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Abstract

Zhang Guan liang is a Chinese agricultural entrepreneur, who lives in Fuyang, China. In 2009, he founded North Branch River Vegetable Cooperative, with a vision of creating a vegetable production and distribution entity of significant scale. He has successfully launched the venture, with more than 200 farmers producing vegetables for it. Today, he faces significant challenges to further growth; some common to entrepreneurs, others unique to agriculture, and others unique to growing an agricultural venture in China. The case charts Zhang's efforts to increase production capacity, access growth capital, and manage food safety issues. In a larger sense, the case charts the agrifood supply chain struggles that are particularly acute in China today.

Keywords

teaching case, China, smallholder agriculture, cooperative, agricultural entrepreneurship

Disciplines

Economics

Scaling Up from Smallholder Agriculture in China, North Branch River Vegetable Cooperative

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A Teaching Case

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Zhang Guan liang is a Chinese agricultural entrepreneur, who lives in Fuyang, China. In 2009, he founded North Branch River Vegetable Cooperative, with a vision of creating a vegetable production and distribution entity of significant scale. He has successfully launched the venture, with more than 200 farmers producing vegetables for it. Today, he faces significant challenges to further growth; some common to entrepreneurs, others unique to agriculture, and others unique to growing an agricultural venture in China. The case charts Zhang's efforts to increase production capacity, access growth capital, and manage food safety issues. In a larger sense, the case charts the agrifood supply chain struggles that are particularly acute in China today.

Background

Zhang Guan liang was born to peasant farmers in Fuyang, China. In 1998, after completing high school, he moved to the city in hopes of building a better life away from the farm. "I spent too much time having fun in high school to earn the grades necessary to enter university," Zhang says with a smile. "At that time, it seemed the only way to make a living was to find a job somewhere away from my home. Many young people had left before me, and seemed to have found ways to earn a living beyond the opportunities available here."

Zhang was part of a great migration of China's population from rural to urban areas. The proportion of China's population living in urban areas has risen from 35 percent in 1998, the time of Zhang's graduation from high school, to about 50 percent today. The China National Bureau of Statistics estimates that there are today more than 140 million rural-urban migrants

in China, the vast majority being young people striking out to find economic opportunity as Zhang had.

Zhang joined a government-owned company repairing roads and performing small maintenance and infrastructure projects. Three years later the company was privatized and wages were slashed, forcing him to find another employer. He found work as a salesman for a company specializing in dyes. “It is very difficult for laborers to find opportunities for developing their skills as a way to higher wages and better jobs,” comments Zhang.

In 2003, Zhang was married and moved back to his hometown where his new wife worked as an English teacher. He worked for a wooden crate manufacturer for five years until the company was forced to close its doors. The company’s only client, a paper producer, was shut down for failing to adhere to the government’s environmental standards.



The Start

“At that point, I decided I wanted to start a business,” said Zhang. “Being dependent on an employer for my pay hadn’t worked out for me. I wasn’t paid that much anyway, so I thought that I might as well identify a way to create my own income. I enjoy working with people, and think I have good communication and sales skills so why not start a business?”

Zhang’s decision to pursue an entrepreneurial path is not unique, but entrepreneurship in the context of a modern economy is a newer and evolving phenomenon in China. Reforms to China’s socialist policies starting in 1978 gave way to the beginnings of private entities, though often positioned as collectively-owned enterprises. Further policy changes 1988 gave rise to enterprises more recognizable as private-sector, entrepreneurial ventures, and the number of private enterprises grew by 20 to 30 percent annually from that time through the early 1990s (National Administration of Industry and Commerce, 2003). Private enterprises have become a major driving force in the contemporary Chinese economy, and private entrepreneurs as a new social class are attracting enormous interest across the Chinese society (Chen, Li, and Matlay 2006).

Though the social status of entrepreneurs has drastically improved, and private or quasi-private enterprises have become engines of economic growth, there are still significant challenges to starting and running an enterprise relative to other countries. The World Bank’s *Doing Business* report ranks China 151st in its starting a business category for 2012, below Hong Kong (2), Singapore (4), Taiwan (16), South Korea (24), and Vietnam (98). Indicators that underlie this ranking include an average of 14 procedures needed to start a business (compared to 5 the

average of OECD countries) taking 38 days (12 days OECD) in total. There are also significant challenges related to intellectual property, copyrights, trademarks, and trade secrets and an overall lack of legal and regulatory transparency.

