



4 Linking rural farmer cooperatives with urban restaurants in Guangxi

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In a remote mountainous area of Guangxi province, characterised by steep karst mountain formations and fast-running streams, sits the village of Shanggula – a ‘natural village’¹ in Mashan county. In addition to vegetables, farmers plant maize in minute pockets of soil on the steep slopes between rocks in flat, tiny fields. The topography makes irrigation water scarce. Heavy rains tend to cause floods, regularly damaging field crops. There are no major roads, and access to markets is limited. In recent decades, most households have relied heavily on income from temporary work in cities in south and southeast China.

This situation is starting to change, however, because of the work of a dynamic women’s organisation and its collaboration with a non-governmental organisation (NGO) in the provincial capital of Nanning, Guangxi province, and a policy-research centre in Beijing. This is the story of this community’s experiences, their laughter and their tears, in exploring and adapting the Community-Supported Agriculture (CSA) approach to revitalising agriculture in their village. Though this initiative is not a CSA in the conventional sense of networked members who pledge to support local farms (see Section 6), those involved feel that the term captures what they are trying to achieve and we have therefore remained consistent with their use of the term. Through this case study, we explore what lessons they have learned and how these may be useful more generally for strengthening sustainable agriculture in China and elsewhere. The data for this case study is based on collaboration between the authors and the community over the lifespan of the initiative, supplemented by interviews conducted by Song Yiching and colleagues with key community-members during field visits in 2015.

4.1 Background and characteristics of the case study area

Shanggula village has 89 households and a population of 359, one-third of whom belong to the Yao and two-thirds to the Zhuang ethnic groups. Most households cultivate some crops, at least for personal consumption, with average landholdings of about two mu (0.13 hectares) per household. Maize, a traditional staple crop, dominates the landscape and is

1. ‘Natural villages’ developed organically in pre-Mao China, and are the smallest units of local governance in modern Chinese society. They are distinguished from, but can form part of, ‘administrative villages’ set up for governance purposes by Mao’s administration.

produced for personal domestic consumption as well as for culturally important ceremonies and art. The area has a high diversity of maize varieties, including a glutinous 'waxy maize', thought to have originated in this area (Song, 1998).

As of 2014 there were 142 full-time farm labourers cultivating approximately 135 mu (9 ha) of land in the village (Table 1). Total cultivated land decreased from 153 mu (10.2 ha) in 2000 to 135 mu (9 ha) by 2010 due to some villagers moving into urban areas to pursue non-farming livelihoods. During this time, however, within the village, non-farming income had also been decreasing due to the influence of the CSA enticing youth back to the villages to engage in farming livelihoods. Since 2011, however, non-farm income has been increasing again due to problems marketing the CSA goods, as well as the introduction of stone, brick, timber and bamboo-processing facilities in the area that are providing new local non-farm opportunities. This trend seems to be reversing somewhat once again, however, as the number of full-time farm labourers has increased steadily since 2013.

Table 4.1. Demographic and agricultural trends in Shanggula village²

	Total population	Households	Full-time farm labourers	Total cultivated land	Land for maize	Land for vegetables	Average per-capita annual income	Share of non-farming income
Unit: Year:	No. people	No.	No. people	mu	mu	mu	yuan	%
2000	279	68	60	153*	95	11	1,200	70
2005	196	73	79	148*	95	15	1,700	61
2010	342	84	130	135*	100	32	2,600	40
2011	341	79	130	135	124	11	2,600	38
2012	346	86	130	135	115	20	2,760	60
2013	353	87	139	135	104	31	4,200	67
2014	359	89	142	135	113	23	4,360	70

* Prior to 2010, small amounts of cassava, sweet potatoes and soybeans were also grown in the village, making the total cultivated area larger than the sum of area planted in maize and vegetables. From 2011 on, villagers stopped cultivating these other staples in favour of maize and vegetables.

