



Adaptation and Mitigation Measures: Communities' Responses

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国际生态系统管理伙伴计划



I. Why Communities Matter?

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- Mountain Ecosystems and climate Change
(Nature/landscape/environment)
- Climate Change **Adaptation: Community based adaptation,**
Ecosystem Base Adaptation and Nature based adaptation
- **Rural Communities** and **small holding farmers'** roles and impact in
Climate change adaptation.....

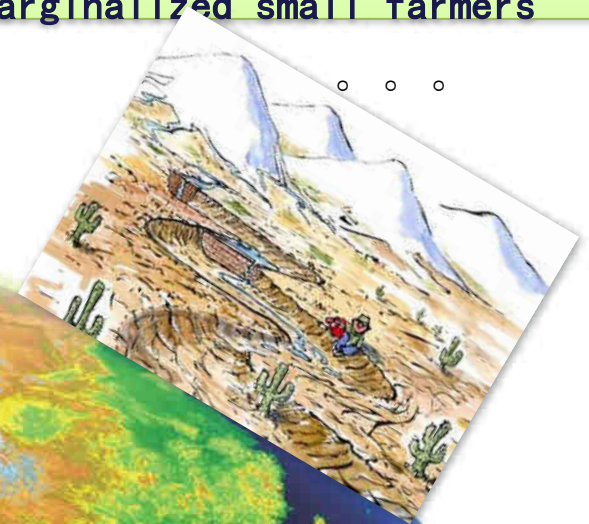
Biodiversity declining, the Failing food system, small holding farming Communities as root and base!

Nature & Human

Chemical/industry agriculture
Water, Land, air pollution
Urbanization migration

Forgotten Bio-culture Heritage
Losing biodiversity and ecosystem
Marginalized small farmers

climatechange
Increasing temperature
Increasing pest and disease
natural disasters



Looking back, Ahead and Now!

-Our Human Civilization started from the seeds domestication and farming, as Root and Rooting...

-Now, Asia-Pacific, home to 60 percent of the world's total population, with the biggest group of small holding farmers, and 70 percent of the world's indigenous peoples

-China, the biggest small holding farmers' country, about 90% small farmers, holding 70% of cultivated land.... **Mountain area...**

Now, small holding farmers, majority are women, still produce 70-80% of the global food,....

However, FAO report (2020):

- Approximately 80 per cent of all people suffering from hunger live in rural areas.
- Roughly 50 per cent of them are smallholders,(20 per cent are landless farm workers,
- 10 per cent are gatherers and pastoralists)
- the remaining 20 per cent are classed as urban poor

•Rural communities are the base holding the majority of the Small farmers and the poor in farming and adapting to all changes and crisis...every day!



The current trend....

Losing Agrobiodiversity and farmer seed systems

Increasing uniformity, losing vitality and resilience

Threatening the health of both human and ecosystem!

- (Agro)-biodiversity has been severely impacted by intensive industry and chemical farming, large-scale land use change and deforestation in recent decades. In some cases, the damage is irreversible.
- Modern breeding methods used in the cultivation of crops and in animal husbandry have steadily reduced the biological diversity of crop varieties and livestock breeds. The diversity of varieties or breeds within a single species is losing out to a small number of high-yield crop varieties or animal breeding lines with identical genetic properties.
- Progress in plant and animal breeding relies heavily on the availability of a wide pool of genetic material. **This great biological diversity is mainly found in wild varieties, on traditional farms or in the wilderness in countries like India and South Africa.**
- **Small holding farmers need their own seed systems for maintaining their diverse livelihood in adaptation to all changes and crisis**



FAO calls for immediate action in key priority areas including Boost Smallholder Resilience for Recovery, **and** Trigger Food Systems Transformation in Climate Change . **Why and How?**

FAO has repeatedly emphasized that "farmer seed system is essential for the social and ecological adaptability of the global food system", and believes that "agricultural biodiversity based on farmer seed system protection will make Our global food system able to adapt and respond to the environment and other changes "(FAO. 2018). FAO, 2019, 2020.

In Feb, 2020, UNEP made a joint submission (with the Alliance of BI and CIAT) on “**Biodiversity, Nutrition and Dietary Health in the Zero Draft of the Post-2020 Global Biodiversity Framework**”. To propose revisions to key goals, targets and indicators



China also has made efforts to protect crop germplasm resources. In the beginning of 2020, the State Council's issued “**Opinions on Strengthening the Protection and Utilization of Agricultural Germplasm Resources**” (Guobanfa [2019] No. 56). It first time, clarified the foundation of agricultural germplasm resources protection for the, Public welfare, strategic, long-term positioning.

