DISSERTATION

# HOW UNIVERSITIES PARTICIPATE IN AGRICULTURAL EXTENSION: A COMPARATIVE STUDY OF TWO CHINESE AGRICULTURAL UNIVERSITIES

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# ABSTRACT

## HOW UNIVERSITIES PARTICIPATE IN AGRICULTURAL EXTENSION: A COMPARATIVE STUDY OF TWO CHINESE AGRICULTURAL UNIVERSITIES

University-based agriculture extension is a system set up to help local farmers access the newest agricultural technology and techniques developed by universities, which is comparatively different from the traditional government-led approach. US is currently the only country in the world which has based this service within the university, yet many other developing countries have started to incorporate universities into their agricultural extension system in order to improve the effectiveness of the agricultural extension services. However, little literature pays attention to how the universities adopt this practice and how this adoption influences the organizational capacity of universities. This study tries to fill this gap by exploring how two Chinese agricultural universities adopted two different ways to build platforms for conducting agricultural extension, how these newly built platforms impact agricultural extension activities, and what the future for these new platforms looks like in terms of institutionalization. This dissertation draws on relevant literature of organization theory and rural sociology to frame the innovation process happening in these two agricultural universities.

The research questions which this dissertation tries to answer are: 1) How did the university incorporate this new function into their daily practices; 2) What kind of organizational changes did they experience? Is there a better way to do this? 3) How might this new practice in the university influence the previously existing agricultural extension system? To explore these questions, I conducted a comparative case study that included: 1) semi-structured in-depth

interviews with key informants; 2) direct field notes from the local sites of universities; 3) secondary documents including collaboration contracts, university handouts, news reports, official websites etc.

There are several major findings from this dissertation research. First, the two universities both made within-organizational change and outside-organizational change. They had similar within-organizational change which is clearly required by the national policy to build a new institute for extension within the university. But the New Institute faced different issues of legitimacy in the two universities. With regard to outside organizational change, the two universities built different kinds of platform to conduct agricultural extension activities, one established physical land with all kinds of facilities and the other one is project oriented. Different platforms bring the two universities both unique advantages and distinct challenges. Second, with these organizational changes, the new practice of agriculture extension transformed their previous singular, sporadic individual activities of agriculture extension by upscaling the extension team and funding for the activities. Third, though via different platforms, the two universities face similar challenges of institutionalizing university-based extension. With the platform with physical land comes with the issue of development differentiation and the platform based on projects lacking a stable safeguard mechanism. Fourth, the decision of how to build platforms is not a standalone issue but is related to the history, current economic and political conditions of each of the universities.

This dissertation contributes to theory by illuminating the process of how university organizations change or innovate to fulfill the new role of university-based agricultural extension. Based on the findings from this study, I argue that universities need support from local governments or local agribusiness to fulfill this new role of agricultural extension,

otherwise the advantages of university in agriculture extension cannot be realized. There is no certain path universities need to follow to complete this task and it depends on the local situation and the social contexts of each university. Lastly, this dissertation contributes to methodology with its comparative in-depth case study of institutional innovation in Chinese universities. What's more, this study also proposes some practical suggestions for universities to consider when creating their own agricultural extension platforms and partnerships with local governments and local agribusiness to promote agricultural extension. This study also shows the need for further study related to the future development of these newly built university-based agricultural extension and the organizational capacity of universities to become involved in agricultural extension across different locations and social contexts.

# ACKNOWLEDGEMENTS

The topic of my research started with my internship working in the Office of Engagement at Colorado State University. My work began with helping prepare for the second US-China University-based Extension Conference held in 2016 by CSU which turned out to generate fruitful cooperation between multiple universities. The cooperation that began first between AAU and CSU later developed into an extensive cooperative network among ten Chinese universities and 12 US universities. In this conference, professors from all different areas shared their experiences about how agricultural extension is done in their universities. It is natural to compare how university promote agricultural extension in two countries. The tentative conclusion and agreement are that the political and economic context plays a strong role in influencing how the university acts in the area of agriculture extension. Since the US has a long history of tasking universities with promoting agriculture extension, universities show more freedom and agency in arranging the whole area, and that bottom-up approach is obvious with greater contributions from local counties. By contrast in China, university-based extension is new, and its more centralized political environment makes this initiative more top-down. By serving as a coordinator and translator during the conference, I participated in this discussion and found China's case to be interesting. As with Chinese policy initiatives, it has inherent top-down characteristics, but learning from US bottom-up experiences, what could this change look like? In addition, there is already an existing team for agriculture extension led by China's Ministry of Agriculture. In this context, how would the university launch this new practice and make it a routine within the university? This professional experience planted the seeds in my mind of developing a sociological study of this interesting and important topic.

Undoubtedly, it would have been difficult for me to write this dissertation without the support of a large number of people.

First of all, many thanks to my advisor, Dr. Pete Taylor. I appreciate and enjoy most the weekly or biweekly discussions with my advisor. With his broad knowledge, great understanding, kind empathy, and high professional standards, I can talk freely about my sociological imagination about my observations or social thoughts. Each time after our meeting and discussion, my understanding of the topics has been deepened or heightened with his feedback or reflections. It is so wonderful and amazing to have free talk as sociologists in an office, which is something that I dreamed of all along my life. These moments shed a crucial light for me when I was in the most miserable situation during my study. My dissertation project cannot leave out his patient help and caring support. Thanks so much for him generously sharing his experiences in the field and so many wonderful stories which are so important for handling tough situations in my field work.

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I want to thank those people who gave me opportunities to gain entry into US and international extension experiences in the US and in China, including those colleagues in China who made it possible for me to do my case studies. Many thanks for the assistance offered by Dr. Yao Zuowen and other people who provided invaluable support before and during my field work at Anhui Agricultural University and at Sichuan Agricultural University. Special thanks also to Dr. KuoRay Mao who has helped shape my understanding of extension in the US and China and the larger contexts in which they operate.

I am very grateful for those people in the field who helped me and talked openly about their work experiences and observations during my visits. I have learned greatly from their generous sharing and deep thinking. Due to ethical principles, their names will be kept confidential and some of them are mentioned with pseudonyms, but their kindness and honesty makes great contributions to the completeness of my dissertation study. I thank them from the bottom of my heart, and also all my best wishes for the great work they have done in agricultural extension built by Chinese universities. I sincerely believe this is a meaningful and useful practice which will benefit a lot of marginalized local farmers and then further rural development in China. Their exploration and work will lay a great foundation for the future development of university's participation into the agricultural extension.

Many thanks to Julie Pinkston, who offered great help with those tedious but important logistic arrangements for my field trips. Her work really helped me a lot in smoothing my travel during my field visit. She was awesome to keep me posted about all the necessary documents while I am off the campus. I also appreciate her presence at low points during my research process. Her warm words and friendly contact help me get through those cold days.

Many thanks to CSU Writes. There would be no dissertation draft without CSU Writes. I want to show great appreciation for their help and support, especially from Dr. Kristina Quynn. She has provided so much useful and helpful information about changing my bad writing habits such as binge writing and procrastination. There was a long time when I felt I would never graduate from

my Ph.D. program since the writing project for a dissertation was overwhelming to me. It became less stressful when Dr. Quynn pointed out that we are also writers as scholars. This had been a hidden role in most of my study and when it suddenly became clear to me I felt I can take some actions to make writing happen in every day for me. The habit of regular writing every day or in my own routine, or free writing, or setting up regular habit for your writing such as drinking tea, sitting at the same place, save the space specific for writing etc. Those good habits have saved my life and helped me finish my Ph.D. I believe it would also benefit me in the long future.

I really enjoyed those writing sessions and writing retreats held by CSU Writes, when we wrote together over a whole weekend. Those were fabulous moments I had during my study. In those lonely exploratory times during the process of the Ph.D., I received tremendous and fabulous support from those workshops. Even just listening to people's small talk was so great, to have people around when you can write safely and relaxed. Thanks to all the participants of our writing retreats. Without those days of writing together, my dissertation could not be possible to be completed in such a timely manner.

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There are still so many people I should thank for. It might not be possible to mention each of their names here, but I do want to let them know how I grateful for their help along the way of writing this dissertation. I ‘d also like to thank my department cohorts who are Noel, Emily, Lauren, James etc. With your help and support, my Ph.D. journey in our department became so beautiful and pretty. Thanks to Carmen. It really helped me a lot for me to have had a nice couch to sit when I feel overwhelmed about my research and study and many other small treats offered to me.

# DEDICATION

This dissertation is dedicated to my family. Special love to Lei Zhang and Shumai Zhang. You are the sunshine in my life and thank you so much for all the love given to me!

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# CHAPTER 1 : INTRODUCTION [1]

2018 Summer, Anhui Province, China

I was visiting a local farmer's family farm. This farm has around 9 acres of arable land and it mainly farms vegetables and fruit. Crossing several greenhouses with white plastic film, I met the owner, a middle-aged man with two sons. I received a warm reception when I introduced my connection to the university. To show me their farm production, the owner picked a watermelon from the ground in his field. The watermelon was round, medium size, weighing about 4 kilograms, and with a green surface covered with dark green stripes. When cut open, the flesh was pink colored with a sound, sweet and juicy taste. The farm owner explained to me that this watermelon was their bestseller that year with a breed name of "8424". This breed has become famous for high quality since it was first nurtured and selected in 1984. However, the local farmer also remarked, "with better and more breeds, this will be outdated soon, maybe next year. You cannot guarantee which one is sold best. The market will tell us. We welcome new varieties brought by the university professors and we can always try them. Mostly the new breeds turn out to be good on the market." This farm owner is one of the local farmers AAU professors have worked with near the Experiment Station the university built in this county. According to these local farmers, the university professors have introduced many new crops and new breeds of fruit and vegetables. The farmer seemed satisfied with his contact with the university and looked forward to more information about vegetable and fruit breeds in the future.

[1] All the names in this dissertation are all pseudonyms.