2. Based on data gathered by author Song Yiching through collaboration with the village.

In 2008, a group of five local elderly women farmers, led by Lu Rongyan, began experimenting with ecological vegetable farming. They forged links with an organic restaurant called Tusheng Liangpin in the provincial capital of Nanning, with whom they have a verbal sales agreement. Their goal was to expand ecological farming practices as well as marketing efforts through a Community-Supported Agriculture model, linking farm production with consumers through the restaurant.³



Picking organic vegetables © Simon Lim

Initially, production focused on vegetables and grain (primarily maize). Two years after the project started, three of the member households in the women's group started to experiment and expand into organic pig farming, using a 'circular-farming' approach that integrated maize, pig manure and biogas production,⁴ using processed pig manure to fertilise the vegetables. They also explored other innovations such as organic flower tea, herbal medicines, fresh maize, and chicken and duck farming. They have introduced simple processing and packaging of their products for additional added value. Their overall farming philosophy is based on small-scale subsistence farming producing a variety of goods in a circular farming system, rather than specialising in only one or two commodities.

3. The CSA roughly follows organic-growing techniques, and many of the products used in the restaurant are organic, but neither the CSA nor the restaurant are organically certified.

4. Biogas is popular, and every household in the village uses it, supported by a local government programme for poverty alleviation over the last two decades.

In March 2012, the group—now 28 strong and mostly comprised of women aged 45 to 60 years of age—formally registered as the Mashan Rongyan Ecological Farming Cooperative (Mashan CSA). Mashan CSA is one of the earliest CSAs in China, and one of the only CSAs located in a remote, impoverished area. The cooperative members support each other in practising agriculture that is free from chemical pesticides and fertilisers, makes use of local resources as much as possible while protecting the land and water.

The CSA model directly links small producers to ordinary consumers through the provision of reasonably priced, high quality organic vegetables. These products generally have no formal sustainability certification; the CSA model instead aims to increase interaction between producers and consumers so as to build mutual trust and benefits. CSAs are founded on the principle of building fair and equitable links between rural and urban areas through direct and personal contacts between producers and consumers.

Shanggula village is one such model. For the women who founded the Rongyan cooperative, 'sustainable agriculture' balances consumers' demands with the need to support ecological health and social cohesion. There is no formal written contract between the women and Tusheng Liangpin restaurant—only verbal agreements on aspects such as quality control (during cultivation and of end products), price, quantity, transparency, delivery, etc. Though lacking official organic certification, the women follow a kind of 'community-based certification' for quality control and insurance as well as monitoring and trust building within the group and community. This model has proved stable so far, and both the restaurant and the group have been quite satisfied over the last few years, although this is changing (see the challenges section). Despite the strength and success of the CSA, its members have also experienced some problems and challenges. The story and process are described in the following sections.

4.2 The role of the cooperative

The Shanggula cooperative is a self-organising and member-empowering women's collective—though there are also some newer male members who have joined recently. In 2012, the cooperative expanded its activities from one to four natural villages within the regional Guzhai Administrative Village, increasing the total number of farmers involved as well as its productive base to include soybeans, herbs, and the raising of chickens and ducks.

The cooperative has a formal management structure with a variety of functions. The elected leader is a very dynamic farmer and organiser named Lu Rongyan, leader of the original group. Her leadership has been instrumental in many regards (Yang, 2010). Rongyan is also supported by several newly arrived younger members, both women and men. The main work of the cooperative is to grow and collectively sell local produce including organic vegetables, pork, and hybrid maize seeds of a variety named 'Guinuo 2006' that was developed through participatory plant breeding (Box 1).

The cooperative offers technical services for plant and livestock production. These services are provided by a township public service extension worker funded by the government, and by village level farmer technicians partially financed by the cooperative through interest earned on the community fund (see below), and partially provided free by a young extension officer who recently returned from the city and became a member of the cooperative.

Box 4.1. Participatory plant breeding in Guangxi

Participatory plant breeding (PPB) is an approach linking formal plant-breeding systems of the state with informal farmers' seed-saving and breeding systems. China's first PPB programme was initiated in 2000 in six communities in Guangxi, including Shanggula. It aims to address declining genetic diversity in farmers' fields, and to improve livelihoods. As well as developing improved crop varieties for farmers, the programme is facilitating the negotiation of local agreements by which farming communities can benefit from sharing their genetic resources and related traditional knowledge with breeding institutes (Li et al., 2012).