Communities as root and base!

- **For human and nature interaction resulted in civilization and sustainable development as a process**
- .. Holistic and diversified **community based and farmer-managed farming systems**, which are embedded in different bio-cultural contexts adapting to all changes in evolution, these are the critical base for transforming towards sustainable world in adapting to all changes

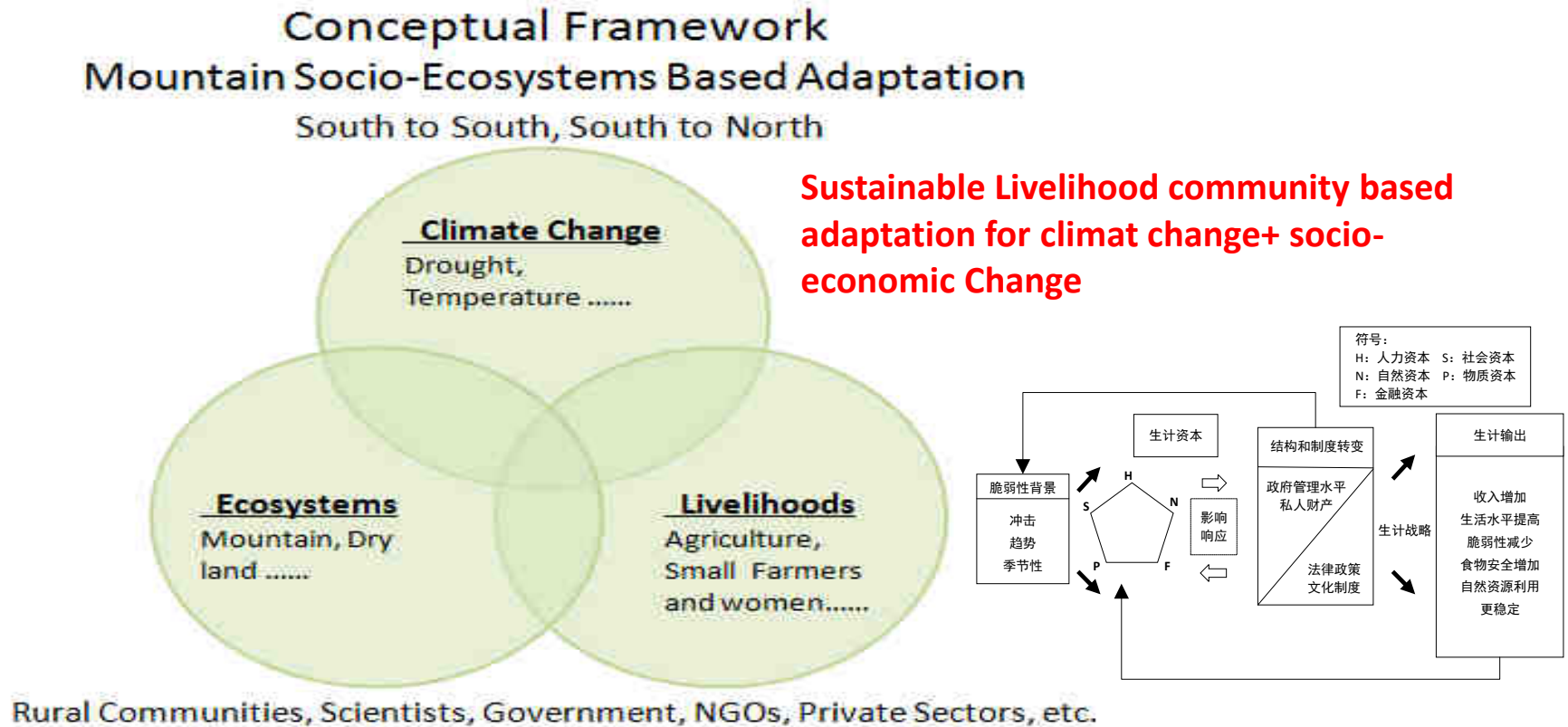
2. Bio-culture Systems and communities as base *(Human and Nature)*

