

Rural Restructuring: Ecological State Building and Environmental Governance of the Lin'an Bamboo Shoot Industry



Context of ecological state-building in China

- Since the 1980s, ‘Conservation after Development’ (先發展, 後治理) principle has driven the county state to achieve ‘economic growth at any cost’ (i.e. attract FDI and increase GDP).
- Economic developmentalism has caused severe environmental degradation (loss of farmlands, increase of greenhouse gas etc.) and widen social inequality in China.
- Urban middle class concerns more about food safety (chemical remains in food), and green consumption (sustainable products and landscapes).

Context of ecological state-building in China

- Emergence of zoonotic disease is linked to rapid intensification of animal production, large-scale change in land-use and live-poultry markets in rural-urban fringe
- Balancing economic growth and environmental conservation has become a pressing policy goal for county government and cross-county governments (e.g. South Water North Transfer 南水北調, Returning grazing lands to forests 退牧還林)

Rapid social and spatial transformations in rural-urban China



Rural-to-urban land conversion



Rural enterprises engage in
global economic networks



Rural-urban migration



Eco-tourism

Theorizing ecological state-building in China

- Literatures in 'Ecological modernization' emphasize on (1) compatibility between continuous industrial growth and environmental conservation, (2) possibility of technological-fix and reflexivity of the Chinese state in solving ecological problems. Yet, it ignores the gaps in policy implementation and restricted the authority of the environmental protection bureau (Ran, 2013; Kostka, 2013).
- 'Green neoliberalism' literatures cannot fully explain the massive scale of China's environmental transformation, including the large scale of weather modification (火箭做雲), urbanization of hills (城鎮上山) (Hong, 2019).
- 'Ecological state-building in a Chinese characteristics' by making balance between: (1) preserving privilege resources (e.g. farmlands) to sacrifice marginal resources (e.g. hillside lands) and (2) compartmentalising land uses into 'spaces of restoration' and 'spaces of exploitation' is a way of reconciling the conflict between conservation and production.

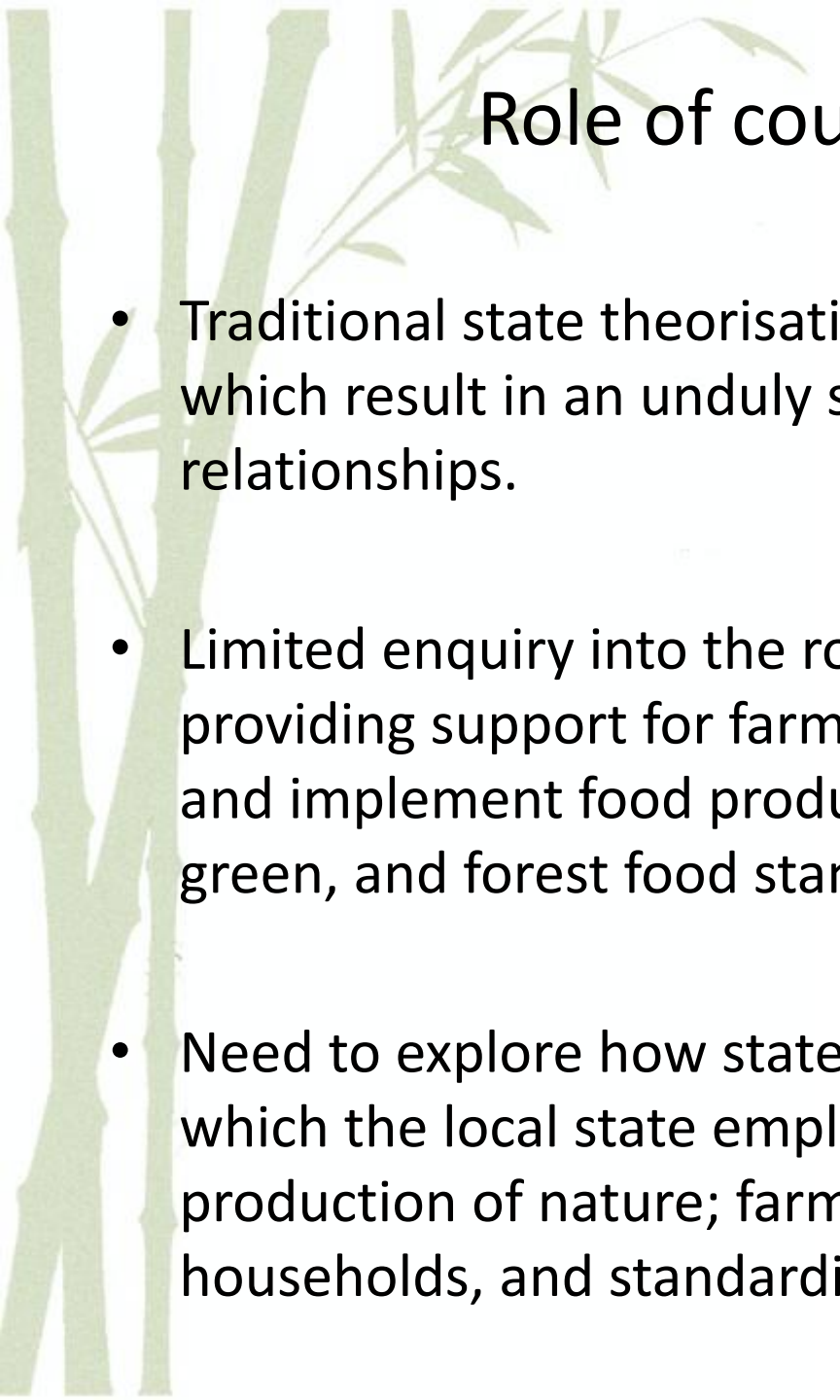
Why bamboo matter?