The cooperative also builds members' capacity through the purchase and circulation of reading materials (such as a Chinese farmers' cooperative magazine produced by the Ministry of Agriculture), organising visits to other farmers and farmer groups, and periodic participation in training events locally and regionally. The collective's organisational capacities have become stronger, as evidenced by the expansion of its scope of activities.

Members of the Shanggula farming cooperative also participate in a traditional song and dance performance group (Dalang), which has grown more cohesive through the strong ties formed in the agriculture cooperative. The performance group's repertoire and schedule have both grown, as members feel inspired to work together to strengthen their cultural heritage, and even develop new songs and dances—inspired by the innovation achieved in their farming. In 2011, the group's performance was nominated 'The Intangible Cultural Heritage of the Guangxi Zhuang Autonomous Region' — a prestigious government award. In recognition of the award, the provincial government constructed a brand-new theatre in the village.

Another important activity of the cooperative is the management of a community fund. This fund was set up in 2004 as a means to strengthen local rural development by the project team that introduced the Participatory Plant Breeding efforts. To date, it has assisted more than 70 farming families, some of them with extremely low income, in purchases related to health and education. It serves both as a loan facility (with relatively low interest rates compared to commercial banks) for individual households and as a fund for collective investments and activities such as purchasing breeding materials, or water pumps. The fund also benefits non-cooperative members; 34 loans to non-members have been granted to date.

According to our interviews, the cooperative members are happy with the current management, and they like their leader, Lu Rongyan.

4.2 Ecological sustainability

The establishment of the cooperative was motivated by a shared concern for the environment, the conservation of agricultural biodiversity, and the maintenance of local culture. The farmers in Shanggula Village had realised that their soil fertility had been getting poorer from modern agricultural methods, including using too much fertiliser. They started to apply more residual manure from biogas production on their crops, and stopped using fertilisers and pesticides on their vegetables and other organic crops such as medicinal herbs. Instead they reintroduced traditional bio-control methods, such as intercropping with insect-repellent plants, pest-control lights, fire, etc. For ecological pig-raising, they

adopted circular farming practices, linking the maize feed, biogas, and organic crops in a sustainable process.

in recent years the group has also been adapting to changes in the climate, especially more frequent and extended droughts, rising temperatures and increased pests. For instance, they have used participatory plant breeding approaches to improve local varieties of maize and vegetables that are more drought-resistant, and have begun growing more diversified vegetables and other crops for pest control. As a result, they considered themselves as having achieved 'healthy food for healthy people (both consumers and themselves), a good environment, and happy profit' (group discussion and interview in September 2013 by the CCAP team). What kind of 'happy profit' have they made? The next section explores this question.



Organic vegetables © Simon Lim

4.3 Economic sustainability

The CSA has grown from five initial member households producing a few crates of vegetables on about 2 mu (0.1 ha) of land, to 57 members cultivating 23 mu (1.5 ha; Table 2). The original five members produced nearly 55 kilos of vegetables per month in 2008; in 2011, production had increased to 820 kilos per month. Total vegetable production, the number of varieties, and product quality are now able to satisfy the pork and vegetable needs of the Tusheng Liangpin restaurant and its patrons, although demand for other things such as eggs, rice, poultry, soy, and wine currently outstrips production capacity. The Tusheng Liangpin restaurant therefore relies on a number of other small villages in the network for these other goods.



Tusheng Liangpin restaurant in Nanning © Simon Lim



Cook in the Tusheng Liangpin restaurant © Simon Lim

Prices have also increased, from 4.4 yuan/kilo in 2008 to 4.8 yuan/kilo in June 2010, and in 2012 reached 6.25 yuan/kilo. Total vegetable sales in 2011 reached almost 66,072 yuan.⁵ For households involved in the CSA, annual farming income has increased from an average of 146 yuan in 2008 to a high of 6,600 yuan in 2011 (Table 2). It has since decreased, falling to 1,614 yuan in 2014. Even so, the current income is still double the average total income for the village.