- Spiritual world, value system, kinship, families
- nature resource management i.e. landscape, forest, wild lives, water, land,
- livelihood: indigenous food systems, farmer managed seed systems..
- linking with science and market, continue adaptation and innovation process
- e.g. GIHAS as Human commons

Community driven Socio-Ecosystem based Adaptation conceptual framework:

(EBA+CBA+CBNRM+livelihood,multi-poverty)

社会生态可持续应对框架



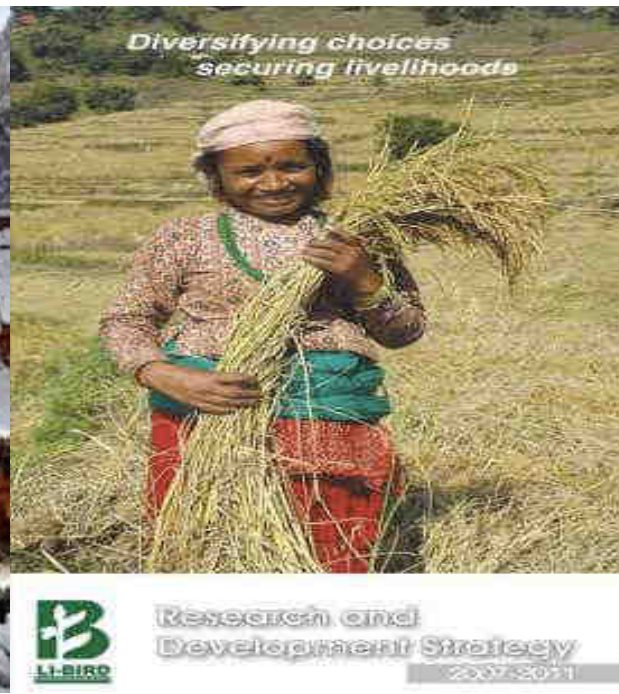
- 1) 社会经济和气候变化
- 2) 关键生计指标
- 3) 里山社会-生态-生产地恢复指标的类别和评估

3. Threats, Challenges and further joint actions ...

- increasing climate changes vs insufficient recognition of and support for communities' roles and bio-culture system
- increasing separation and isolation in knowledge systems resulted in inappropriate technologies, uniformity and the loss of agrobiodiversity and traditional knowledge
- threaten all rural communities' resilience and bio-culture systems' evolution and adaption process
- Further systematically exploration in theories, approaches, policies and joint actions are urgently needed!

From Himalayas To Andes in **Bio-Culture** framing systems

China (IEMP/FSN), Nepal (LI-BIRD), Peru (PP) collaboration in the past 15 years



**Ancient Bioculturally Diverse, Climate Resilience,
base for adaptation and livelihood**

4. On-going piloting cases in NW Yunnan, China

-four Village Biocultural Heritage Coalition, Yunnan, China

Key Approach and Concepts:

Biocultural heritage territories/System (BCHTs)

combine food production, sustainable livelihood with biodiversity conservation and ecosystem protection for adapting to climate and socio-changes and crisis

-Naxi-Moso worldview are the **spiritual world**, **ecosystems and human communities**. **Balance** between the three is important **for wellbeing and adapting to all changes**. Traditional regulations protect forests and water sources, ensure equitable water allocation and promote agrobiodiversity conservation.

-The **Dongba religion** is one of the key reasons for the survival of the four villages' customary water allocation schemes that promote equity and sustainability

The 4 Villages had formed into 'Naxi Mountain Community Network in the Jinsha River Basin in 2018 for supporting each other and joint actions

- Key threats to traditional knowledge and agrobiodiversity include the increasing climate changes, modern agriculture food system and significant outmigration
- All four villages are continuing to enhance their biocultural systems by establishing and expanding community seed banks, combining agrobiodiversity with agroecology for healthy production and resilient local food systems.
- To further promote the protection and sustainable use of traditional ecological culture, supported by FSN and CAS, the four Naxi Villages will turn their work experience into policy recommendations, form demonstration cases, identify feasible paths for coping with socioeconomic changes and climate change,
- share these with their experiences with other communities around the Jinsha River basin and the Himalayas, for coordinated ecological and economic development.