Despite the challenges of losing his job, having little savings, and the general challenges to starting a business, Zhang forged ahead in 2009. “I wanted to start a business near where I lived,” he recalls. “I also wanted to have a business that could grow, even if it was going to take much time and work.”

Zhang’s home is Fuyang, a county-level city with a population of approximately 650,000 under jurisdiction of Hangzhou, the provincial capital of Zhejiang province, located about three hours southwest of Shanghai by car.

Zhejiang province stands out for its entrepreneurial activity and growth. In Zhejiang, the private sector has developed at a greater speed than most others, with private enterprises making up more than two-thirds of the provincial economy (Zhang et al., 2003).

Zhang thought about construction. Home and commercial property construction continues to boom in Fuyang, and Zhang had some experience. “A construction business was a thought,” comments Zhang. “It seems that many who try to start construction service businesses end up as not much more than laborers, so it didn’t seem an attractive alternative. I hadn’t developed any special skills or ideas for how to stand apart from other enterprises, so I wasn’t sure I could effectively compete. At least it didn’t seem like a business where I could get a return much greater than an hourly wage.”

Zhang very quickly focused in on agriculture as his opportunity. “I fled farming after high school,” Zhang says with a grin. “But there has been such a change since then. More people live in larger cities and shop for their food in supermarkets. This creates a need for better production systems to deliver food products in a more professional manner.”

Supermarket chains have expanded rapidly in Chinese cities. This contrasts with past food retail markets that were highly localized. Supermarket chains are not only established in large coastal cities, but now into interior and smaller cities as well as historically rural areas.

Global grocery superpower Walmart entered the Chinese market in 1996 and now operates a number of formats and banners in China including Supercenters, Sam’s Clubs, and Neighborhood Markets. As of March 1, 2012, Walmart owned 370 units in 140 cities in 21 provinces and four municipalities, and had 106,500 employees across China.



Figure 2. North Branch Vegetable Cooperative Production.

The emergence of a higher proportion of food purchases coming from supermarkets, restaurants and convenience stores is indicative of a higher proportion of Chinese consumers, with a well-earned reputation for frugality in food purchases, having a willingness to pay more for food products.

“More consumers want foods that are convenient, safe, and good quality,” said Zhang. “As supermarkets continue to grow in popularity, my thought was that there is a significant opportunity to develop a brand that would be known for consistent quality and safety. Agriculture and the food industry in China have been given a bad name by the melamine scandal and other food safety and quality issues. If I can establish a business with a reputation and brand for high quality, there is great opportunity for growth. Supermarkets have an interest in standardized quality and safety, but there needs to be capacity for delivering that from the farm.”

The Chinese grocery sector will continue its fast growth over the next few years to hit sales of almost \$1.5 trillion by 2015, according to grocery industry researchers IGD (IGD 2012). The group pegged Chinese grocery sector sales at \$954 billion in 2011, moving past the U.S. market at \$913 billion.

In early 2009, Zhang narrowed in on his start-up opportunity, a vegetable production business that could scale-up to do business with large supermarkets. “The primary challenge I have to overcome is scale,” said Zhang. “Growing vegetables in Zhejiang (Province) is no trick, but the hard part is developing the production capacity for delivering large quantities of consistent,

high quality product. There are no big tractors here,” he comments while smiling at the American co-author.

China faces significant constraints in its agricultural land capacity relative to its population size. China has approximately 300 million acres of arable land, covering 13 percent of its territory. This amounts to 0.67 acres per capita, less than 40 percent of the world per capita average, one-eighth the U.S. level, and one half of India. China has 22 percent of world total population, but only 7 percent of arable land.

“Agricultural land here is set up in very small plots and is mostly cultivated by households,” adds Zhang. “The average farmer cultivates about one and half to two mu (about one third acre), sometimes in different plots and usually to a number of crops. The land is owned collectively by the villages, and farmers can’t sell the land. But the people do have land-use rights that can be traded or rented.”

With these land tenure issues in mind, Zhang knew he needed to develop a business that could enlist the support and participation of others who had access to land and production capacity. “The first thing I knew I needed was the ability to produce at higher quantities,” he comments. “I began to meet with farmers who I knew that I thought might have an interest in being a part of something bigger.”

Zhang met individually and in small groups with neighboring farmers. He described his longer term vision of an enterprise that would focus on production and delivery of high quality vegetables to large supermarket buyers.