Table 4.2. Eco-vegetable production and marketing in Shanggula Village

	Households involved	Average acreage used/household	Annual production	Average price through year	Total annual income	Average household annual income
Unit: Year:	No. households	ha	kg/ha	yuan/kg	yuan	yuan
2008 (Sep-Dec only)	5	0.1	1,376.25	4	734	146
2009	7	0.2	24,032.25	4	19,226	2,746
2010	11	0.3	22,912.5	4-4.4 ¹	29,629.2	2,694
2011	13	0.7	26,632.5	4.4	85,938	6,600
2012	36	1.3	22,500	3	150,000	4,160
2013	57	2.1	15,000	3	155,000	2,719.3
2014	57	1.5	12,000	3	92,000	1,614

¹ During Jan-May 2010 the price was 4 yuan per kg, and from Jun-Dec 2010 it was 4.4 yuan per kg.

Pork sales started in 2009 by three members, and had expanded to twelve members by 2012. This has resulted in a steady increase in income derived from pig farming between 2009 and 2013 (Table 3). Overproduction in 2013, however, led to a large portion of the product being sold in conventional markets rather than to the restaurant at premium prices. Pig production levels have been reduced since 2014 as a result.

5. One US dollar was worth 6.3 yuan at that time.

Table 4.3. Pig farming and marketing in Shanggula Village

	Households	Total farming	Pigs sold per year	Price	Total annual income	Average household annual income
Unit: Year:	No. households	No. people	No.	yuan per kg	yuan	yuan
2009 (Dec only)	3	17	0	20	0	0
2010	5	34	9	20	10,900	2,180
2011	3	57	36	20	66,072	22,024
2012	9	162	160	24	384,000	43,660
2013	16	250	250	22	450,000	28,125
2014	16	162	154	22 ^a	277,200	17,325

^a Average of 20 yuan per kg for white pigs and 24 yuan per kg for black pigs



Ecological pig farming © Simon Lim

The unit prices of the CSA ecological vegetables and pork sold to the restaurant are significantly higher than prices received on the conventional market (Table 4). However, in 2014 only part (less than half, in terms of fresh maize and pork) of the CSA ecological production was sold to the restaurant at these higher prices. The rest of the cooperative's products had to go to the conventional market to be sold at lower prices. A simple calculation revealed that if Rongyan Cooperative could have gained access to a fair CSA market for their ecological products in 2014, they would have increased their annual income by an additional 113,750 yuan. This shows that the economic sustainability of the initiative is not only about price, but about access to markets. The farmers rely too heavily on the restaurant as their sole target market and have limited market information, management experience or pricing strategy.

Table 4.4: Rongyan Cooperative CSA production, income and marketing, 2014

Item:	Cooperative annual CSA ecological product	Annual product sold to the restaurant	CSA price offered by the restaurant	Annual combined farmer income from sales to the restaurant	Annual CSA ecological production sold to the conventional market	Conventional market price received	Annual CSA ecological product income from conventional market	Additional potential income at CSA ecological product price
Unit:	kg	kg	yuan per kg	yuan	kg	yuan per kg	yuan	yuan
Vegetables	16,800	10,500	5	52,500	6,300	3	18,900	12,600
Fresh maize	325	150	5	750	175	4	7,000	350
Pork	17,000	5,000	22	110,000	12,000	13.6	164,000	100,800
Total actual and potential annual income	163,250			189,900	113,750			

Source: Interview with Cooperative Director Lu Rongyan; based on 2014 production and prices.

Recent decreases in total volume of and income from organic pork and fresh maize reflect the restaurant's limited demand, rather than any limits on farmers' own production capacity. So the barrier for further scaling-up is primarily limited market access. As a result, the cooperative is considering expanding its market channels, including opening organic stores in the township and Nanning city, and even selling through the Internet.

For profit-sharing, the cooperative keeps 20% of total vegetable sales and 8% of pig sales (because vegetable production requires more labour and complexity in packing and delivery), to cover transportation and packaging and to contribute to a collective revolving fund initiated by the community and assisted by the PPB project for enhancing the collective spirit and supporting collective activities.