How did this happen? Usually, farmers and university professors are two different careers happening in different physical places. Why did these farmers seem close to the university professors and their research? This relationship in Anhui province started from release of a national policy in 2012 which clearly directed universities to participate in agricultural extension (Chinese government website 2012). The first 10 universities to become involved in agricultural extension are listed in Figure 1.1 below. By 2014, there were another 29 universities approved to build new Rural Development Research Institutes to work on agricultural extension (Chinese government website 2014). This dissertation examines in depth how two Chinese agricultural universities, Anhui Agricultural University (AAU) and Sichuan Agricultural University (SAU) implemented plans to fulfill this new role of agriculture extension according to the national policy initiative. In this study, I explore the organizational changes surrounding these university's entry into collaborative agricultural extension as a social process in which the university aims to create innovation both in and outside itself to promote agricultural extension in the local contexts.

Table 1.1 First 10 Chinese Universities to Approve Construction of New Rural Development and Research Institutes

| NO. | University Name |
|---|---|
| **1** | China Agricultural University |
| **2** | Zhejiang University |
| **3** | Northwest A&F University |
| **4** | Northeast Agricultural University |
| **5** | Nanjing Agricultural University |
| **6** | Huazhong Agricultural University |
| **7** | Sichuan Agricultural University |
| **8** | Shenyang Agricultural University |
| **9** | Anhui Agricultural University |
| **10** | Hunan Agricultural University |

### 1.1 Context of the study

China's agricultural extension system is critically important for modern agricultural and related rural development since agriculture is increasingly dependent on scientific information (Wang, 2014). However, "the top–down public agricultural extension system in China and its early commercialization reforms during the 1990s have left millions of farmers without access to extension services" (Hu et al. 2012:962). Since the early reforms in agricultural extension still did not meet the needs of local farmers in rural areas, China has initiated several new practices to reform the pre-existing government-led agricultural extension system towards a more public demand-oriented one(Hu et al. 2009). Among the recent efforts made by the Chinese government, a new exploratory practice of building university-based extension within the current existing agricultural extension system stands out. China's efforts to involve together universities and the existing extension system, two modes of agriculture extension developed worldwide in the last century.

The first mode is represented by the government-led extension system. This mode takes advantage of political power to implement a top-down approach to extension and has been adopted in most countries during the last century. However, many issues emerge in many countries in the developing trajectory of this mode of extension system. Those issues are related to the public sector, hierarchies of power, a lack of funding, weak technology knowledge among extension agents etc. These issues press nation-states to makes changes in their agriculture extension systems (Hu et al. 2012).

The second mode is university-based extension system. This mode employs the university the main extension actor with the advantage of pathbreaking research, advanced technology and

agriculture knowledge. This mode was mainly developed in the US within land-grant universities during certain historic period and conditions(Swanson and Mao 2019). The university-based extension system in the US has shown effectiveness with its history of more than one hundred years. But to what extent is this mode appropriate in other countries with different economic, political and historical conditions? If adopted, how should the nation to incorporate this new mode of extension? How would this new mode of extension impact the current agricultural extension practices? Would this new mode take over the pre-existing government-led agricultural extension system entirely or would the two modes collaborate in some way? These are important questions to explore not only concerning the future development of agricultural extension system, but also relating to the general rural development in China.

### 1.2 Purpose of this Study

Evaluation is an important aspect for the implementation of a social policy. But evaluation is not the focus of this study for the following reasons. First, the research data adopted in this study was collected in 2019, 7 years after the first release of the national policy. Though it seems a long time period for daily life, it is relatively a short time for a large-scale social policy to take effect. The two case studies explored in this study are also relatively new and are still in relatively early stages of implement China's extension reform policy. Second, it would be detrimental for a new form of organization and the new social policy to evaluate its effect at the early stage. It might be hard to get a fair evaluation currently and this evaluation might also pressure the current working staff and organization from their work of promoting agriculture technology and advance rural development. Instead of evaluation, this study will compare two case studies in Anhui and Sichuan provides to provide a more interesting sociological inquiry about how universities are participating in agricultural extension alongside existing government-

led teams and also how the national policy is being implemented on the local level under different conditions. In the area of public management, participants in these collaborative initiatives not only care about the formal structure of extension, but how these formal structures are influenced, shaped, formed by informal structure. From the perspective of organizational hierarchy, activities happening on the bottom are important as those at the top level since they deal with the detailed implementation and operation of national policies. (Thoenig 2003:7) Therefore, this study is an exploratory study about how a social policy made by the central government is implemented on the local provinces which have varying political, economic, and cultural conditions.

During my study, the governmental bureaucracy, the organizational and institutional power of the university, and varying local conditions stood out as critical factors shaping the current implementation approaches and current situations of this social policy. These social structures composed by the local political, economic, and cultural factors also project or indicate the future direction of this new policy change.

### 1.3 Dissertation Overview

The following chapters of this dissertation include a literature review of relevant previous studies; a methods chapter about my research design and research methods; four chapters organized by major themes standing out during data analysis, and a conclusion chapter. More specifically, Chapter 2 outlines the theoretical framework underlying this research, a framework which combines organization theory, university management, and the sociology of agriculture. Chapter 3 describes my methodological considerations, including research design, detailed research methods, data collection, data management and analysis. In Chapter 4, I compare and contrast how the two universities implement internal and external organizational changes, mainly

by establishing New Institutes within them and constructing cooperative organizational platforms beyond the university. In Chapter 5, I discuss the cooperation and challenges faced by the two universities related to on the distinct organizational platforms for collaborative extension they have established. In Chapter 6, I explore the common future developmental issues related to the institutionalization for the two universities' organizational platforms constructed but showed that different difficulties emerge depending on the type of platform. In Chapter 7, I talk about contextual factors such as history, power structure and communication systems, which influence the choice of platforms made by the two universities. In the last chapter, I conclude this dissertation by discussing the theoretical implications and practical significance of the study and also suggest possible directions for future research.

### 1.4 Significance of the Study

The purpose of this dissertation is not only to provide practical recommendations for practitioners in the Chinese agricultural extension system or universities which are indeed an important part for my studies, but also to provide a more sociological analysis of how social change can be possible in current more complex society.

This in-depth comparative case study of university-based agricultural extension offers important sociological theoretical contributions in four aspects, including organizational changes, policy implementation, agricultural extension, and rural development. This study contributes theoretically to a still-limited knowledge of how the universities play a role in agricultural extension within the background of state-led agricultural extension systems. University-based agricultural extension has been mainly developed in the US but has spread to many developing countries in recent years (Gao, Zhang, and Hu 2002). However, how universities take on this new role and what organizational changes happen in the process within the universities are

understudied. This research helps fill this gap by linking organizational changes, policy implementation and Rural Sociology. This study also operationalizes the concept of "cooperative platforms", which aims to theoretically advance the understanding of the process of building university-based agricultural extension.

This work also has applied and practical significance. Extension agents, government officials, and university leaders look to evidence-based academic research to inform their agricultural extension activity plans. This dissertation provides a unique case which extension agents, university professors and government officials can draw on as they build their own collaborations in university-based agricultural extension.

My research can be related to a broader question: how can social change be possible in current Chinese society? We are not living in a singular-aspect society. Changes are shaped by complex systems and diverse institutions all combined with culture and daily interaction among people with those institutions. Organizational change in the agricultural extension can be a good example to illustrate how despite the difficulties of creating and institutionalizing new approaches to the problems of agricultural extension, current institutional change can be possible with all the organizational, cultural, economic, historical, and political factors involved. We can also learn how change within universities and the communities around them are so important in furthering broader social changes.

# CHAPTER 2 : LITERATURE REVIEW

All good research is built on the basis of relevant previous studies and theories. In this chapter, I will provide a brief overview of the historical development of agricultural extension. I will also discuss three important theoretical angles, including two principal modes of agricultural extension, state-led vs university-based extension and several organizational approaches within each of these two modes: the top-down vs bottom-up and public vs private approaches, which are important when we examine agricultural extension systems. Then I will look back at agricultural extension in China and provide some background of university-based extension experiences in that country. Prior studies and theories have shaped my research questions related to how the Chinese universities make organizational changes to fulfill the new role of agricultural extension and why innovation is needed in this development process. Lastly, the state role in Chinese rural development in the context of extension will be discussed.

## 2.1 A brief history of Agricultural extension

Currently there is no well accepted definition of extension (NAFES 2005). Adams (1982) defined Agricultural Extension as the aid and help given to the farmers to analyze their production and identify the issues they encounter. In practice, other scholars also termed it agricultural advisory services (International Food Policy Research Institute 2021). Over the past 100 years, most states in the world have built varying kinds of Extension systems (Agricultural Education and Extension Service (ESHE), Human Resources, Institutions and Agrarian Reform Division 1990) and devoted great efforts toward the institutional development of extension operations (Anderson 2004). Unquestionably, agricultural extension plays a crucial role in improving agricultural productivity, food safety, and rural livelihoods. (International Food Policy

Research Institute, 2021). But the current contexts of agricultural extension systems in many countries show that there is need of innovation for these important systems to continue to play their role in agricultural production and rural development.

### *2.1.1 Two modes of AE*

There are two main modes of agricultural extension developed in the history of agricultural extension, state-led agricultural extension, and university-based agricultural extension. Generally speaking, state-led agricultural extension, also referred to as the "General Agricultural Extension System "(Brewer 2001), is a bureaucratic system within government organizations carrying out a series of programs or activities related to agricultural extension, usually under the supervision of a Ministry of Agriculture or Department of Agriculture. This is the most common type of agricultural extension system found in most countries worldwide (Brewer 2001; Dragon 2006). Extension agents are often government workers and are responsible for promoting the knowledge or information from the central government. Their activities are easily influenced by the government policies.

