK, et. al. 2011).
• Owing to their immemorial history and prominent landscape attributes, GIAHS are important tourism resources.
• Nevertheless, with the rapid development of economy and technology as well as urbanization, some of these important traditional heritage systems are facing some problems, like damagement, abandonment, due to lack of efficient conservation measurements.
So, many concerns are drawn to the protection and sustainable development of GIAHS and a higher demand has been raised for the related academic researches.

But the growing environmental and social challenges of our contemporary world seem to indicate that the sustainable development paradigm can not coordinate the contradictions between the economic-social development and resource preservation of heritage sites. (Lew, 2013)

The concept of resilience has recently been proposed as an alternative paradigm to sustainability (Davidou, 2012).

From a systematic perspective, agricultural heritage tourist sites resilience refers to the ability of this site to effectively respond to unanticipated changes in its situation.
2. Characteristics and Values
- Special raised field
- Total area: 312Km²
- Core area: 40Km²
- Perfect model for human to live in harmony with nature
- Main Source of Livelihoods: Vegetable farming and aquaculture
- Unique wetland agricultural ecosystem
Long Farming History

- According to the record of Encyclopedia Britannica: there are raised fields at the southeastern plain of China, particular case unavailable

- Three historical stages of Xinghua Duotian:
  - Floating Field Period: 3000 years ago
  - Formation of Duotian: 1000 years ago
  - Expansion of Duotian: 900 years ago
Water-land Utilization model of low-lying wetland

- Make full use of the very limited water and soil resources
- Effective method to fight against floods
- Safeguard for food Security
- Excellent environment for biodiversity
Rich Biodiversity

- Many kinds of crops, vegetables, fruits and so on
- Longxiang taro, Xinghua chive and Xinghua oilseed rape are the three most famous farm products here
- over 100 species of wild animals
- over 300 species of wild plants
Agricultural Biodiversity

Rape Seed  Longxiang Taro  Xinghua Chive  Leek
Freshwater fish  Crayfish  Freshwater shrimp  River crab
Related Biodiversity

Forest Farm  Birds  Wild Ducks  Aquatic plants
Traditional Agricultural Technologies

- **Traditional Farming Work:** Traditional Plowing and Planting
- **Traditional Irrigation Methods:** Bailing Water
- **Traditional Organic Fertilizer Collection Methods:** Dredging up sludge, Scraping sludge, Gathering Aqua-Plants

Plowing | Bailing Water | Scraping Sludge | Gathering Aqua-Plants
Traditional Agricultural Technologies

- Traditional Fishing Methods
  - Net Fishing
  - Tuck Net Fishing
  - Cage Fishing
  - Hurdle Fishing
  - Cormorant fishing
Traditional Lifestyle
Colorful Traditional Cultures

《A Bite of China》——Longxiang Taro
Xinghua Duotian, a stamp of the famous Beautiful China Set
Farmer’s Painting

Lotus Thrashing
Temple Fair
Barge-woman in the flower sea
Unique Landscape Resources

Spring

Summer

Autumn

Winter
3. Threats and Challenges

- **change of form**: the shore is flattened, shortened and larged; the ditches are littled, shallowed and silted up gradually
- **change of ecology**: rely on chemical fertilizers to plant, biodiversity decrease
- **change of the type of operation**: traditional farming way decrease
- **change of quality**: declaration for non-polluted, green, organic food more difficult
Farmers expanded cultivated land so that it is convenient to plant.

More reliance on chemical fertilizers, the water eutrophication phenomenon has become increasingly serious.

Plenty of peasants go into the city to work, no longer unwilling to engaged in agriculture.

Suburban field was gradually eroded by industry and city construction land.
4. Ongoing Efforts to Resilience

- Xinghua Duotian Agrosystem in Jiangsu province was identified as the first batch of China’s NIAHS and also GIAHS candidate site by Ministry of Agriculture in May 2013
- Published “Prose Works on the Raised Field” and “Magic Raised Field”
- Formulating conservation and development plans
- Exploring different values of Xinghua Duotian Agrosystem
➢ Carrying out and participating various forms of promotional activities of Agricultural Heritage

➢ The 1st ERAHS Conference was successfully held in Xinghua on April 7-10, 2014
Conservation and Development Plans

- **Inherit Traditional Duotian Culture**
  - Establish research association of Xinghua Duotian Agrosystem
  - Construct Duotian cultural Museum

- **Implement Ecological Restoration**
  - Set up protection fund and allocate 3,000,000 RMB every year to dredge rivers of Xinghua Duotian Agrosystem and restore its original appearance
- **Propaganda and Education**
  - Strengthen the cultural awareness and sense of pride of Duotian farmers to form a good atmosphere to care and protect Xinghua Duotian Agrosystem

- **Promote the Operation Scale**
  - Encourage young people to join the rural labor force, build new agricultural management, improve the production organization

- **Improve the Economic Benefit**
  - Develop the characteristic agricultural products and tourism industry by the industrialization form of “company + cooperative + farmer” or “company + base + farmers”, and make it the new growth point of economy of Xinghua
5. Conclusions

- With the rapid development of economy, some of important traditional agriculture heritage tourist sites are facing more and more environmental, social and cultural problems.

- The reason including industrialization, urbanization, tourism development, the needs of residents, and etc.

- Since Duotian is at the early stage of Tourism Area Life Cycle (TALC), the number of tourists are increasing, local residents generally support tourism development, tourism plays an active role of protecting the agricultural heritage sites.

- In order to make for greater resilience, the agriculture heritage tourist sites should draw up an explicit plan and adopt a series of practical measures.
Thank you!