4.4 Social sustainability

Since the formal registration of the CSA in 2012, eight young people have returned from cities or given up local non-farming jobs to join the cooperative as new farmers. For the villagers of Guzhai-region, especially the women, the return of young people to join the ecological cooperative is a source of great happiness, and also indicates the social sustainability of the initiative. Villagers attribute this success to the strong leadership of the cooperative, and to support from the CCAP team and the NGO Farmer's Friends (Box 2). Although the villagers had already started to grow organic vegetables and raise organic pigs on an individual household basis; the formation of the cooperative allowed for much stronger information, technology and labour exchanges, and also for common trust-building and collective bargaining in the sale of their products to the restaurant.



Preparing organic vegetables © Simon Lim

These collaborations have gradually strengthened their collective spirit and led to other collective actions such as village folk dances and contributing to village road-building.

Another effect of this initiative is a heightened awareness among farmers of the health benefits of CSA—their own, the environment's, and that of consumers. As one villager said, 'We are healthier than before, due to the healthy food we grow and eat everyday.' Other villagers also share these benefit through sharing of ecological concepts, healthy food, and collective funds gathered from the growers' organic vegetable and pig-raising profits. Based on villager's comments and ongoing interactions with these communities, we observed that on the whole, the entire village has become more happy, healthy and harmonious, and less tense and individualistically driven in economic terms.

4.5 Role of government and other organisations

In its initial stages the CSA did not attract much support from local government. Gradually, however, it attracted attention from the county government, which now showcases the group as a model woman-led cooperative, and also as a model for ecological farming. Lu Rongyan has also received some recognition; she has been named head of the administrative village, and was identified as a model labourer in Nanning. In addition, the provincial government's biogas project provided a good support base for the circular farming practices.

Lu Rongyan and her group were initially supported by a PPB and CSA project team started by CCAP, which started working in a number of villages in Guangxi in 2000. The Rongyan cooperative belongs to a wider Guangxi project-based organic cooperative network. This network emerged from many years of participatory action research in Guangxi led by CCAP, in collaboration with the Guangxi Maize Research Institute and a Guangxi NGO called Farmers' Friends (Song and Vernooy, 2010). The network connects various cooperatives, six local and organic restaurants, and urban consumers.

Box 4.2. Farmers' Friends: linking producers and consumers

The NGO Farmers' Friends was established in Liuzhou city in 2004. It started with one organic restaurant that linked a few like-minded farmers with consumers who cared about traditional farming practices, quality products and food safety. Now the NGO has expanded to include eight restaurants and a network of 16 rural communities and cooperatives including Mashan Guzhai Rongyan. The network acts as a platform for market information and knowledge-sharing and exchange among villages and other stakeholders. It also provides crop-improvement and seed-production technology training and institutional support for involved villages and cooperatives. As Lu Rongyan explained, 'The PPB project platform really helped us to link to more stakeholders, and significantly enhanced our confidence and capacity in ecological farming and marketing.'

4.6 Motivation for community-supported agriculture

The CSA model for organic farming and marketing was introduced to southwest China (the provinces of Guangxi, Guizhou, Yunnan and Sichuan) in 2005 by the Partners for Community Development (PCD), a Hong Kong-based NGO. CSA concepts and CSA-inspired farms have developed rapidly in China in the last few years. There are now several hundred known

CSA farms under the national CSA network, and hundreds more outside it. They all follow the same concepts and principles, but operate with different protocols in different cities. A few CSA farms are trying to practise a form of community-based agriculture certification introduced from India.

The establishment of the cooperative was motivated by a shared concern for the environment, for the conservation of agricultural biodiversity, and for the maintenance of local culture. Although established without any government support, the cooperative had grown out of more than a decade of informal agricultural research and cooperation at the village level, in the form of participatory membership in a plant-breeding group, supported by the NGO Farmers' Friends (Box 2) and by a research project of the Center for Chinese Agricultural Policy (CCAP) of the Chinese Academy of Science. The cooperative was also strengthened by a firm foundation of friendship among its members, established through many years of sociocultural cooperation through collective dance, song theatre and other activities.