By comparison, university-based agricultural extension, also called "cooperative agricultural extension" or "educational institutional extension" (Dragon 2006), has been mainly developed in the U.S. where universities become the main actor for agricultural extension. In this mode, the extension sector is usually located in the College of Agriculture within a university and extension offices in counties, through which research done at the university is linked to local agricultural production, and localized technological knowledge is provided to local farmers. Contrary to the state-led agricultural extension system, university-based extension system consist of all kinds of experts and researchers who are employed by universities. (Dragon 2006). This system in the US. could not have happened without historical conditions established by the Morrill Act of

1862 where each state established an Agriculture College (Ludwig 1994), and then an Agriculture Experiment Station and Extension Service in each college (Meyer 1992). The current Extension Service in the US was officially created when the Smith Lever Act was passed in 1914 which legalized offering federal support to Extension services at the state level and built a Cooperative Extension Service based on each land-grant college. (Strategic Planning Council 1991). However, this condition is unique to the US and hard to achieve in other countries, especially in many developing countries. Although the U.S. university-based extension system model has been successful in development and technology transfer efforts throughout the United States, it has not been adopted globally. Therefore, globally, only in the US is university-based extension the main extension system.

Besides the two different implementation modes, there are two other important debates centering around agricultural extension systems related to top-down vs. bottom-up extension development and public vs. private approaches to extension.

### *2.1.2 Top-down vs. Bottom-up approaches*

An important discussion about the way how agricultural extension is conducted involves the debate over top-down versus bottom-up approaches. Some scholars (NAFES 2005) used the terms “paternalism versus participation” to describe these differences. The “paternalistic” approach of extension involves a transmission model of communication where the agricultural information flows from the senders who are usually people in authority such as researchers or government officials, to the receivers who are usually relatively poor and undereducated farmers. Extension staff are the link between the senders and the receivers. In the communication process, senders have more control and information flows mainly in one direction from the senders to the receivers even though this model might contain some feedback channels. By comparison, in the

“participatory” extension approach the importance of farmers’ knowledge and experiences is recognized and is considered of similar importance as those from experts and governmental officials in the communication process (NAFES 2005). With regard to institutional arrangements, state-led agricultural extension in many countries has a stronger top-down feature which later generated some criticism about this approach. For example, in Nigeria, their nationwide extension program, the Agricultural Development Program (ADP) which started in the 1970s, has been diversely criticized that technology is transferred in only one direction from researchers to farmers mainly guided by governmental orders. (Oloruntoba and Adegbite 2006).

By comparison, the university-based extension system in the US has historically tended to have both top-down and bottom-up characteristics. In the US extension system, early Extension job descriptions reflected that their work focus is to bring the latest technology and research information related to agricultural production to the farmers (Ludwig 1994). Later, the mission of Extension is redefined as: "Extension helps people improve their lives through an educational process that uses scientific knowledge focused on issues and needs" (Strategic Planning Council, 1991:p. v). The development of this system in the past last century also emphasized more and more people-oriented needs and services in extension work (Ludwig 1994).

This debate reflects the transition in the approach adopted by agriculture extension, particularly towards a more participatory approach. Though the transmission model in the top-down approach has not been fully replaced, there are two main well-accepted ideas in terms of agricultural extension (NAFES 2005). First, it is increasingly accepted that a linear communication manner does not fit with the current trend of more and more participatory approach of agricultural extension. Instead, extension should involve a more integrated knowledge system produced by many different actors over time (NAFES 2005). Second, in the

communication process of agricultural extension, negotiation should take place more than transmission and is more effective since different actors collaborate to create agreed meanings instead of simply communicating information they each have. (NAFES 2005).

In other words, what lies in the center of this debate is the changing understanding and culture of agricultural extension. More and more scholars have realized the importance of respecting and appreciating the knowledge of local farmers. Therefore, many countries have been reforming the previous top-down approach or integrating it with bottom-up approaches.

### *2.1.3 Public VS. Private*

Another important debate around agricultural extension is about whether extension should be public or private. Agricultural extension organizations have been commonly public for a long time, especially in developing economies (Anderson 2004). However, some scholars have made a worldwide review of extension systems and found the extension systems "failing", "moribund", "in disarray or barely functioning at all" (Rivera, Qamar, and Crowder 2001:15). Some other scholars also argue that there are some "generic difficulties in the operation of public extension systems and in the typical bureaucratic-political environment within which they are budgeted and managed (Anderson 2004:44)." Among all the problems experienced by public extension systems, the two pressing issues stand out: unsustainable fiscal support and extension operations(Hanson and Just 2001) . According to a study which examines the extension operations supported by World-Bank, more than 70 percent of extension projects had the problem of "unlikely" or "uncertain" sustainability(Purcell and Anderson 1997). With the challenge of inadequate budgets, many countries have been pressured to take actions in reforming their public agricultural extension system to solve these issues (Umali and Schwartz 1994). One of the main solutions is to privatize the extension service or collect fees for the

services they provide (Hu et al., 2012; Rivera, Qamar, & Crowder, 2001; Umali & Schwartz, 1994). Vouchers funded by government or other forms of public support are also common in their extension reforms (Anderson 2004).

In general, privatized extension service can be more efficient for solving certain issues that some large-scale farmers face since it can solve many issues faced by many public extension systems. Foremost, by contrast with public extension systems which most often provides very general information to cater to different types of the farmers, private extension services can meet the specific needs of small groups of farmers leading to a high quality of extension service. In addition, identifying the needed public good within a small sized group and putting the cost to the whole group can solve these issues of free-rider and nonrivalry which are commonly seen in most public extension systems (Anderson 2004). Some scholars also have found that tracking extension impact is easier and that the impact of extension advice tends to be high with those private extension services (Hanson and Just 2001).

But some caution needs to be exercised in relation to the trend of privatizing or commercializing agricultural extension services, either completely commercialized or pursuing some degree of cost-recovery. Many studies have found that privatization reform practices had greatly reduced farmers' access to the public extension services (Umali & Schwartz, 1994). Klerkx and Leeuwis (2008) argued that, because of market and systemic failures, both buyers and sellers encountered difficulties in adjusting transactions and participating in the innovative demand-driven processes. First, the effectiveness of a private extension system has been influenced by the position a country occupies in the global agricultural economic system. Many developed countries have seen the effectiveness of privatized extension services in encouraging increasing agricultural

production surpluses and this can justify their cutbacks in public extension services expenses. However, the case is totally different for many developing countries since they still face the problem of ensuring adequate food production (Kidd et al. 2000). On the other hand, less favorable farming conditions such as worse soil fertility, a lower level of mechanization, poorer access to inputs and a more unsteady commercial structure to their farming systems mean that farmers in the developing countries have less incentives and lower willingness to pay for extension services (Kidd et al. 2000). Second, not all the farmers in the same country can derive the same benefit from commercialized extension services. According to Kidd et al. (2000), completely privatized extension has been found to be able to produce desirable results for larger-scale commercial farmers. However, small-scale farmers, especially in the developing countries, cannot take advantage of privatized extension advice. On one hand, many farmers in the developing countries are unable to pay for the extension services they need since the cost of extension was transmitted to the end of farmers under the privatized extension mode (Kidd et al. 2000). On the other hand, private extension also can be more useful for high-value cash crops and livestock, which are not the case for small-scale farmers in the developing countries (Kidd et al. 2000).

Combining these together, if a completely private extension system is adopted, the consequence of ineffectiveness could not be avoided. Privatizing extension services can be socially exclusive and cannot avoid increasing stratification within the nation and enlarging income gaps between larger-scale farmers and medium or small-scale farmers.

Therefore, though privatizing the agricultural extension system has advantages of being more

user-oriented, cost-effective, and demand-driven (Kidd et al. 2000), the public sector of extension still cannot be replaced completely. Some important functions and topics in extension such as basic training and education, experiments and pilot programs dealing with societal issues, working with the most disadvantaged groups etc. would continue to be public affairs (Kidd et al. 2000). In most countries, agricultural extension is deemed as public services with many responsibilities in the area of agriculture and rural development. (Oloruntoba and Adegbite 2006). This fact would pressure the nations to reform or reorganize the current public extension system to be more balanced and more effective.

### *2.1.4 Innovation is needed*

With the current background of agricultural production and farm structure and the combination of a participatory approach and continued reliance on a public extension system, innovation is needed in the reform of agricultural extension system. With the development of the global market, small-scale farmers are urged to change their traditional agricultural production methods (Klerkx & Leeuwis, 2008). According to Hu et al (2012:962–63), the main ways for rural farmers to get out of poverty are producing high-value agricultural products or getting off-farm jobs. These structural changes in production and markets around farmers made a more diversified extension service necessary.

Since the 1970s when the problems of public extension systems began to be more recognized, there have been attempts to improve the public extension systems by resolving their inherent weaknesses(Anderson 1999). Anderson (2004) summarized these attempts as “induced institutional innovations”, including training and visit extension, decentralization, fees for service and privatized extension, and farmer field schools. These new extension modalities have been proved to be successful in some respects but still failed to solve all the challenges faced

with the public extension system. Therefore, we need more institutional innovation to explore the future possibilities for the public extension system to be more effective.

In this context, there are more and more efforts in many countries to bring in the mode of university-based agricultural extension to complement the main traditional state-led extension system in order to solve the issues faced by the country and to improve the effectiveness of agricultural extension system in their countries.

However, collaboration between the two kinds of different extension systems cannot be easily achieved unless we understand the differences between the two systems and then seek to identify where cooperation is possible. Swanson and Mao (2019) have analyzed the two systems and found there are three main aspects of structural differences between the US extension system and centralized extension systems in other nations, including their establishment, reporting lines and budgetary issues. Among these differences, the institutional arrangements for the extension system are important factors to consider. In many countries with a centralized agricultural extension system led by a Ministry of Agriculture, their universities and agricultural colleges are under the supervision of Ministry of Education (Swanson and Mao 2019). Meanwhile, there is a separation in terms of power, budget and resources allocation between the two ministries and the units they supervise (Feder, Willett, and Zijp 1999). In the U.S. by comparison, the partnership between the USDA and U.S. universities has played a key role in the U.S. extension system and higher education institutes are not directly under supervision of the U.S. Department of Education (Swanson and Mao 2019:2). These structural differences can shed light on the barriers in many other countries to adopting the US model of extension system years ago. They also show what the difficulties are if we wish to innovate the agricultural extension system by

creating important partnerships and connections between two different kinds of extension systems.