- 4 most admired plants (plums, orchid, and chrysanthemum).
- Fastest growing forest in China (approx. 7 million ha and worth about US\$5.4 billion).
- Provide ecological services and socio-economic functions.
- In Lin'an county, there was 35, 000 tons of bamboo shoots produced and generated an economic value of around 160 million Yuan.
- 60% of farmer households work in the bamboo production, processing and marketing sectors. In 2008, the per capita net income of farmer households was 9, 680 Yuan, by the standards of Chinese farmers a high income.



**Bamboo is a
multi-purpose crop**



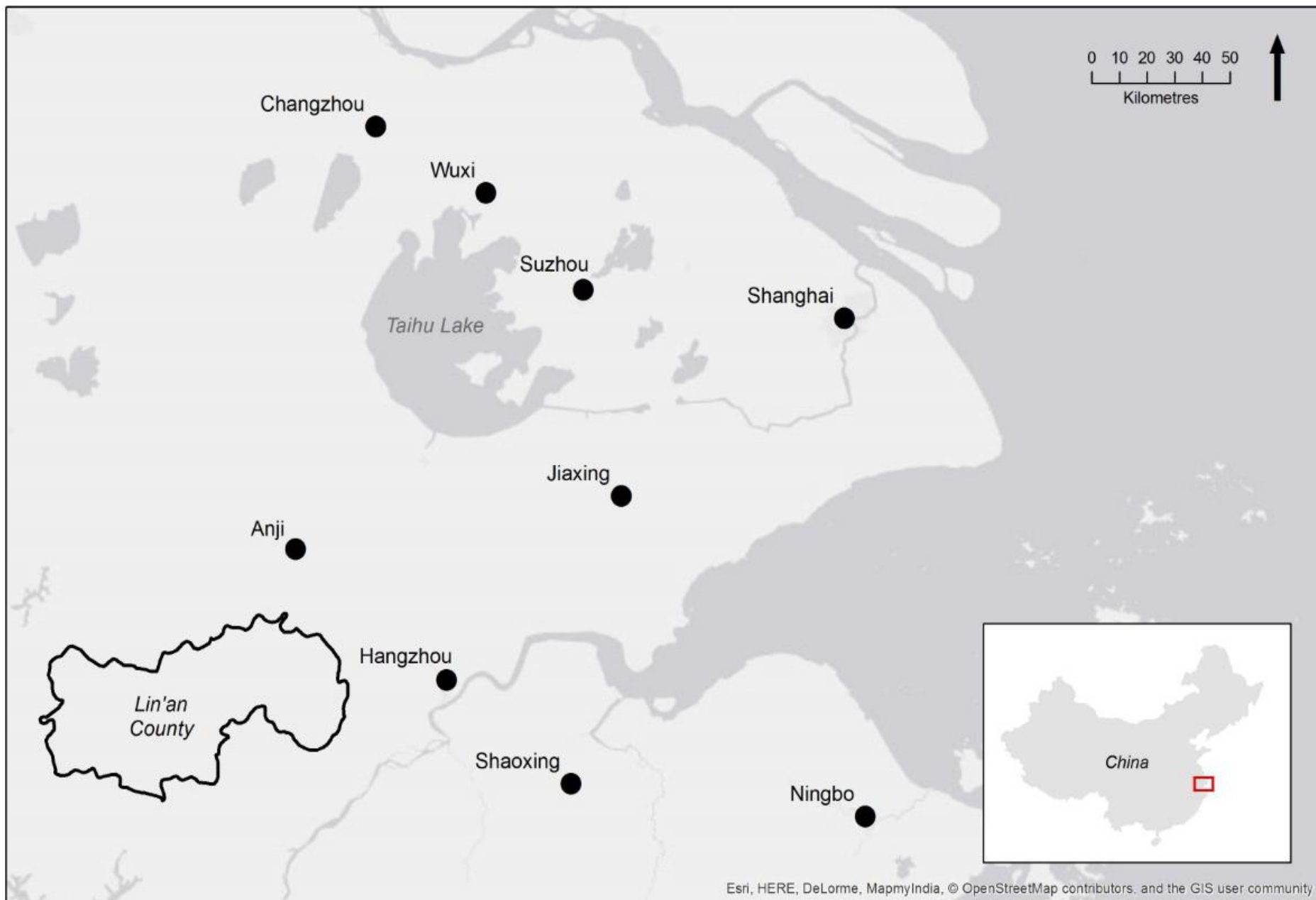


Role of county government

- Traditional state theorisation focus on state-driven transformation, which result in an unduly static understanding of state-market relationships.
- Limited enquiry into the role of county level government in providing support for farmers (e.g. agricultural extension services) and implement food production standards (e.g. hazard-free, green, and forest food standards).
- Need to explore how state power is shaped in a dynamic way, in which the local state employs territorial strategies (e.g. re-production of nature; farmers' co-operatives, demonstration households, and standardisation).

Role of county government

- Lack of understanding who are the key players involved in food standard making and spatial categorisation of forest resources for both conservation and exploitation.
- Operations of food/ environmental standards is intertwined with the practices of the local state to align with global food/environmental standards whilst maintaining 'state centric' governance system.



Methodology



- Two villages in Lin' an
 - the Bai Sha village on a mountain top and the Xia Gao village in a river valley to conduct surveys & interviews.
- Completed 56 semi-structured surveys with bamboo farmers.
- Completed 43 in-depth interviews with state actors, demonstration households, directors from bamboo shoot co operatives, retailers, wholesalers and processors.
- Collected secondary data include Lin'an Forestry Department policy documents (1982-2012); GIS data, longitudinal forestry change data, and industry's magazines.