upstream of Yangzi River in the 3 Parallel Rivers of Yunnan

1. Biocultural Landscapes

2. Resilient seed and Food Systems for adaptation

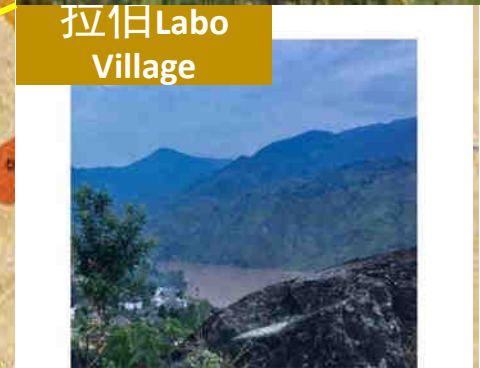


4 villages alliance

油米 Youmi Village



拉旧 Labo Village



石头城 Stone Village



吾木 Wumu Village



Recognize and support **Bio-Culture Heritage** and linking with **SK systems** for resilience and adaptation



- Farmer-Farmer exchange and networking
- Farmer- scientists Exchanges and mutual support!

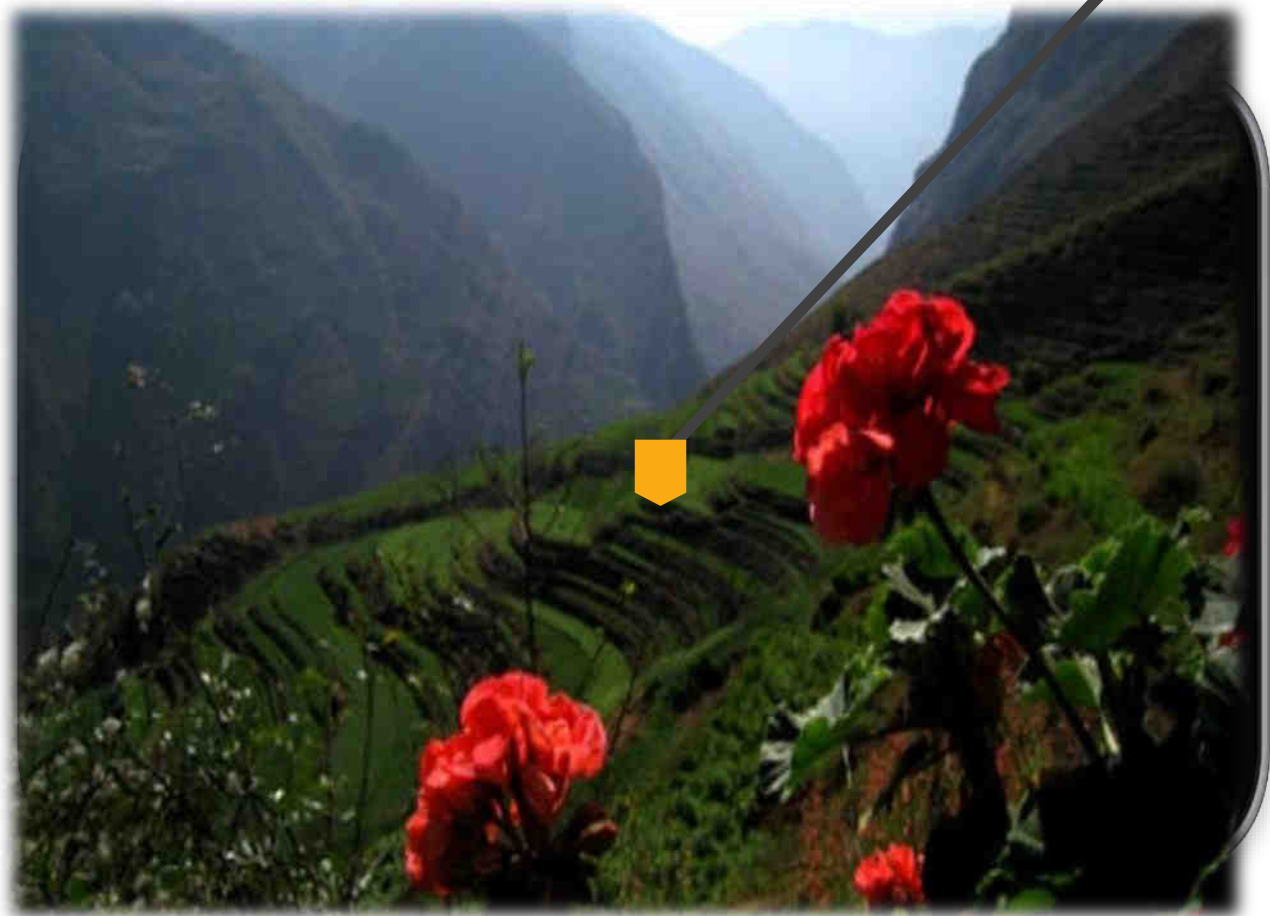


- Working with thousands such living lab for adaptation, resilience and continue...