Innovating through combining the two kinds of agricultural extension system can not only give advantages to those countries with centralized agricultural extension systems, but also benefit the future development of the US extension system. According to Swanson and Mao (2019:5), similar to China and other developing countries, the US also faces the challenges brought by "changes in the relationships across state, economy, and society; across scientific knowledge, policies, and technology; and between agricultural production and natural resources conservation". Hence, the US extension system has to provide more timely and effective services in order to meet the needs created by these changes. Through collaboration, these new practices of building university-based agricultural extension in a centralized agricultural extension system could lend the US Extension professionals a useful global lens on agricultural extension system development.

### 2.2 Agricultural Extension in China

As my research question is related to agriculture extension in China it is necessary to review the Agricultural extension system in China. But first let's look at agriculture in China.

Agriculture plays a huge part in the Chinese economy, but its development is still lagging behind much of the rest of China's economy. The agricultural problem is not only an economic problem, but also a political problem related to social stability (Ouyang 2012). One of the main issues which China's agriculture faces is that level of science and technology are insufficient to meet the needs of modern agricultural development. More specifically, the promotion and application of agricultural technology lag behind relevant scientific and technological research, since many scientific research results are not ready to be applied in practice (Li and Li 2013). Although

farmers are still the main body of operation of modern agriculture, their activities cannot be separated from the government's policy support, enterprise management participation, and agricultural science and technology personnel technical guidance. Hence, modern agriculture is a complex process with the participation of multi-sectors and its development needs a comprehensive and sound agricultural service and support system. (Liu, Zheng, and Xu 2014)

### *2.2.1 Overview of Chinese current Agricultural Extension System*

Under the supervision of the Minister of Agriculture, China's existing specialized agricultural technology extension system has long played an important role in developing and applying agricultural science and technology in rural areas. However, it is difficult to meet the growing demand for rural development in China by relying solely on the promotion of specialized technology by central and local government agencies(Chinese government website 2003; Guo, Zhao, and Li 2014). According to the 12th Five-Year Plan for Agricultural Science and Technology Development (2011-2015), the contribution of agricultural science and technology progress to the total agricultural output growth is only 52.0%, far lower than the level of 70%-80% in developed countries (Fu 2013).

Many researchers have found extension work done by the current Chinese agricultural extension system to be inefficient in delivering services, ineffective in covering many different aspects of agricultural production, and weak in engaging with the market, making a disconnection among the research done by the agricultural research institutes and university, the local farmers' needs, and the agricultural market demands. (Wang 2014). The direct leadership of government, which was very effective during the planned economy period before the 1980s reform, ended up as a major restriction on daily extension practice (Guo et al. 2014). According to Gao(2016), in the current specialized agricultural technology extension system with its strong administrative

tendency, extension agents cater to higher-level officials instead of to local farmers, the evaluation of extension work is diverted toward earning political credits for promoting agricultural technologies, and personnel management privileges seniority rather than actual skills and techniques. Another characteristic of this top-down agricultural extension system is its great dependence on financial support from central government.

In addition, in many cases extension offices are often underfunded, especially after 1999 rural tax and fee reform abolished administrative fees and government funds collected from farmers and weakened the financial situations of counties and townships (Gao 2016; Chinese government website 2003). These institutional constraints greatly limit the capacity of China's agricultural extension system to promote the application of advanced agricultural technology to real life production conditions, resulting in a very low conversion rate of truly achievable agricultural innovation results, far lower than developed countries such as Britain and the United States.

The research cited above, and the realities of China's urban-rural divide led the government to seek to reform its current agricultural extension system. A significant reform initiative today aims to bring universities into the extension system to greatly shorten the chain of technology transfer from research to application and to promote rural development more effectively (Gao 2016). To address the issue of the separation between extension and innovation actors within the current agricultural extension system, in 2012 the Central Committee of the Communist Party of China first proposed "to guide higher education institutions and research institutes to become important forces for the promotion of agricultural technology…incorporate the performance of agricultural technology extension service into professional job evaluation and promote the system of extension professors and researchers. Encouraging higher education institutions and research institutes to establish agricultural pilot demonstration bases…" (Central Committee of

the Communist Party of China 2012b). At the end of 2012, the Central Committee of the Communist Party of China further clarified that "supporting higher education institutions, vocational colleges, and research institutes to promote agricultural technology to rural communities through the construction of new rural development research institutes and agricultural comprehensive service demonstration bases…"(Central Committee of the Communist Party of China 2012a). These and other important political documents released by the central government have laid the foundation for incorporating universities into the agricultural extension system.

### *2.2.2 University-based agricultural extension experiences in China*

Though not originally institutionalized into the extension system, higher-education institutions have long been involved in promoting agricultural development with their academic specialties. For years, many agricultural professors and researchers in more than seventy higher education institutions have participated in the transfer of agricultural science and technology and the promotion of agricultural and rural development (Huang, Song, and Qiu 2010). There have been numerous successful experiences developed in certain locations (Chinese government website 2012; Wang 2017). For example, in Zhejiang province, Zhejiang University and the city of Huzhou cooperated in the "Huzhou Model" to develop rural tourism for the region's villages and to strengthen the local agricultural economy(Xinhua Tourism 2015).

Other Chinese scholars have summarized four models from these experiences from different universities, including the Agricultural Specialist Compound Model (in which local government and university have built a compound with agricultural experts to serve featured agricultural product concentration production areas); the Integrated Agricultural Development Model (which draws the advantages of the university to comprehensively develop poor areas and help local

farmers get out of poverty); the Agricultural Information Consultation Model (which use network information technology to carry out scientific and technological consultation and scientific and technological training to farmers); and the Agri-tech Caravan Model (a comprehensive service in which the university sends science and technology to the countryside) (Huang et al. 2010). These models merged from the practices of different universities striving to provide agricultural technology. They have important lessons for building university-based agricultural extension in China. According to Pu and Ming(2012), these models succeeded in meeting the needs of the market and are widely welcomed by local farmers, greatly enriching and expanding the content and scope of rural science and technology services.

However, it should also be noted that these models tend to be spontaneous, scattered and short-term since many programs emerge from the individual research interests of academics and lack broader cooperation within and among universities (Fu 2013). Some Chinese scholars have argued that universities cannot become the main body of public agricultural technology promotion but only represent an important auxiliary force (Wang et al. 2020; Yu 2012). Therefore, to sustain these modes and increase their impact, more systematic institutionalization of universities and colleges into the agriculture extension system is needed. The successes and challenges of such experiences have encouraged the Chinese government to consider incorporating higher education institutions into the existing agricultural extension system, letting them play a larger role in technology transfer and rural services provision. From 2012 to 2017, five consecutive No.1 Central Documents proposed, “institutions of higher education should be a vital force for non-profit agricultural technology extensions”(Wang et al. 2020:2). In 2012, the Ministry of Education (MoE) and the Ministry of Science and Technology (MoST) in China

have promoted establishment of New Rural Development Research Institutes[2] in higher educational institutions to promote agricultural science and technology innovation and transfer (Chen et al. 2014; Chinese government website 2012; Wang 2014). The New Institutes, located in agricultural universities, are expected to promote the extension of university research to farmers, provide support for local agriculture and promote rural development, in similar fashion to the roles of Extension and Experiment Stations in the U.S.

University-based agricultural extension requires cooperation among several different government ministries. Although the main agricultural extension system is led by the Ministry of Agriculture and Rural Affairs (formerly named Ministry of Agriculture), it is the Ministry of Education and Ministry of Science and Technology which are currently the leading ministries to deploy the establishment of the New Institutes within Chinese universities by releasing the relevant policies. This looks confusing at first sight but makes sense when we look deeper. The Ministry of Education's participation is needed since most of Chinese universities are under their supervision, while the Ministry of Science and Technology is also necessary because they are responsible for all work related to science and technology including agricultural technology. This policy of establishing New Institutes within Chinese universities to promote agricultural extension and provide social services for local farmers released by MOE and MOST has pressured MOA to accelerate reform of the traditional agricultural extension system. The policy also creates significant opportunities for these different ministries to collaborate in the area of agricultural extension ( Swanson and Mao 2019). We can see this from several important governmental documents released by several different ministries, especially Ministry of Agriculture and Rural Affairs, Ministry of Education, and Ministry of Science and Technology.

[2] For convenience, thereafter, it would be called "the New Institute" for short.

As regulated in Directive  No. 13 (Ministry of Agriculture and Rural Affairs and Ministry of Education 2017), the Ministry of Agriculture and Rural Affairs and the Ministry of Education are required to build collaborative work mechanism, strengthen top-level design, guide agricultural scientific research colleges and universities to closely connect with agricultural technology extension institutions, farmers' cooperative organizations, agriculture-related enterprises, etc., integrate resources, complement each other's advantages, and form a new pattern of agricultural technology extension services with horizontal linkage, vertical penetration, and multi-party coordination. As in Directive No. 192 (Ministry of Science and Technology et al. 2020), more detailed collaboration tasks are planned. Specifically, the Ministries of Agriculture and Rural Affairs, Science and Technology and Education, as the lead departments, must strengthen the service functions of universities and scientific research institutes related to agricultural extension area in two aspects by 2022. These governmental documents indicate that collaboration in promoting agricultural extension in China has moved forward and moreover, how quickly a highly centralized government can enact policy changes (Dr. Lou Swanson, personal communication, Jan 2019).