“Farmers are used to working alone,” commented Zhang. “They work hard to earn money from their small plots of land, so ideas of change can be difficult to accept.”

Zhang spoke to the farmers about trends in consumer markets that were creating opportunities for larger-scale production. He brainstormed with them about specializing in various vegetable crops, working to gain access to better seeds and genetics, and about how to create a staggered production schedule that would result in a more steady supply of products to customers.

Structuring the Business

Eventually eight other farmers agreed to start work with Zhang on the launch of the new business. “Relationships are important, so the early commitments I gained were from those farmers that I knew who had some trust that I would work hard to make the business succeed.”

Zhang had already begun to explore structuring the business as a cooperative. “As I spoke with local officials about starting a business, more and more of the discussions turned toward formation of a farmer cooperative.”

The term ‘cooperative’ has had varying meanings in agriculture in the last several decades in China, and government has played varying roles in their development. In recent years legal reforms and intensifying levels of aid have contributed to the emergence of form of agricultural cooperative that would be more recognizable to those familiar with U.S. and European cooperatives.

Deng, Huang, Xu, and Rozelle (2010) label the more recently emerging organizations in China as “farmer professional cooperatives.” Farmer professional Cooperatives in China are more like cooperatives elsewhere in the world and include organizations that supply inputs, manage production and promote technology as well as those that are engaged primarily with marketing.

The emergence of these newer farmer cooperatives has accelerated since 2006, when a law was passed providing further support for their formation (Sonntag, Huang, Rozelle, & Skerritt, 2005). This national law gave confidence to the officials that were charged with promoting farmer cooperatives that their mission was in sync with the nation's development efforts. It also gave formal legal status to farmer cooperatives such that they could act as business entities.

By March 2009, Zhang had found persuaded eight farmers to join him in founding North Branch River Vegetable Cooperative. “The nine of us certainly didn’t have enough land or expertise to do anything too big,” said Zhang. “But we needed a place to start, and the important thing was setting up an organization positioned for the future.”

“It is important to have the support of local officials,” continued Zhang. “The new law related to cooperatives gave them added motivation to support the development of North Branch River Vegetable Cooperative. It also has given us some advantages related to taxes and tolls, and access to some start-up capital.”

First Efforts

“Our first efforts were around building coordination in production and marketing of common vegetables,” said Zhang. “My eye has always been on development of a brand, so we registered North Branch River Vegetable Cooperative as a trademark and began to work immediately on how to achieve volumes of consistent, high quality vegetables.”

Zhang learned quickly in 2009 that coordination of even a few relatively small farmers was a challenge. “We all had our own ideas on which seeds to use for both yield and quality. We had to learn to measure more carefully and to more carefully note consumer preferences. Even coordinating a planting and production schedule took a lot of learning.”

Ultimately, the first farmers in North Branch River Vegetable Cooperative (NBRVC) yielded to Zhang’s larger vision. “We all understood that we were working toward something larger,” he said. “The technical standards we developed for production and harvesting were not just for ourselves, but were about testing and building systems for a larger organization.”

Zhang and eight other founders of the cooperative invested 10,000 yuan each initially, while one hundred twelve other farmers invested 100 yuan each. The cooperative is governed by a Board of Directors elected by members.

Growing the Enterprise

By late in 2009, Zhang and his early group of farmer members were engaged in early activity. They focused on ramping up production of leafy vegetables, working through the many details of a more coordinated method of production. “We would work through a list of questions and

issues each day as we got started,” commented Zhang. “By day’s end, however, we would have generated an even longer list of questions!”

The group underwent ‘pollution-free’ production training, a designation based on a program administered by the Chinese Ministry of Agriculture. The program’s inception was 2001, as the government launched the Action Plan for Pollution-free Agricultural Products. The focus of the program is on food safety and food quality.

Fresh vegetables were the first crops covered by the plan, and the Ministry of Agriculture developed a series of standards for vegetables to carry the pollution-free label. The standards for the pollution-free certification products are compulsory. Two other certification schemes - namely Green Food and Organic Food - are voluntary.

“Products sold locally in less formal markets may not worry about pollution free certification,” commented Zhang. “But we needed to start from this point because of our plans to sell through supermarkets and other more organized markets.”