Through discussions with women in the farmer group, we know that sustainable agricultural products are much more labour-intensive and time-consuming to produce than conventional ones. Yet the women tell us that they like to grow eco-vegetables. They care more about healthy production processes and achieving good prices. For the villagers, 'economic sustainability' means satisfactory returns that provide a balanced livelihood and sustain farming in the long term.

4.7 Challenges faced

Generally, the CSA practices in Guzhai village in the past eight years have proved successful, ecologically, socially and economically. Yet they have recently faced a few challenges that are hindering further sustainable development and scaling-up.

The current challenge today is a conflict with the new manager of the Tusheng Liangpin restaurant since July 2014. His attitude towards the villagers is not as friendly or collaborative as that of the previous manager. Specifically, he does not honour verbal agreements regarding product quantity, quality, price, etc., and new practices such as strict supply quotas and pre-set buying prices seem unfair to the cooperative. Rongyan and her team have discussed these issues with him a number of times, but have not been able to reach a new agreement. As a result, the restaurant has begun purchasing fewer and fewer products from the village in the past year.

Learning how to manage the market is a key challenge for the community and the cooperative for the coming years. As one farmer said, 'I have a great interest in doing organic farming. The main reason is for our own and others' health; the second reason is increased income due to the higher prices provided by the organic restaurant; the last reason is for our land and environment by not using fertiliser and pesticide. However, there are also challenges and limitations in marketing, for instance; we have to rely on the organic restaurant now, which has limited demand.'

As Rongyan pointed out, 'We realised that we need to expand and diversify our marketing channels, and to rely more upon ourselves.' She has begun helping the farmers to explore other market channels, whilst some individuals have had to sell their organic products in the normal market at lower prices. This has affected the common trust built through the

CSA network, and lowered farmers' incentives to stay involved. However, Rongyan and the cooperative's core members decided to learn from this lesson and expand their marketing channels. They aim to ultimately develop their own full-value chain by opening their own organic store and farmers' market in Nanning, but they need more support to realise this goal. A supportive policy framework for farmers' markets would be a positive step in supporting organisations like these. In addition, better market information, marketing skills and management training are needed, especially for the newly returned young people.

Another challenge they are confronting is finding new organic technologies. For example, they continually seek inputs and better information for integrated pest management (IPM) know-how and safety, and also lack reliable access to organic seeds. The CCAP team has been helping them explore potential partners to more effectively address these challenges.

4.8 Conclusions

This case study illustrates an important rural development path in China—community-based, diversified agriculture combined with strong horizontal integration. It represents '... a locally driven empowerment process in which farmers, led by women, have improved their capacity to deliberate about choices of action, experiment with options, create new practices and enlarge the network of horizontal relationships, and thus obtain more autonomy in realizing their aspirations according to own agendas' (Song and Vernooy, 2013). Farmers in Shanggula Village have retained a large degree of control over their resource base (land, water, labour, seeds). Market integration in Shanggula Village has a discernible face—buyers are known by face and name. Agricultural production in the village has become more diversified—from a maize-based system to an integrated crop-livestock system.

The system benefits from strong technical support and capacity building, accompanied by targeted research, and the support is more focused on broad rural development than on commercial motives. It also benefits from relationships with other cooperatives, restaurants, NGOs, research centres and universities, and the government's agricultural extension service. The process of expansion is a capacity building and empowering process for this self-directed community.

The success of this case reflects the value of farmers' cooperatives for linking producers with urban markets and linking producers to consumers through rural-urban interaction for mutual trust-building, and for improving local production and consumption of sustainable agricultural products. It is centred around the creation of a small-scale local market focusing on a diversity of local products in small quantities. This model is optimal for subsistence farmers and ordinary local organic consumers. In this way, this approach could be one way to influence the choices of domestic consumers and help close the rural-urban divide.

Despite the ongoing challenges, the experiences of the self-directed, women-led Shanggula farmer cooperative provide lessons and inspiration for ecologically, financially and socioculturally sustainable agriculture. Their mutual cooperation and success at integrating new technologies and concepts within a traditional farming framework to support the health of farmers, consumers and the environment alike illustrates the possibilities for smallholder ecological agricultural production in China and beyond.