Another important force for the transformation of the agricultural extension system has been the establishment of a Sino-U.S. University-based Agricultural Alliance (therefore called “the Alliance”). The purpose of the Alliance is to create long-term, sustainable university-to-university collaboration around agricultural extension between China and the U.S. (Colorado State University 2017). Comparatively, China and the U.S. have two different models for agricultural extension. The U.S. historically developed the university-based cooperative extension system, bringing research and knowledge from the university to the people (Rasmussen 1989:69). By contrast, China has built a top-down governmental bureaucracy for its

agricultural extension system, which involves a clear political hierarchy based on level and authority (Li 2015). Since the US extension system has been university-based since the beginning, collaboration with US universities is likely to be greatly beneficial for encouraging the Chinese process to build a university-based extension system much further. By 2018, ten Chinese agricultural universities and nine American Land Grant Universities had joined together to form the Alliance for University-based Agricultural Extension (Colorado State University 2018).

However, there are few studies that explore how universities in China may be positioned within the previously top-down design of extension within the political bureaucracy. Foremost, some confusion of roles exists related to the reform of the Chinese agricultural extension system. With China's recent market-oriented economic reforms, its agricultural extension has gradually shifted from the initial state-led unified agricultural technology extension system to a new agricultural promotion system in which multiple agricultural extension organizations participate (Gao 2010). As stipulated by the "Law of the Peoples Republic of China on the Popularization of Agricultural Technology", agricultural extension actors should involve agricultural research institutes, related schools, farmers' professional cooperatives, agriculture-related enterprises, mass scientific and technological organizations, and farmers' technical personnel(National people's Congress 2012). Though cooperation has achieved some good results in areas of technology transfer and co-construction of extension services, there are many issues emerging in this cooperation process (Gao 2010). For example, the development orientations of various types of promotion organizations are unclear and sometimes conflicting. There is also a lack of effective communication and interaction among these organizations. As a result, it is difficult for multiple extension actors to form an effective collaborative organization, which seriously affects the

operational efficiency of the entire national agricultural extension organization system (Gao and Dong 2016).

Currently agricultural extension and agricultural research institutes and universities largely exist independently, and there are many problems with their cooperation such as the allocation of relevant authority and resources (Zhang and Hou 2016). By establishing the New Institutes within Chinese universities, these entities have become important actors in promoting cooperation within the agricultural extension system. Some scholars have analyzed these recent new practices around agricultural extension in Chinese universities and have concluded that state, provinces, municipalities, localities and universities should cooperate together to issue corresponding policies to effectively form a joint force in agricultural extension (Wang et al. 2020). Swanson and Mao (2019:4) also argue that the integration of the newly-created Chinese university-based agricultural extension and the pre-existing centralized extension system calls for "collaboration between two large and entrenched ministerial bureaucracies, the Ministry of Agricultural and Rural Affairs (formerly the Ministry of Agriculture) and the Ministry of Education." Therefore, the creation of the New Institutes in these Chinese universities could provide channels for deeper cooperation and closer collaboration among different high education institutes, and also with other sectors such as varying levels of governments.

However, what is understudied is how universities' new role of agriculture extension can fit into their traditional roles of teaching and researching. If the universities wish to create collaboration with the centralized agricultural extension system led by the Ministry of Agriculture, what do they need to do and how should they set up these important new institutional arrangements? Of course, the answer has to get back to the core of agricultural extension which is the demands of local farmers. What do local farmers need? Collaboraing universities and governments need to

consider these farmer needs at the start of cooperation and relatedly as the end purposes of collaboration (Dr. Lou Swanson, personal communication, Jan 2nd, 2019). These are important questions to explore for university-based agricultural extension. This dissertation will help fill a current gap in social science studies of these issues related to the reform of China's agricultural extension system.

### *2.2.3 The link between extension and knowledge generation institution*

One principal motive for China to adopt University-based agriculture extension has been to solve the problem created by the weak link between government extension and knowledge-generation institutions. Normally, state-led agriculture extension would assign extension agents to local places and these agents would promote the new technology or knowledge produced by the researchers outside the extension system. According to Anderson (2004:46), "except in the U.S. where the cooperative extension service is embedded in the university system, in most developing economies the information on which extension advice is based is not generated within the extension organization itself but in separate systems (national agricultural research institutes and universities and, increasingly, private research firms)."

On the surface, universities are the main actor for producing and generating new knowledge and information, therefore, university-based extension can help shorten the extension chain and result in effective extension. However, the effectiveness of a university-based extension system is not so easy or simple to achieve as people would imagine. Since the university research systems have separate management methods and incentive mechanisms from those of extension, they have their own priorities and may give less attention to the extension's opinions in practice. "Because the performance of university research systems is often assessed according to the recognition it receives within the scientific community, their research priorities are not

necessarily aligned with those of extension managers or the farmers they come in contact with. (Anderson 2004:46)"

Extension systems are also influenced by other factors such as the "broader policy environment, problems of accountability, weak political commitment and support, severe difficulties of fiscal unsustainability etc." (Anderson 2004:55). Left alone, the cooperative agricultural extension operation on a large scale is complex. For instance, university-based extension system in the US involves very complex organizations. The cooperation extension system itself as an organization has grown to be the largest adult education organization in the country. Meanwhile, extension educators rarely plan, conduct, and evaluate educational work in isolation (Franz and Townson 2008). On the contrary, they have usually established many partnerships with many governments, NGOs and other organizations in order to enlarge their impact of their work. (Franz 2003).Therefore, from an organizational perspective, university-based extension system are complicated organizations with "multifaceted structures and staffing patterns, a variety of programs and program partnerships, and diverse educational approaches"(Franz and Townson 2008:13). And those organizational factors become more complex over time. Furthermore, these complex organizational settings make it much challenging for program evaluation. "Complex funding, staffing, and accountability structures combined with widely varying programs and delivery methods make program development and evaluation challenging for Extension(Franz and Townson 2008:5)".

From these previous introduction and discussion, the university-based agricultural extension in China has some important roots in the local condition, but also needs additional innovation, especially in organizational structure design, to make it run effectively.

### *The Central State Role in China and how it promotes the rural development*

My research focuses attention on the central role of the state in Chinese rural development. The Chinese government plays a strong and central role in development in many aspects of China's society. The state's role in economic development is the most obvious example. According to federal economic theorists, federalism has played a helpful role in promoting China's economic growth, and such federalism relied crucially on the centralizing role of the Communist party (Blanchard and Shleifer 2001). In terms of technology for example, the Chinese government has actively encouraged and invested in the growth of the Internet to capture this technology's vast commercial potential, while exerting state control(Zhou 2017).

But the centralized role of Chinese government is not monolithic. Central government and local government often play different roles in specific areas. As the socialist system in China embraces the market economy, it has created many tensions between firms and different layers of government. The central government in China sets regulations to ensure the quality of firms listed in the capital market, while local governments engage in inter-jurisdictional competition for more capital, and their interests are aligned with listed firms through stringent IPO quota system (Chen, Lee, and Li 2008). This scale issue of governmental power can be more complex in the transjurisdictional sectors such as water governance. Huang and Xu (2017), for example, examined the Yangtze River and found that as a local jurisdiction exercises its regulatory measures against different types of transjurisdictional water pollution, China's evolving water resource management institutions are challenged to address the scalar configurations of power in water governance. In the case of environmental conservation, Mao and Zhang(2018) found a dilemma of state-led environmental conservation in China when the top-level declaration of ecological and social issues in the watershed as a national security issue incentivized local

government officials and cadres to overlook the Plan's provision for local consultation, in favor of meeting binding ecological and economic targets.

The intervention of the state in economic development also sometimes generates unanticipated consequences. Some research shows that government intervention in SOEs through majority state ownership or the appointment of connected managers may distort investment behavior and harms investment efficiency (Chen et al. 2011).

In terms of rural development, according to Yao(2010), the state adopted a "biased policy" which led to a widening urban-rural income gap. This issue exists in every country, but the income gap in China is greatly enlarged by the national policy. Yao (2010) argued that the rural reform was initially a "biased" reform. At first, the gap was indeed narrowed down from 1978 to 1985 when national policies focused on raising the price of agricultural products, which benefited farmers and raised food costs for urban residents. However, considering investment in cities generates much greater returns than investment in rural areas, national policy changed to support urban development. This policy change contributed to a large proportion of the Chinese rural-urban income gap. According to the National Bureau of Statistics, in 2018, the per capita disposable personal income of urban residents was 29,599 yuan, while the per capita disposable income of rural residents was 10,645 yuan. The income ratio of urban and rural residents fell to 2.78 from 2.81 in the same period of last year(Wang 2018).

In addition to the income gap, there are several other important aspects to the significant rural-urban divide in China. The first aspect is the urban-rural education gap. "The proportion of urban high school, secondary school, junior college, undergraduate and postgraduate education population is 3.4 times, 6.1 times, 13.3 times, 43.8 times and 68.1 times of the rural population,

respectively" (Xiong 2006). This greatly increases the difficulty of modernization and mechanization in Chinese agricultural production which requires a group of well-educated farmers (Ouyang 2012).

The second aspect is the urban-rural medical care gap. "At present, the coverage rate of rural cooperative medical care is only 10%, and more than 80% of the farmers belong to a self-funded medical group. (Xiong 2006)". Combining the rising of medical prices, many rural families have returned to poverty because of illness (Xiong 2006).

The third aspect is the urban-rural consumption gap. Some scholars argue this is a natural result from the great urban-rural income gap due to the great price differences between agricultural products and industrial products (Li 2001; Li and Li 2013). As estimated, the consumption level of rural residents is 10 years behind compared to the consumption level of urban residents (Xiong 2006).

To minimize the urban-rural gap in all kinds of aspects, , the most pressing issues are not only about how to continue to increase rural income but also how to strengthen social governance in rural areas (Mou 2018) . On one hand, due to rapid urbanization and industrialization, a large number of rural young and middle-aged laborers have entered the city to work or do business, resulting in a pervasive phenomenon of "hollowing" among Chinese villages (Long et al. 2012). On the other hand, how social services should be provided to those elderly, women and children who are left behind in rural areas becomes an important issue (Mou 2018).