Over 1000 years old irrigation with both surface and underground water systems

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surface
+underground
water Networks

- To share water equally
- -To avoid soil and fertility losing..
- -To reduce water evaporation

-Naxi bio-culture heritage Terries, People, diversity
crops,
Landscape,

-Culture Values, belief is the core base for
bio-culture innovation for adaptation....



--Yet, this bio-culture
heritage is threatened

--Need recognition and
support for revitalization ...

Participatory Plant Breeding and Participatory Varieties Protection (PPB&PVS in the 4 villages)

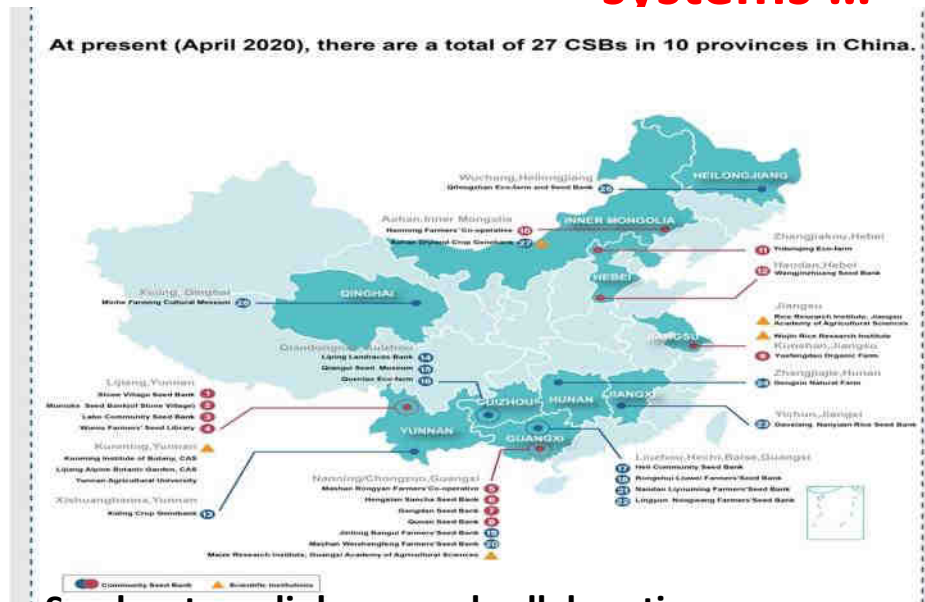


- Creating a platform for scientists and farmers to exchange and improve local varieties and traditional knowledge exchange.
- The seed production of Guilin 2006 has grown from one woman to four women.

A Women Farmer Breeder during 2014-2017

- Tested:
 - 15 PPB v From GX women farmers
 - 3 from farmers in Andes, Peru
 - 12 from GMRI
 - 15 From other communities
- Adapted:
 - 5 PPVs (hybrid Opv)
 - 3 Vs from Peru,

Women is key in functioning the Roles of Cmmunity Seed Bank in linking the 2 seed systems and enhancing small holding farming systems ...



services of
community seed
banks:
-Conservation
-Access and utilization
-Sharing and
networking

Women are key in keeping these
function alive

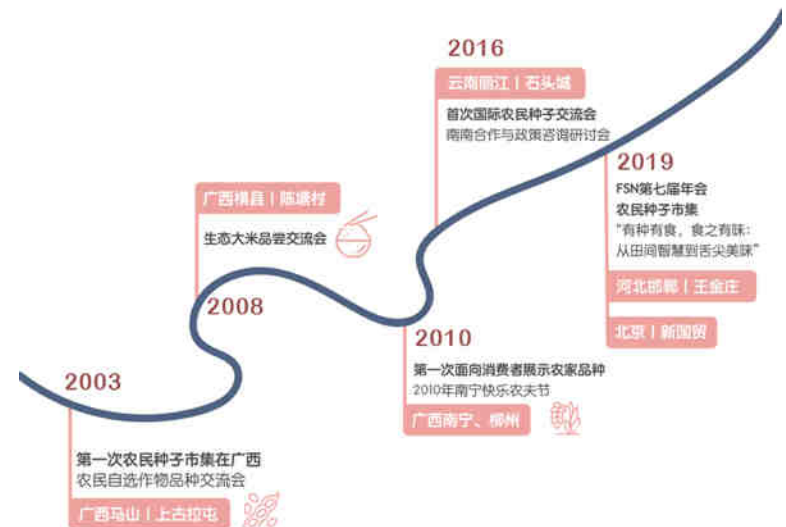
- Keepers
- selectors/breeders
- sharing and distributors
- food and nutrition
- leaders