NBRVC sales channels are split up into three parts. Wholesale markets account currently for about 75 percent of total sales, 15 percent is supermarket sales, and 10 percent is sold directly to consumers. “With more widespread adoption of Internet shopping we have been experimenting with sales of high-end fruits and vegetables,” comments Zhang. “We see this type of direct sales activity growing along with supermarket sales.”

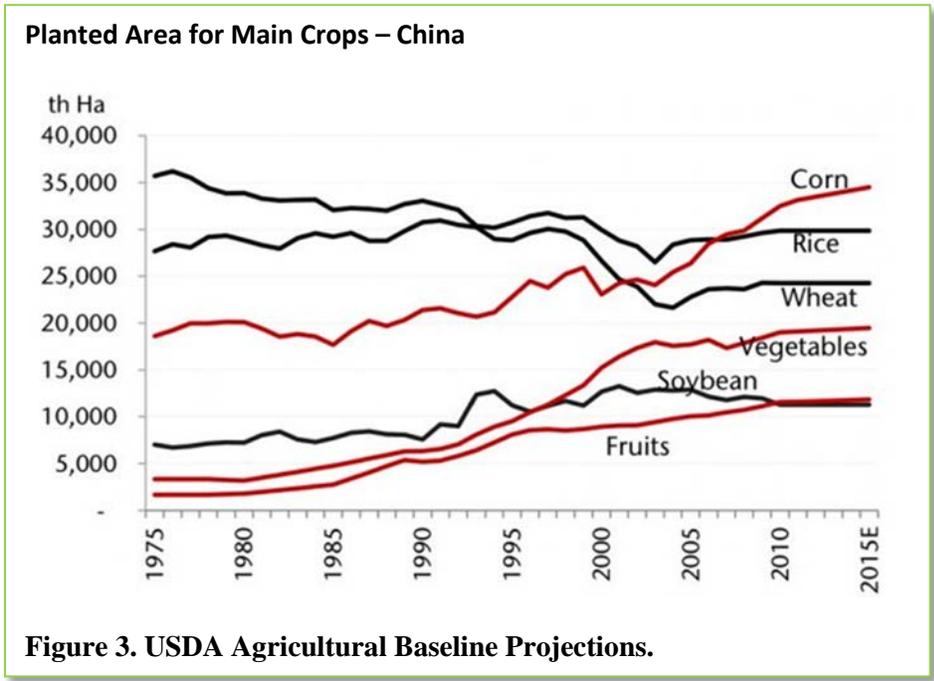


Figure 3. USDA Agricultural Baseline Projections.

Vegetable production in China has expanded significantly during the past three decades.

Vegetable-production area in China has grown from about 3 million hectares in 1980 to almost 20 million hectares today. China has transitioned from barely visible in international markets to that of a leading exporter of fruit and vegetables.

Leading vegetables produced in China include cabbage, cucumber, radish and tomato. The top 10 vegetable producing provinces (out of a total of 31) account for 70 percent of the total national output, with Zhejiang Province being one of them. Other leading production regions include Shandong, Hebei, Henan, Hubei and Guangdong.

The combination of strong domestic consumption growth and continued growth in exports are predicted to fuel investment in vegetable production. Technology has contributed substantially to the growth of Chinese vegetable production. For example, greenhouse production has moved from less than 10,000 hectares in 1980 to something approaching 3 million hectares today.