Baisha village on the mountain top



Xia Gao village in a river valley



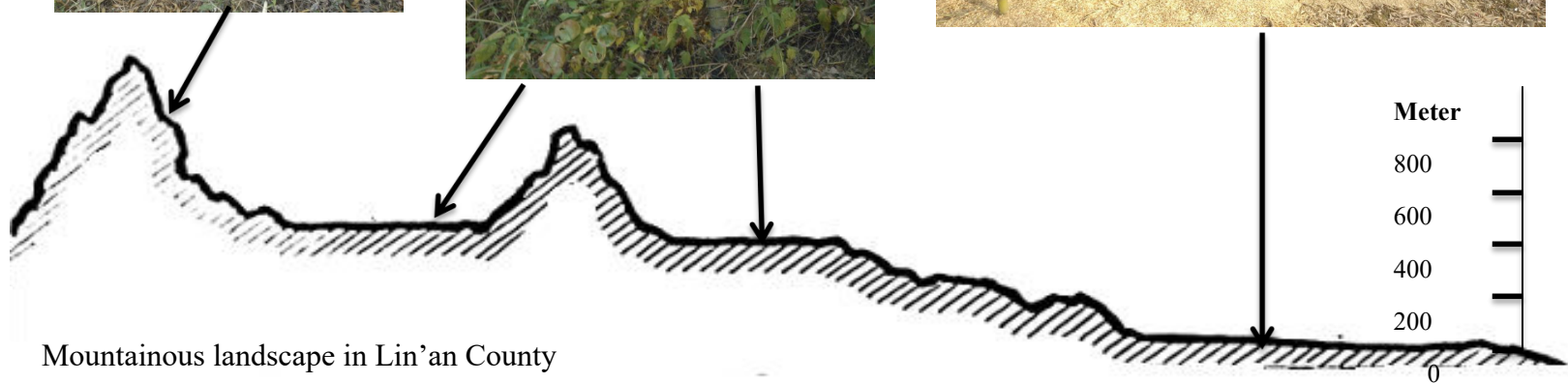
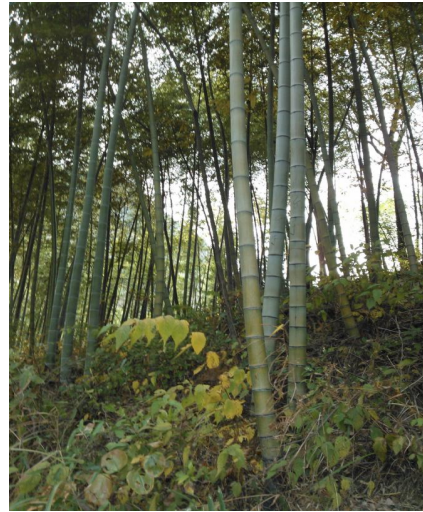
Rural restructuring in Lin'an county

- After land contracting in 1983, forestland became a value-extraction arena for both economic exploitation and conservation.
- The Lin'an State launched a countywide policy of *“Lin'an Zhuzi Fan Liang Fan, Zhuzi Ke Tiao Zhongdan”* 临安竹子番两番，竹子可挑重担 (literally, ‘bamboo became a lever to quadruple the size of the Lin'an economy’).

Rural restructuring in Lin'an county

- The Lin'an Forestry Bureau proposed the “Eight Advantages of Growing Bamboo Shoots” 竹子八大優勢 and recommended Lin'an State utilise the middle range of steep mountains when cultivating bamboo shoot.
- To rationalise bamboo shoot types with ‘high economic values’ and ‘compatibility with local landscapes and farmers’ skills’ (He, 2008, p.2-3).

Compartmentalization of bamboo shoot cultivation in mountain landscapes in Lin'an



Ph. Nuda (高節荀) is growing in high altitude. It is used for seasoning and preserved bamboo shoots' processing.

Moso Bamboo (毛荀) is growing in medium and high altitudes. It is mainly used for processing for canned boiled shoots

Ph. Praecox (雷荀) is growing in low altitude. The size of this bamboo shoot is medium. It is mainly used for fresh bamboo shoot consumption.

Forest classification and categorization for both economic growth and conservation

- The creation of taxonomy and topology for bamboo forests provides knowledge for the county state to manage the resources more easily and renders the marketable values more visible.
- 3 different types of bamboo forest are defined and assigned with specific types of marketable and conservation values. In this sense, the new valuation of nature enables a new compartmentation and novel spatialisation of bamboo resources for both capital accumulation and conservation.

Intensive Ph. Praecox (雷荀) cultivation



1 Bamboo shoot farmer prepared rice husk and wheat straw to cover the soil



2 Chicken deposit is used to increase the fertility and temperature for fermentation



3 Cleaning up the Ph. Praecox bamboo shoot cultivation lands and tilting will be applied



4 Bamboo shoot farmer mixed all covering materials with chicken deposit and used this material on his bamboo shoot cultivation lands