Seed systems linkages and collaboration:

- in situ* and *ex situ* linkages
- Repatriation via PPB/PVS & EPB for local food system
- Interaction with provincial or national gene banks

Integration with NIAHS/GIAHS for biodiversity enhancement

Flow of seeds = Flow of knowledge and food



2 pre-cop 15 Policy Furums by UNEP-IEMP with joint events in Beijing Dec-2020 and in Yunnan Apri, 2021

- bring farmers and women to policy makers and other stakeholders
- Bring scientts together and to the communities
- Awareness and mutual understanding

Community based actions ar
effective, Joint efforts and
support are urgently
needed



Linking farmers with policy making

Sowing Diversity Harvesting Security



播厥百谷 藏种子民

Sowing Diversity Harvesting Security

传统农耕文化大地艺术摄影展
Traditional Farming Culture Exhibition

2020 北京798艺术区 映画廊
12.19 六 - 20 日

农人往天踏地，守护和传递着流动不息的
种子智慧和多元璀璨的农耕文明，他们与
土地、种子的生命故事，即将揭开面纱……

摄影师：王文燕（秋笔）



PPB, CSA for Agroecology and Resilient Food System ..

-Agroecology and organic farming need farmers' seeds, farmers need to value adding to their seeds, TK and culture



- Collective Trade Mark, GI, trust certification.....
- women and youth group and farmer cooperatives..

Everybody Eats: Local food systems, short food and value chains

From Seeds to Food: linking community with local consumers and civil society with safe, nutritional and local food



Healthy seed system = farmers + land + food



PPB variety
development



Eco-circular
agriculture



Healthy
food

Sowing Diversity, Harvesting Security.....

How? Working with nature & farmers for a more resilient world to COVID-19: Inspirations from farmer communities in China

<http://www.unep-iemp.org/index.php?menu=25&id=202>

The COVID-19 crisis has shown that the health and the future of people and nature are intertwined. UNEP-IEMP, [collated stories](#) from 14 farming communities in China to show how working with nature can help people cope better with and recover better from crisis like COVID-19 and climate change.



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Gallery: Glimpses into the farmers' life during COVID-19 lock-down in China. Photos are from farming communities in China (Please refer to the map above).



In Ao Han village in Inner Mongolia Province, farmers continue traditional minimum tillage technique to prepare land and sow diversity of seeds bred locally. (Copyright: Guoxing Lu)



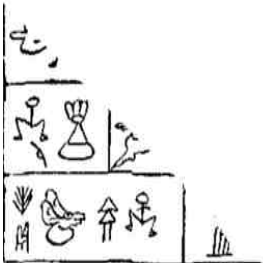
In Kun Shan Jiang Su province, on an organic farm, farmers started sowing more than 30 rice varieties after rapeseeds were harvested. (copy right: Yaozhong Tang)



In You Mi village in Yunnan province, farmers have been

Actions proved to be effective

1. **Bio-cultural & Farmers' seed system enhancement**, linking to public seed system for mutual and complementary supports
2. **From Seeds to table action for resilient food system**: Linking farmer seed system for agroecology and circular farming, rural-urban linkage and circular economy
3. **Linking Ancient Native “wisdoms” with Scientific Knowledge**, business sector partnership plus supportive policies for green transformation
4. **Women empowerment** for in agrobiodiversity, food production and healthy diets in adaption to all crisis



...For Researchers, Scientists and Policy Makers

- a bottom-up, community-led action research approach
- complex systematic thinking and all components (biological, cultural, livelihoods, governance and so on)
- interacting and working together in a process
- can address multiple challenges facing Indigenous Peoples and biocultural heritage.

**Protecting and enhancing our root and base
in climate change adaptation for our survival and
sustainability!**

Thanks and Question?

www.fsnchina.net