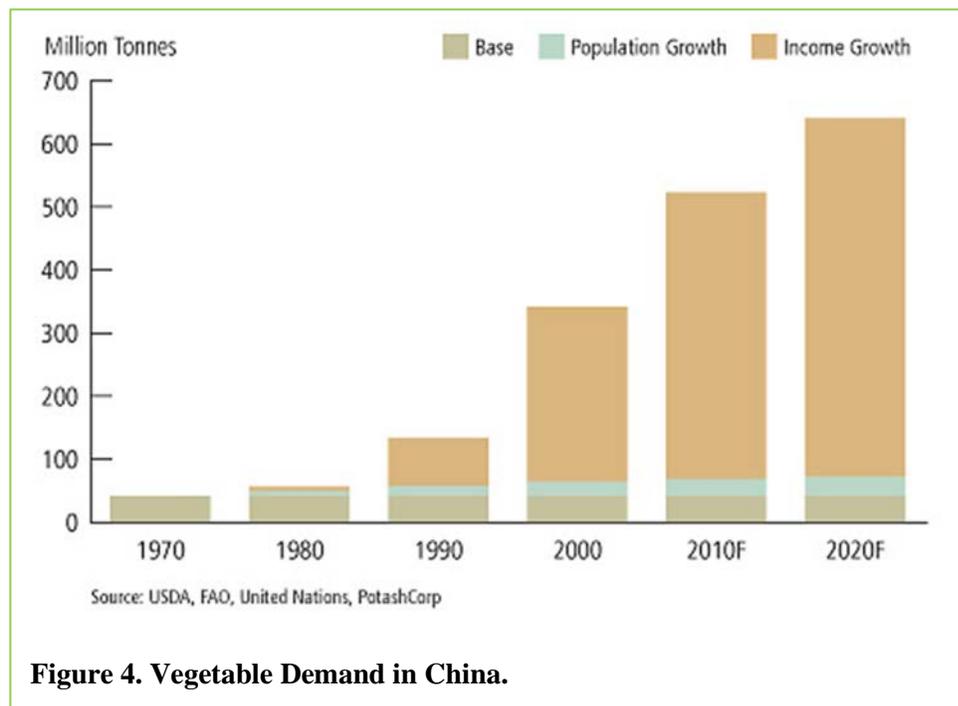


Figure 4. Vegetable Demand in China.

By early 2010, Zhang’s work to coordinate with local officials began to pay off in that a special trade area was established for NBRVC products. This was done to expand and develop brand name recognition in Fu yang’s east market.

“We needed credibility early, and that is difficult for a new business,” commented Zhang. “The support of the local officials was important in signaling to potential buyers that we were real.

There is also the potential for some financial support from local government as we invest in greenhouse facilities.”

In June and September 2010, Fu yang TV had two special news reports on NBRVC’s goods, which raised the profile of the fledging venture. In August, NBRVC signed an agreement with Wumei Supermarket to supply vegetables.

“The market opportunities opened up pretty quickly,” said Zhang. “We started adding new farmer members at a faster rate than expected.”

Zhang and his founding members set up ambitious goals for NBRVC for 2010. They included:

1. Set up 1200 square meters (.35 acres) of large greenhouse awnings for testing new seeds and sustainable production methods.
2. Construct 500 square meters of space for vegetable processing.
3. Drive members to establish 100 mu (16.5 acres) of greenhouse awnings.
4. Reach 12,000,000 RMB (US \$1.8M) in sales.
5. Establish seed/variety test projects with Zhejiang Institute of Agricultural Sciences, Hangzhou Institute of Agricultural Sciences and others.

“We were able to reach our goals for 2010, even as we struggled with all kinds of issues,” commented Zhang.

The Competitive Environment

The vegetable industry in China has grown significantly. Growth in income has led to rapid increases in vegetable consumption, with China ranking top in the world in consumption of fresh vegetables.

Vegetable production has grown in tandem with consumption. Although the sown area for vegetables accounts for only less than 10 percent total crop area in China, it accounts for more than 30 percent of the total agricultural production value. In addition, vegetable processing has grown significantly.

The average scale of vegetable production is very small, and driven by the small size of landholdings for households. Farms that produce vegetables in China range in size from 0.2 to 0.3 hectares.

In more marginal vegetable production areas, vegetable production typically is part of a rotation with other crops with very minor scale. Marketing is not an important activity in these areas as production is primarily aimed at meeting household and local demand.

More intensive vegetable production areas do find larger scale, specialized operations, though often their production capacity doesn't exceed 10 hectares. Only in the last three years has China begun to see emergence of more scaled enterprises, with access to regional and export markets, and utilizing the latest production and greenhouse technologies.

"It was after I started meeting with supermarkets and other large vegetable distributors that I realized there were other producers that were far ahead of me," commented Zhang. I have

now visited operations that have many hectares under greenhouse, have very nice processing facilities, and are selling their products not only across China but often into export markets as well.”

“One worry I had initially,” adds Zhang, “was that we wouldn’t sell our production. The thought of increasing NBRVC vegetable production and then watching it go rotten for lack of a market outlet was a big concern.”

“My concern was in the wrong place. We have always been able to sell our vegetable production. The important issue is price. We have a high quality product and deliver it fresh, but there are others who do the same and margins are very difficult to maintain.”

Zhang notes the emergence of well-capitalized vegetable production and processing operations with access to capital. “Operations connected to national or multi-national companies have been able to ramp up production very quickly. They have been able to access large tracts of land, construct world-class greenhouses, and move to large scale production in a very short period of time.”