5 The covering materials increase the temperature and create a blanket effect



6 The Ph. Praecox shoot came out from the soil surface in early February

Fertiliser blending machine



Yu Wei Fertiliser Co-operative



Tailor-make fertiliser for farmers



Soil sample collection



Soil testing

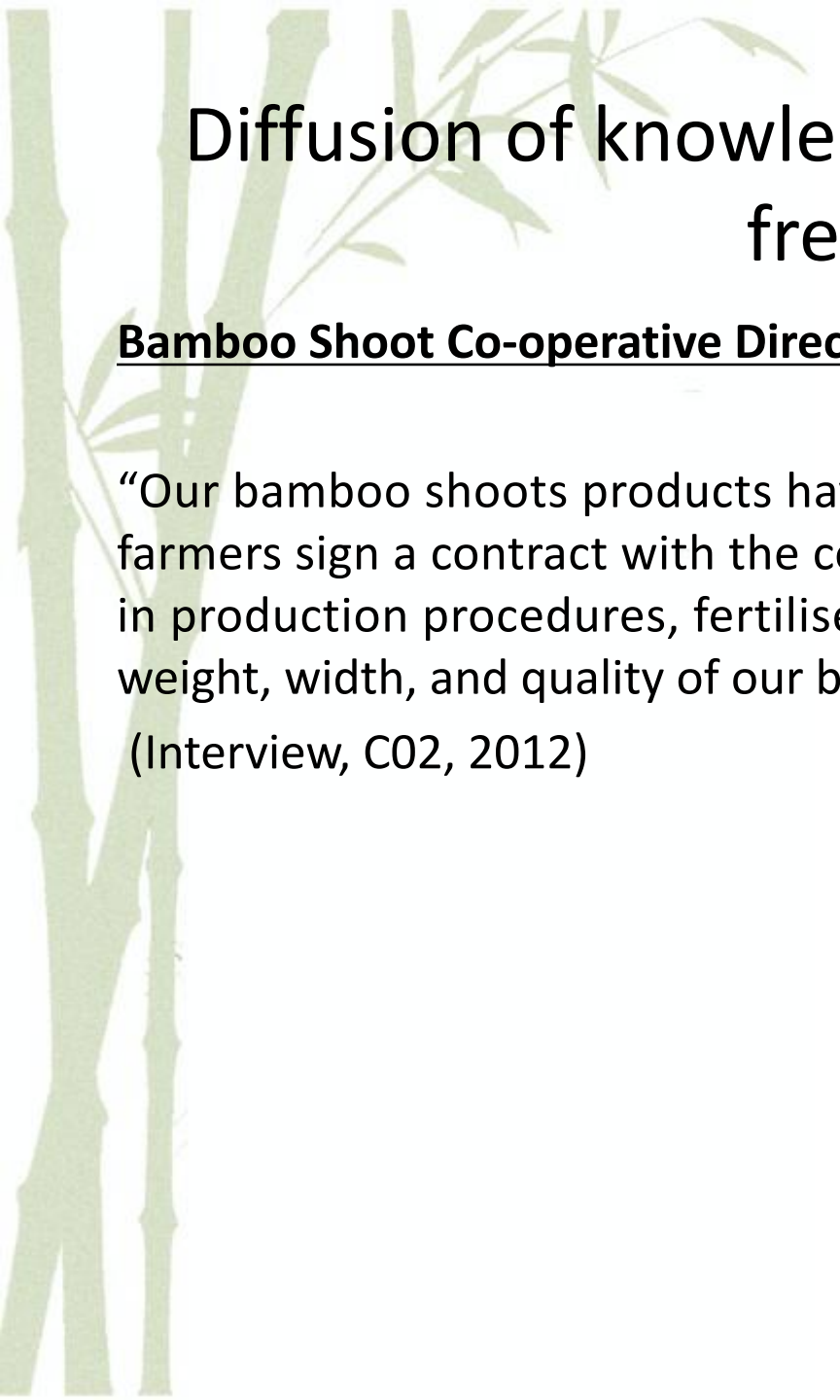


Quality assurance of a fertilizer to hazard-free standards

- A prerequisite for being able to meet the standard

Interview with Fertiliser Co-operative director

“Some fertilisers are counterfeit and even toxic. The source of the fertilisers is difficult to trace. However, if farmers purchased fertilisers from our co-operative, at least they could know where it came from....we will let farmers try our products and let them realise the improvement of their plantations. Once farmers see bamboo become greener and healthier, they will come back to buy it.

A decorative background on the left side of the slide featuring stylized bamboo stalks and leaves in a light green color.