Today "urban bias" has a big impact on agricultural and rural changes not only in China, but also in other less developed countries. The term "urban bias" has been coined to refer to the systematic privileging of urban interests, from health and education services through

employment schemes to the delivery of food aid (McMichael 2017). This bias has led to an emphasis on development for cities rather than rural areas within Third World countries. Urban biases are the biggest institutional obstacle for the poorest countries to develop and solve the issue of poverty. (Lipton 1977). Explanations of the historical roots of this urban bias can be found in colonialism and modernization theory. In the post-colonial era, after gaining political independence, many LDCs tried to develop towards modern states with a strong base of industries. Toward this goal, many developing countries put more effort and financial support into their industrialization process, ignoring rural development. Another reason for diminished aid to agriculture was the neoclassical revolution in development theory starting in the 1980s, which argued that free markets do a better job of allocating resources (Bezemer and Headey 2008). Urban bias also has had international dimensions. The international trade bias can be an example to demonstrate the urban bias against LDC agriculture. The international trade bias is ironically the result of a bias in favor of agriculture in OECD countries. Compared to most African countries who did not spend much on agriculture, most OECD countries get their agricultural sectors highly protected due to their policies favoring agriculture. (Bezemer and Headey 2008). However, government investment in agriculture is necessity for both agriculture development and overall economic progress in society. Many researchers have found that successful industrialization experienced in many countries has a good agricultural basis such as Europe, Taiwan and South Korea (Bezemer and Headey 2008). This is because agriculture has large multiplier effects on broader economic growth and poverty alleviation (Bezemer and Headey 2008; Byerlee, Diao, and Jackson 2005; Lanjouw and Lanjouw 2001; Thirtle, Lin, and Piesse 2003). Moreover, because failure is pervasive in underdeveloped agriculture, governments need to shoulder the responsibility of supporting the development of agriculture.

To address solve these urgent rural development issues, the Chinese central government launched the new development strategy of "Rural Revitalizing" in 2018. Previous rural public policies were typically based on the demand for industrialization. Rural areas mainly functioned to provide food and raw materials to industries and cities. This urbanization-oriented agricultural development strategy reduced the development of the entire rural area to the development of agriculture, and the villages and farmers have been neglected (Mou 2018). The government's new "Rural Revitalizing" development strategy improves the relationship between rural and urban areas by incorporating farmers and rural community into policy making and reconsidering the interaction between agriculture and other industries(Cai and Zhong 2020).

### *2.2.4 Agriculture, Rural Development and Extension*

Extension has very important functions in supporting small-scale farmers. The globalization of the world's food system represents both an opportunity and threat to small-scale farmers. There are new market opportunities for high-value, labor-intensive agricultural products. However, without immediate assistance from public research and extension, small scale farmers will be increasingly marginalized by globalization and will soon lose access to even their traditional domestic market (Fritschel 2003; Swanson 2006).

Besides the extension system's important role in helping small-scale farmers adapt to new market opportunities, the extension system can also contribute to rural poverty alleviation. Some national extension systems are beginning to shift their focus from "increasing food production" to "increasing farm incomes and rural employment," especially among resource-poor farm households. However, this transition is occurring too slowly, since most research and extension leaders "have spent their entire careers pursuing the goal of food security and they are reluctant

to reallocate extension resources to new, unfamiliar program priorities with which they have little or no experience" (Swanson 2006:288).

### 2.3Conclusion

From previous studies on agricultural extension, we can take several important points:

First, when constructing new agricultural extension services, we cannot ignore the stratification of agricultural extension needs among different types of farmers such as larger family farm and small household farms. In the case of China, the total number of farmers is large and small household farms account for a large portion. This condition cannot be neglected when building university-based extension system in China.

Second, the real needs of agricultural extension always are the top priority. An effective agricultural extension system can meet the real needs of the local farmers. The biggest risk of organizational or institutional configuration of agricultural extension system is to succeed in building the team and organization, but to fail to meet the real needs of agricultural extension of the local farmers.

Third, changing the principal actor of agricultural extension can address some difficult situations, but there are several core issues which they cannot be avoided, such as funding sustainability and human motivation. How these important issues are dealt with will help determine how long these new changes can be sustained.

Lastly, there are some evaluations of new changes happening with university outreach in agricultural extension, but there are few studies exploring how the university will fulfill the new role from zero especially for places where did not have such extension systems. Hopefully this

study would fill some gaps in the understanding of this process and these changes in university-based extension.

# CHAPTER 3 : RESEARCH METHODS

This dissertation is a case study of university-based agricultural extension exploratory practices in two Chinese agricultural universities launched with the Central No. 1 Document in 2012 (Chinese government website 2012). Sociologists and organization researchers have found case study methods are fitted for studying the process or evaluations for organizations and programs (Marshall and Rossman 2011). The principle advantage a multiple-case design can bring lies in the multiple perspectives of relevant stakeholders collected (Brink 2018). This comparative case study of university-based agricultural extension has great implications for the sociological study of organizations and rural development because it illuminates the organizational changes introduced by a university's participation in agriculture extension practices and focuses on the cooperation mechanism among university, the local governments, and local farmers. Examining the role of the university in agricultural extension alongside long-lasting government-led agricultural extension teams has both theoretical and practical significance for the future development of agricultural extension system to effectively promote agriculture economics and improve rural conditions.

Introducing university-based agricultural extension within a pre-existing government-led extension system is an underexplored research area and therefore requires a more in-depth exploration. To examine this issue, I have collected data in several forms: 1) semi-structured interviews with key stakeholders, decision-makers and working staff who have direct involvement of agricultural extension within the university; 2) semi-structured interviews with local government leaders, officials and experts who had guided, managed or dealt with the

cooperation with the university in agricultural extension; 3) semi-structured interviews with local farmers who had received the extension services from university-based agricultural extension; 4) secondary data in the format of policy documents from central governments and local governments, handouts and booklets from the two universities, local news reports, photos from the local farmers; and 5) direct or participant field observation. According to Yin (2018), multiple-case study procedures have three main stages: Define and Design; Prepare, Collect and Analyze; Analyze and Conclude. In this chapter, I would describe my research design, data collection procedures, and data analysis methods. Lastly, I will also discuss the ethical concerns and the limitations of this study.

### 3.1 Methodology: Epistemology and Ontology

The creation and generation of academic knowledge is deeply shaped by issues of epistemology and ontology. What methods we choose can be traced back to deep roots in epistemology and ontology. Compared to the objective stance chosen by positivism, which believes the objectivity of knowledge, the interpretivist position adopts the approach of understanding people's behaviors and life within their local context. In terms of methods used for research, it is important to match the methods to the research question. My study's overall research question is exploratory in nature--how can Chinese universities participate in agricultural extension? This question is best pursued with qualitative research methods.

Moreover, I have chosen qualitative research methods over quantitative methods for my case study because they are more suitable for my research goal and research process. First of all, the purpose of qualitative research methods is to gain a deep understanding of a relatively small number of cases with rich and detailed context information(Carr et al. 2018), not a breadth of knowledge that can only be gained from representative samples in a large number(Ambert, Adler, and Detzner 1995).

However, quantitative research methods can only offer less detail on a particular case because they usually cover a much larger number of cases(Carr et al. 2018).

Second, the advantages of qualitative research methods provide for researchers is that with those methods we can study real people in their natural setting instead of in artificial isolation(Marshall 1996). Moreover, the involvement of the researcher themselves in substantial interaction with the research participants understudy makes the qualitative research methods have a high validity in theorizing (Schwab 2005). Comparatively, quantitative research methods allow us to explore the statistical relationships between multiple variables, but we are not able to make sure whether "the mechanisms producing the statistical relationship are the same as those described in the theory" (Ragin, Nagel, and White 2004:10).

### *3.1.1 Research questions*

This research explores university-based agricultural extension in China and tries to answer the following questions:

1. What efforts did two Chinese Universities, Anhui Agriculture University and Sichuan Agriculture University, make to fulfill a new role in collaborative agriculture extension? What similarities and differences exist between the two cases?
2. In these two cases what did cooperation between the university and the local government look like? What have they achieved together in agricultural extension and what challenges do they face? What similarities and differences are there among their achievements and challenges?
3. What other important contexts play important roles in those similarities and differences between the two cases?

### *3.1.2 Comparative case study method*

When deciding which research method to use, we need to consider both the scope and features of a certain method and the situation to explore the research question of interest. Given that a comparative case study can better deal with contextual conditions and rely on multiple sources of data to triangulate for the research findings, I chose it as my main research method.

My main research questions concern how Chinese Agricultural Universities participate in agriculture extension and why they have done so in certain ways. The case study method has great advantages in answering "how" and "why" questions since those questions involve tracking the processes happening conserving the factor of time, instead of only dealing with frequencies or incidence.(Yin 2018) and cannot be studied without understanding the pertinent contextual conditions (Yin and Davis 2007). However, a case study without comparative design faces the criticism of the case being haphazard and generalizations being dubious (Pugh et al. 1968). Although many classical studies demonstrate that single-case studies could also produce valuable findings, having two or more cases in one study may offer substantial analytical advantages (Yin 2018), so I choose the comparative case study as my main research method.

My research is both descriptive and exploratory since it explores what happened with the forays of agricultural universities into extension, and how it happened. My main focus is to study the different approaches that the universities take to participating in the new area of agricultural extension to them by describing what they have done within or beyond the organizations they reside in.

This study also follows the iterative qualitative research logic which fits with the exploratory feature of my research design. Before I went to the field, I knew that the two universities have

adopted different ways to do this. There is already active discussion among the Chinese universities about the ways to deal with this new practice and which approach would be better or is there any approach every university should adopt. My study can provide some answers to these questions by showing the process of how these approaches are adopted in each case within certain historical, political, and economic contexts.