Differentiation

NBRVC produces vegetables under the pollution-free food standards, but so do better-capitalized competitors. These standards encompass:

1. Environmental quality standards in the production fields such as air quality, water quality and soil quality.
2. Production technology.

3. Both primary product and processed product qualities.
4. Packaging, labeling, storage and transportation.

The Ministry of Agriculture administers about 40 are pollution-free vegetable standards, though there can also be local standards for pollution-free certification.

“We’re happy to have achieved pollution-free certification,” said Zhang. “But it seems that is more of a necessity just for doing business with major market outlets, rather than a means of setting ourselves apart from the competition.”

Zhang and his fellow NBRVC producers pride themselves on the no-pollution certification, and also on using a high proportion of organic fertilizer and limited pesticides and insecticides.

“We use manure from a local dairy, though we are asking many questions among ourselves about it as it costs more than synthetic fertilizer. When we are competing on price it makes it difficult to continue with higher cost inputs.”

“We continue to debate moving toward fully organic production,” adds Zhang. “As producers we worry about the risk of exposing our crops to disease and pests, but perhaps it’s the better opportunity for distinguishing our brand in the market. There are certainly examples of organic products that command a premium in the marketplace.”

Scaling the Enterprise

In spite of intense competition, by 2012 Zhang finds that the enterprise has continued to grow. NBRVC has more than 80 farmer members, and nearly 200 non-members involved in vegetable

production, processing, and sales. Production occurs on about 300 mu (approximately 50 acres).

The cooperative now has a processing facility, though little equipment or refrigeration. Cleaning and packaging of vegetables after harvest occurs in the processing facility under the standards developed by Zhang. Transportation to end-customers has developed, enabling timely delivery of fresh vegetables.

NBRVC now organizes efforts to guide members on planting methods, seed selection, crop selection, timing of planting and harvest, and other important aspects of a scaled vegetable operation. The cooperative works to arrange use of 'low-impact' fertilizers (manure from local dairy cows), trains producers on pesticides usage, as well as on proper stewardship of irrigation water from the nearby North Branch River.

Zhang's expressed concerns about NBRVC center on sustainable growth of the enterprise. "We have ambitious goals for continued growth," he says. "But is the cooperative really positioned to achieve that?"

Zhang and his Board developed goals for 2015 that include the following items.

1. Establish 300 mu (50 acres) of greenhouse production, with an additional 1,000 mu (~170 acres) of uncovered vegetable production.
2. Establish a 2,000 square meter (0.5 acres) test plots, grow seedlings in greenhouses, and develop 500 square meters of vegetable cold storage in processing facility.

3. Establish distributed delivery capabilities to enable online orders and direct delivery to homes, businesses and schools.
4. Develop services for use of agricultural machinery and agronomic consulting.
5. Develop new marketing services including customer tours and self-picking areas.
6. Develop further processing capabilities for new products such as dehydrated vegetables, vegetable drinks, and health-care vegetable products.

When Zhang is asked about the biggest constraints to achieving these goals his answer is quick. “Capital. As a cooperative we’ve had access to loans for working capital at relatively low interest rates, but capital for investing in growth is much more difficult to obtain. Tight margins mean that we haven’t been able to build a significant base of capital from operations.”

In addition, Zhang worries about the demographics of the farmer members of NBRVC and those other farmers that serve as suppliers. “Many farmers are of the older generation, and few of them have children willing to carry on the farm business. Fast change is a challenge, and introduction of concepts like organic production is difficult.”

Finally, Zhang looks at the nearby highway and wonders about NBRVC’s location. “We’re close to Hangzhou.” (population 8.7 million) “Land like this, so close to a major city, is at greater risk of being used for purposes other than agriculture such as manufacturing. In addition, labor costs are rising here more rapidly than other areas because of so many jobs in Hangzhou. This puts us at a disadvantage compared to more remote, larger scale vegetable producers.”

Discussion Questions

1. As Zhang attempts to expand the scope and scale of his cooperative, what are the primary obstacles to growth?
2. How can NBRVC differentiate itself in the marketplace? What strategy best lends itself to long term success?
3. What expertise outside that of Zhang may be needed for NBRVC to grow?
4. What are the strengths and weaknesses of NBRVC's cooperative structure?

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