Diffusion of knowledge and practices of Hazard-free standards

Bamboo Shoot Co-operative Director

“Our bamboo shoots products have a brand name called “*Taiwuyuen tau*” and farmers sign a contract with the co-operative because we have standardization in production procedures, fertilisers and pesticide usages. Therefore, the size, weight, width, and quality of our bamboo shoot products are standardised.”

(Interview, C02, 2012)

Supply side of bamboo shoots

Demand side of bamboo shoots

1. Production

2. Processing

3. Marketing

Lin'an state

Lin'an Forestry Bureau

- Increase the quality and stabilize the quantity
- Selecting, washing, weighting, and packaging
- Use the co-operative's brand Taiwuyeyun Tau

Farmers' co-operative law

Bamboo shoots' co-operative

Bamboo shoots' fertilizer co-operative

Provide training & workshops to meet the standards of "Hazard-free Production standards" in terms of seedlings, fertilizers and pesticides usages

Monitoring the quality of production

Demonstration households

Co-op members

- Customers in Lin'an, Shanghai, Nanjing, Suzhou place the orders
- Government officers purchased the shoots for gift exchange before the Lunar New Year
- The bamboo shoot is packaged as a gift box. So, it can be delivered by the co-ops through express post, direct delivery or pick up by customers

Key:

The direct-rule of Lin'an state



The indirect rule of Lin'an state



Forest law



Demonstration Household of Mr. Shao Sharing his Experiences

Demonstration Household

“More than 100 farmers consulted me for my cultivation techniques, farming schedules, and types of fertilisers, which I am using. There are around 30 farmers closely tied with me. Whenever they have problems, they come to my house to have a chat with me.”

(Interview, DH: 02, 2012)

Ecological benefits of growing bamboo shoots for conservation

- Ecologically, growing Nuda and Moso bamboo in steep slopes and high mountain areas can reduce soil degradation and increase forest coverage rate.
- For instance, in 2009 one quarter of the total forest areas in Lin'an was covered by bamboo forest. The total bamboo area coverage was increased by 92% from 1985 (2,900 ha) to 2009 (55,777ha) (Lin'an Forestry Bureau, 2009).

Ecological benefits of growing bamboo shoots for conservation

- Growing Moso bamboo shoots (毛笋) also reduced farmers' incentives to take part in illegal logging because farmers were able to earn substantial income from bamboo shoot cultivation.
- “Wood logging is not the only way to earn income. Growing [Moso and Nuda] bamboo shoots not only provided higher income return and stable income for farmers but also farmers could substitute firewood with bamboo timber and use bamboo to produce charcoal” (Interview with bamboo shoot farmer, 2012).

Ecological challenges of compartmentalizing bamboo shoot cultivation

- Monoculture, land degradation and increase pests and diseases.
- Mr. Chen, who has grown *Ph. Praecox* (雷荀) bamboo shoots more than 20 years commented:

“I estimate 50% of my lands are degraded. Farmer don't know the quality of the fertiliser until applied on their fields.”