The comparative case study method fits well for these features of my study. According to Yin (2018), doing case studies might go beyond the initial plans designed at first and it has strong characteristics of being adaptive. There is room allowing me to swing back and forth between collection of information and analysis of data.

**Grounded theory**

My research also involved elements of grounded theory. This is an important methodological question related to the role of theory in social research. A critical question we need to ask before we go to the field is whether to mainly use theory to guide our research while we are in the field or to allow theory to emerge from the conduct of fieldwork. For this often-contentious issue in social research, there are two important approaches. One comes from the grounded theory approach, and the other comes from the extended case study approach.

The term of grounded theory was coined by Barney G. Glaser and Anselm L. Strauss in 1967 (Glaser and Strauss 1967). This inductive qualitative research approach calls for the researcher to "extrapolate conceptual relationships from data rather than formulate testable hypotheses from existing theory" (Carr et al. 2018:542). When using the grounded theory approach, the researcher does not begin with a theory but rather develops a theory on the basis of experiences and

observations in the field. According to Kathy Charmaz (2006:2), the grounded theory approach consists of "systematic yet flexible guidelines for collecting and analyzing qualitative data to construct theories 'grounded' in the data themselves".

Alternatively, the extended case study is strongly advocated by Michael Burawoy (1998) . With this approach, the qualitative researcher should begin with an established theory and the goal to study a case or a site field site is to improve upon or modify the existing theory. The extended case study approach tells the researcher to search for theories that "highlight some aspect of the situation under study as being anomalous and then proceed to rebuild (rather than reject) that theory by reference to the wider forces at work, be they the state, the economy, or even the world system" (Burawoy et al. 1991:6). Simply put, before the researcher goes to the field, he or she should already have a theory that predicts that the case that they are studying will be different and the goal of his or her study is to explain why the case differs.

When deciding which approach to adopt, one must consider their research goals (Carr et al. 2018). The grounded theory approach shaped both my research goals and my research process. The main reason I drew on grounded theory was that university-based extension in China represents a new area in social policy. It is common to see government bureaucrats implement the national policy, and there are also many cases about university that implement education policies which involve many resources in school. This policy involves cooperation between universities and local governments. The coordination of resources outside the universities is different from what we usually see within the universities or schools. There were not many existing theories for me to take with to the field, therefore, my research goal was not to modify any existing theory on Chinese university-based agricultural extension.

For my research process, I did not directly employ theory to shape my observations and how I conducted interviews during my fieldwork since I only had hints on how universities were implementing this new social policy. It was during the data analysis process when I looked back to my data that the main topic of platform building, cooperation and challenges, institutionalization of the New Institute stood out. I believe these represent important issues that universities need to confront developing collaborative university extension. This process of allowing theory to emerge from my research data aligned more with the grounded theory approach.

## 3.2 Research Design

Research design is a logical plan or logical model of proof which helps link the questions to be addressed, the data to be collected and the conclusions to be drawn to the research questions initially brought up (Frankfort-Nachmias and Nachmias 2014). Besides these functions, another important role of my research design is to distinguish my case study as a research method from a non-research type. This is because of the popular use of case study method as a non-research method such as in marketing or business school and also due to the fact that there is no standard catalog for case study designs yet (Yin 2018). To validate my research method, I have paid closer attention to defining the "case", selecting cases, and bounding the cases.

### *3.2.1 Case study methods*

Historically, there are different definitions of case study methods in which different denotations emphasized different aspects of this method. For instance, (Feagin, Orum, and Sjoberg 1991:2) defined a case study as "an in-depth, multifaceted investigation, using qualitative research methods, of a single social phenomenon", while McKeown(1985) indicated that a case study focuses on within-case analysis to evaluate claims about causal process. I find Yin's definition

works more apt for my study since he argued a case study is “an empirical inquiry that: investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident; and…[that] relies on multiple sources of evidence” (Yin 2002:13)

My data collected also come from multiple sources, including interview data, field observations, and secondary documents etc.

### *3.2.2 How to define the case?*

Since the term “case” in case studies can refer to many different meanings such as a subject in an experiment, a single survey response, or a historical phenomenon etc., many social science researchers have failed to clearly define these relevant terms (Kaarbo and Beasley 1999; Ragin 2014). It is key for a case study to make it clear what the case is in one’s study. Alexander George’s “method of structured, focused comparison” provides the best guidance for comparative case study research. According to George(1979:61-62), the comparison is “focused because it deals selectively with only certain aspects of the historical case… and structured because it employs general questions to guide the data collection analysis in that historical case”. Specifically speaking, in my study, the cases are the universities which need to implement the national policy within their local conditions.

### *3.2.3 Case selection*

After defining the “case”, the next step is to select the cases that can most illustrate the research questions, especially when we have access to more than one candidate case. However, too many cases selected would hamper the depth of the study since it would limit the time and depth of data collected from each case (Yin 2018). I decide to choose two cases because it would form the

basic comparison between the two cases and also allows me to have enough time and energy to focus on each case deeply and comprehensively.

I chose AAU and SAU as my two cases for two principal reasons. AAU and SAU are the two earliest and most important experiences with the turn in China toward university-based extension. First, they both are among the first 10 agricultural universities which were designated to do the job of Agricultural Extension. AAU and SAU are the first team and seven years have passed since the first launch of the national policy. Seven years might not be enough to definitively evaluate the effectiveness or direct results of these programs, but it could be very interesting and meaningful to see how the process looks like, what they have achieved and what problems they have encountered. These two universities are important examples among the ten universities that do AE. Another important reason shaping my decision to study these cases is that I had opportunities through the Sino-U.S. extension alliance to gain entre to these two universities. Because of the collaborative partnership between these universities and the university where I am studying, I had ready access to the sites of the two universities. Access is a vital factor for ethnographic research, since "researchers must gain permission from gatekeepers to observe the sites they wish to study and of course they need willing participants to interview" (Carr et al. 2018:178).Through the previous conference attendance and on-site visits and support from key participants in the Alliance from CSU and China, I had already established some contacts and gained significant trust with key informants in the two universities who are mostly responsible for conducting AE in these two universities. This opportunity to gain access to the two cases lay a good foundation for my full study design and completing the later field visit.

I felt welcome from most of the people I contacted and interviewed. Since university-based agricultural extension is a new initiative, the leaders and the employees who dealt with the detailed daily practices were arguably looking forward to communication and learning from each other. In a larger sense, this open-mindness and learning attitude was also pervasive in the US-Sino Extension Alliance. To be honest, this atmosphere was greatly beneficial for my field visit and cooperation and positive response were much easier to achieve, which made it possible for me to collect sufficient data in a relatively short time. Otherwise, many other follow-up field visits might have been needed.

### *3.2.4 Bounding the case*

Bartlett and Varus argued that the comparative case study method does not start with a bounded case (2017). It would be natural to think that the cases in my study are mostly bounded in the two universities, however, the real boundaries lie outside the universities since they are cooperating with local governments, local farmers and local agribusinesses.

In terms of bounding the case, different scholars have varying foci though all maintain that the scope needs to be reasonable for the study. Case study methodologist Creswell (2013) emphasized bounding by time and activity, while Miles and Huberman (1994) suggested the importance of definition and context. However, Bartlett and Vavrus (2017) warned us of the danger of using only the functional view of the case which would rule out the analysis of how other actors or entities influence the central phenomenon we care about. I find there is an emergent characteristic in the bounding case of my study since the boundary of my case emerged largely out of my interaction with the local people in the field.

The boundary of my case developed during my study process. It mainly related to my sampling strategy for recruiting my interviewees, the purposive sampling or sequential sampling, which I will talk about in more detail in a later section. In reality, it would be hard to capture everyone, every story, every place in each case. Therefore, I had an important discussion with the directors of the New Institute within the university when I first arrived. With their support and information, I developed an initial larger picture of who was involved in this project and who are the key informants. Usually after four or five days of intensive interviewing and field observing, I would reconnect to my coordinators to make sure I was talking to some of the important people in each category. The results in each place are different and it depends on the availability and willingness of people who are relevant, the accessibility of the university, and the coordinating ability of my local coordinators.

#### *3.2.5 Unit of analysis*

The unit of analysis of my research is universities on the organizational level, not the individuals within the organization or the larger agricultural extension system, though these are important aspects in the area of my research topic.

## 3.3 Data collection

Case study evidence can come from many sources such as documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts (Yin 2018). My data collected for my case study comes in three formats: field observations, semi-structured interviews, and second-hand documentation. I also did a pilot study before the main study when I intensively spent time in collecting data in the field.

#### *3.3.1 Preliminary Field Visit*

As Kaarbo and Beasley argued, a pilot study needs to be considered when the previous studies or theories cannot provide specifically operationalize advice for current study (1999). A pilot case

study will help the researcher to refine their data collection plans with respect to both the content of the data and the procedures to be followed(Yin 2018). Besides these theoretical considerations, the pilot study can provide practical guidance for case studies since it can assist "an investigator to develop relevant lines of questions- possibly even providing some conceptual clarification for the research design as well" (Yin 1994:74). Given the time and resources available, I was not able to conduct a formal pilot study before my dissertation research. To fine-tune my study, I conducted a preliminary visit prior to my formal field visit.

I made the preliminary visit in Jan 2019 to the two universities for a total of 10 days. It was a short and fast visit, but it really helped me to gain a general idea about their university-based agricultural extension system and also to establish rapport I needed for my more extensive visit later. During that visit, I met many people who later became my respondents and more importantly, the gatekeepers, including the Executive Vice Deans of the New Institute at the two universities. At the end of that visit, very importantly, I obtained their verbal permission for me to visit their university in the summer of the same year.

Besides building relationships with people in the two universities and gaining permission to visit later, this short visit also helped me collect important information about what to look for in order to fulfill my research agenda.

