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ASIA-PACIFIC FORUM ON
SUSTAINABLE DEVELOPMENT

*Promoting Food Security through
Combating Soil Degradation in the Asia-
Pacific*

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Food Security Opportunities in GDI

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Introduction

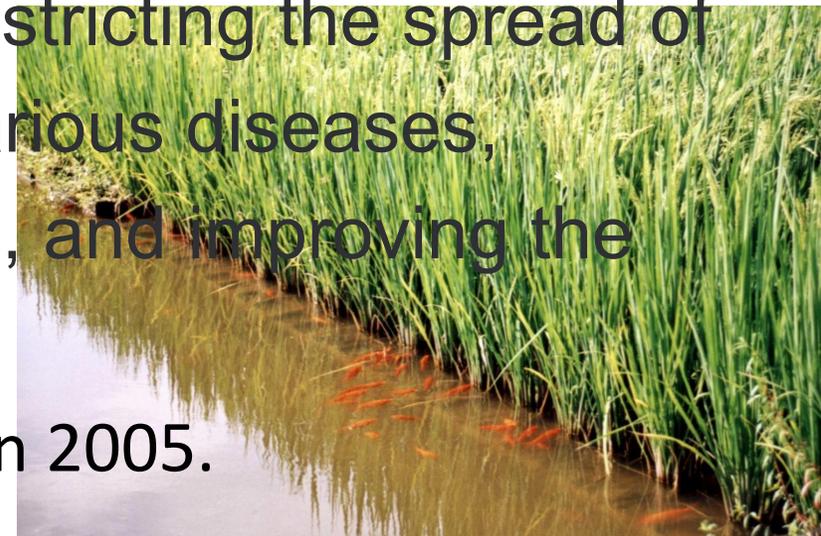
- On Sept 21, 2021, President Xi Jinping proposed the Global Development Initiative (GDI). In the GDI, to maintain the harmony between man and nature, to ensure food security and to promote green development are important contents.
- The maintenance of soil ecosystem services is related to food security and green agricultural development which need us to actively explore soil conservation strategies, promote soil fertility recovery, effectively control soil pollution and improve soil ecological functions.
- China's agri-culture heritage, with a history of thousands of years, provide us with valuable ideas and practical experiences to improve soil sustainability and ensure food security.

Model 1: Qingtian Rice-Fish Culture System

- It is a typical model of “ecological symbiosis”.
- The system itself maintain good mutualism relationship through “fish eating insects and weeds, fish poop fertiling”, do not need to use chemical fertilizers, ensure the safety and the ecological balance of soil. In addition, due to the breathing, foraging and excretion of fish, the related microbiome naturally forms, thus restricting the spread of other microorganisms, effectively alleviating various diseases, reducing the use of pesticides and insecticides, and improving the soil environment.



• The system was certificated by FAO as GIAHS site in 2005.



Model 2: Huzhou Mulberry-Dyke-and-Fish-Pond System

- It is a typical model of “material circulation”.
- The system itself maintain material circulation through “mulberry leaf feeding silkworms, excrementum bombycis manure pond, fish farming, fish pond sludge fertilizing mulberry” with “Zero Emission”, ensure the safety and the ecological balance of water body.
- The system was certificated by FAO as GIAHS site in 2017.



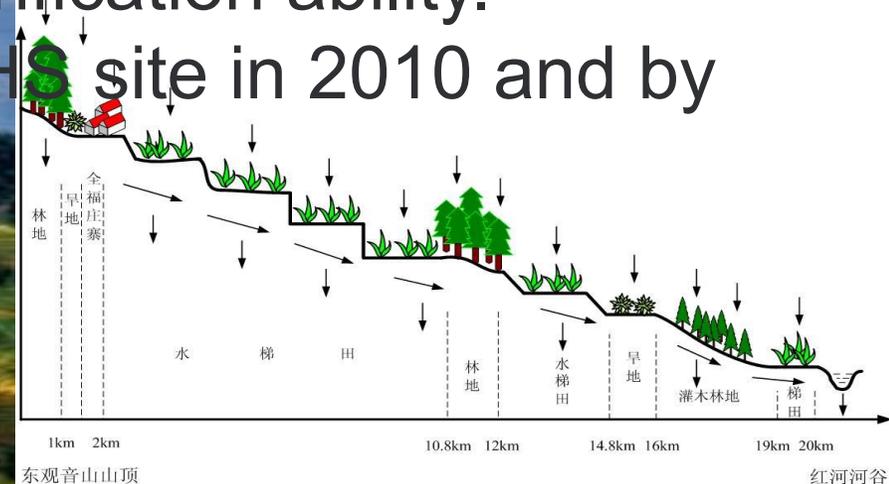
Model 3: Aohan Dryland Farming System

- It is a typical model of "intensive and meticulous farming".
- Intercropping, multiple cropping, interplanting, crop rotation, continuous cropping, fallowing and so on are general practices. The effective utilization of soil fertility resources can be realized by combining land-consuming crops with land-improving crops which solved the problems of uneven soil nutrients and thinning of tillage layer, and realized the benign cycle of soil nutrients and sustained yield increase.
- The system was certificated by FAO as GIAHS site in 2012



Model 4: Honghe Hani Rice Terraces System

- It is a typical model of “optimizing landscape structure”.
- It is a great creation to adapt to steep slope farming. Forests, villages and terraced fields are arranged from top to bottom and spring water stream in the woods, and down into the village, terraces, and at the lowest rivers converge into the river. The "four-in-one“ pattern in spatial structure to enhance the function of soil and water, ensuring the system stability of the village and self-purification ability.
- The system was certificated by FAO as GIAHS site in 2010 and by UNESCO as WH site in 2013.



Recommendation

- The traditional knowledge and techniques in the agricultural heritages play an important role in maintaining soil health which help to enhance soil fertility and reconstructing soil-fertilizer relationship, to control soil pollution and ensure environmental security, and to recover damaged soil and improve ecological function.
- So, learning from agri-cultural heritage can provide new ideas for soil health and food security.



*Thank You for Your
Attention*