Ecological challenges of compartmentalizing bamboo shoot cultivation

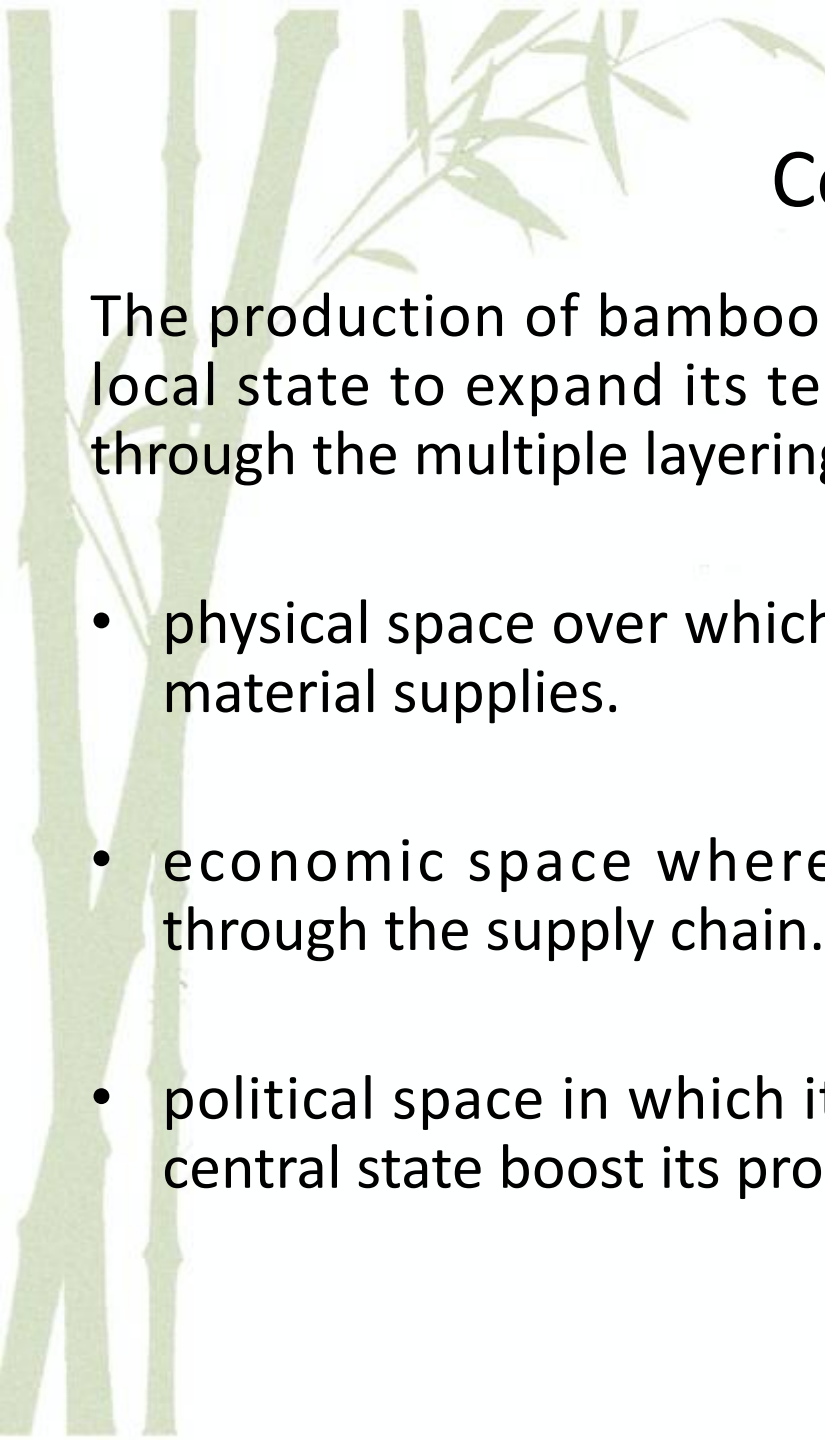
- Intensive bamboo shoot cultivation has caused 75% of Ph. Preacox (雷荀) bamboo shoot production land degradation, accounted for 5,133 hectares of farmlands in Lin'an County.
- Land degradation has “aroused higher level government and public concerns” (Ho, 2007, p. 1).

Conclusion

The local state combines extractive and greening measures to co-produce governing capacity through categorising forest resources for value extraction to accommodate productivist logic and legitimise compartmentalising forest resources into separate spaces of restoration and exploitation.

In macro scale, food standards and forest restoration help Lin'an state to align with international requirement in food and environmental ethics and increase its territorial reach to expand global market for its bamboo shoot products.

In a micro scale, local state engages with key actors including farmers' co-operatives and demonstration households to co-produce the knowledge of standards to extend its direct and indirect rules over bamboo shoot growers and remake the local state's political economic territory.

A stylized, light green illustration of bamboo stalks and leaves is positioned on the left side of the slide, extending from the top to the bottom. The stalks are vertical, and the leaves are clustered at the top, creating a naturalistic yet minimalist background element.

Conclusion

The production of bamboo nature as ‘spatial strategies’ for the local state to expand its territory and maintain its governance through the multiple layering of spaces:

- physical space over which it can seek to exert control over raw material supplies.
- economic space where it can enhance competitiveness through the supply chain.
- political space in which it hope to obtain the attention of the central state boost its profile and economic opportunities.



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