This brief visit also helped shape the organization of my subsequent summer visit. My visit was organized by the university to show me what they thought was most valuable to see. It was very structured, and we did not have much free time to choose what we want to see. This is understandable as my hosts likely thought that since foreign visitors were coming, "it is better to show what we have done well"(Interview #38(AAU) 2019). Indeed, when those university people visited CSU, we also showed them the best of our state such as the famous Rocky

Mountain National Park. However, it turns out that we only visited the most beautiful or successful stations or examples they have achieved in their place, and this does not help too much for how this new university-based agricultural extension system works. This really made think I need to visit some places where they may not be proud of if I want to see a different aspect of this work. So, when I decided what to look at for my summer visit, I have more clear ideas of where I want to visit and study in-depth.

After I returned to the U.S., I also sent an official letter to the Vice Dean to let him know my detailed plan such as visiting time and people I want to interview. It turned out to be very helpful in this way. They knew my needs in advance, and they told me that this letter with detailed plan helps them to arrange accommodations for my visit. On my first day of arrival at each university, I got picked up by a working staff in the New Institute at the airport. And I got very good reception when I first visited back the fields. Some people even recognize me by saying, "I know you. You came and visited us in the winter." With this, I usually would have some chat with them, and this would lead to a very good interview later on.

What I felt confused about during my pilot study was SAU's practice. They introduced some parts of the cooperation, but the real practices were not readily seen on site and it was hard for me to follow what are the real practices were that they have adopted. It was only until after my main data collection was completed and when I sorted out the data that I could finally make the puzzle out.

### *3.3.2 Field Observations*

I spent two months in the field during the summer of 2019. I returned to China and visited each university for a period of one month. My field work started from AAU and followed with field work at SAU.

### *Preparations before going to the field*

To prepare for my field, I tried to make it ready for any situations I might meet in the field since the field would be in the natural setting where people live and we, as researchers, do not have much control of. Here is the list of preparation I have done before I went to the field.

1) I built relationships and trust with key informants and gatekeepers
2) I had my personal computer with me which has a password to keep it only available to me and printed interview schedules for different stakeholders which include all the information needed for my interviews; I have lived alone in the local hotel so that I have time every night to write down my field notes and do some transcribing.
3) I set up regular meetings with my advisor in the middle of my field time to check my process and also avoid of the risk of "going native". I also have Chinese colleagues who have great experiences of doing field research in China and made sure I could consult them if I met with difficult situations.
4) I developed in the timeline of field work so that my key informants know when to start and when to end.

As a researcher, one important thing to avoid is undesired or unintended confusion between the unit of analysis and the unit of data collection (Yin 2018). Therefore, I was very cautious about the confusion between unit of analysis and unit of data collection. When designing for the interviews of individuals, I always remind myself that the focus of my study is on the organizational level and my questions will stay on the level of organization such as how organization works and why organization works.

### *Gaining Entrée*

The phenomena I am interested in involved several different organizations and entities such as universities, local governments, and local farmers. It is better to have several connections with

these different entities, however, it is not realistic to expect to have full access. Starting with one access point would be good. In my situation, I started from the university, and then interviewed members of local governments and local farmers pertinent to the topic of my study.

In order to study a site and its people, it is unavoidable that researchers have to find a way to gain access to the research site. To gain entrée to the field, I obtained verbal permission from gatekeepers during my pilot study and then received the written official permission from the two universities, which represented an important step in my field work. This could not have happened without the connections within the US-Sino Agricultural Extension Alliance between 10 US universities and 39 Chinese universities, which cannot be separated from the efforts of Dr. Lou Swanson who was the CSU's Vice President in charge of CSU Office of Engagement. Through this important alliance network and the financial support of Office of Engagement, I made a preliminary field visit to the two universities I am interested in. Via personal meeting and communication in that preliminary filed visit, I gained trust, express my interest in doing relevant research, and obtained oral permission. People in two universities showed me great kindness by welcoming my coming back in the summer and being willing to support my fieldwork. After that, I sent my official email with my research plan and time schedule to the people I had had gotten contact with during the preliminary fieldwork at the two universities and received positive responses.

### *Gatekeepers and Key Informants*

The presidents or vice presidents of the university were the gatekeepers for me to gain access to these two cases. The directors of the New Institute served for my study as a gatekeeper and key informant. They provide valuable support for me to interview the working staff within the

institute and the university professors. I have given much consideration of order of interviews I could conduct in the field. Before I went to the field, I had planned to start with interviewing the working staff, and people from other sectors outside the universities and lastly interview with the director of the New Institute. Since the directors are the key informants, it is easy to waste the opportunity to interview them without gaining some more grounded perspectives from other people first.

### *To be an Observer*

To be an observer, there are important philosophical and moral requirements needed to set up for observing as suggested by Martineau (2017). In terms of philosophical preparation, on one hand, we need to understand the intellectual discourse of the topic and make sure what we are studying is meaningful and comes from somewhere. I studied the existing literature about this topic of university-based agriculture extension and realized this would be important for theory building on organization change and practices conducting on agriculture extension. On the other hand, the researcher has to be ready to step out of his or her own culture and be willing to understand the social structures or institutions in the field. These "moral preparations" (Martineau 2017) can help the researcher capture the morals (stated beliefs) and manners (observed practices) and avoid the prejudices during the observations with unreserved sympathy to understand what people did and why they did it.

This method proceeds slowly since we need to be patient to come up to our generalizations after all the data are collected and "compiling enough details" about this topic. Interviewing which actually ask the people, can help check the quality of our observations and validate what we find the in the process.

Because of this tedious and long process, it is easy to become "discouraged" with this method. But I keep motivating myself with what said by Martineau (2017:20-21):

> "Every observer and recorder is fulfilling a function; and no one observer or recorder ought to feel discouragement, as long as he desires to be useful rather than shining; to be the servant rather than the lord of science; and a friend to the home-stayers rather than their dictator".

### *Length of field work or end of field work*

This length of my time in the field was relatively short, but it was the only big bloc of time I was available out of regular semester time. I would have wished to stay longer than this, but extending my stay becomes not very meaningful after August when the Chinese universities are entering into official summer holidays. The staff working in the New Institute also get time off and they feel it difficult to find someone to continue to assist during my visit. My ending of my field work ended naturally and also saturated with data already collected.

### *Field notes and memos*

During my field time, I kept writing field notes and memos which turned out to be very important for both my data collection and data analysis. I wrote my field notes every day when I was on site to record what I have seen and who I have talked with. I would reflect on the conversations and new information I got, then thinking of the new interviewees I might need to know and what new information I got for the topic. In the data analysis stage, continually writing memos is very important for me. I was overwhelmed and stressed out with all the thoughts in my mind and writing them out help me think and sort out the important information. This process took the form of writing memos. Some of them could be used directly especially for those important analysis of the main theme. Some of them would not be used since they only describe my thinking process.

### *3.3.3 Interview*

When I was in the field, another important type of data I collected was interview data. Those interview data provide significant insights about how the people in the university are conducting agriculture extension in their local conditions and what their communication with other entities such as local governments and local farmers look like.

#### *Interview Samples*

Individual interview and group interviews were both used when I conducted the interviews. Table 3.1 and Table 3.2 show detailed information about my interview samples at both universities. Many scheduled interviews went well in the quiet offices or on the farmland of farmers. However, some situations were more suitable for group interviews, especially with a group of students of local farmers. They had similarities within the group and knew each other well. Through talking with them in a group, I gained a better understanding of what they do, how they do and why they do some certain things.

Table 3.1 AAU Interview Sample Information

| **Interviews** | **University people/No.** | **Local Government people** | **Local Farmers No.** | **Group Interview** | **No.** |
|---|---|---|---|---|---|
| | Directors/Working Staff of Experiment stations: 10 | Directors of Department of Agriculture and Rural Affairs: 4 | Crop farmers: 2 | Undergraduates | 2(2 students each) |
| | Directors/Working Staff of the New Institute: 5 | Extension Experts: 6 | Local Agribusiness owners: 4 | Local Crop Farmers | 1 (2 farmers) |

| | | | | | |
|---|---|---|---|---|---|
| | Professors: 7 | Village head: 1 | | | |
| **Total(45)** | **22** | **11** | **6** | | **3** |

Comparing the interview samples at the two universities, the total numbers of interviews in each case were different and the positions that some interviewees held also differed. After careful examination, these differences did not create systematic differences for the information I have collected for the two cases. First, the total number differed but not by much (45 vs 43). I interviewed a certain number of people in each category including university people (22 vs 13), local government officials (11 vs 7), local farmers (8 vs 19) and students (4 vs 4). Most of the differences in the number of interviewees in each subcategory came from counting all the people in focus group interviews. Even though group interviews allowed me to have contact with more people than individual interview, different people in the same group interview would yield similar information. Therefore, differences in number would not influence or distort the information I could gain from the interviews in the two cases.

Second, the differences in the positions of my interviewees reflect differences in practices related to university-based agricultural extension conducted by the two universities. In AAU's interview sample, a village head is included. Since their cooperative platform has been built with strong physical characteristics, opinions from the nearby villages are essential for understanding boundaries and other land relevant issues. Comparatively, some officials from Department of Science and Technology were interviewed at SAU and this is because the cooperation of some local branches happens between the university and Department of Science and Technology instead of Department of Agriculture and Rural Affairs. This is the subtle differences in how the cooperation really happen in the local conditions of the two universities.

Table 3.2 SAU Interview Sample Information

| **Interview** | **University people/No.** | **Local Government people / No.** | **Local Farmers/ No.** | **Group Interview** | **No.** |
|---|---|---|---|---|---|
| | College dean/professor: 6 | Director of Department of Agriculture and Rural Affairs: 4 | Crop farmers: 4 | Undergraduate Students | 1 (4 students) |
| | Directors of the New Institute: 4 | Director of Department of Science and Technology: 1 | Local Agribusiness owners: 4 | Local Crop Farmers | 1 (5 farmers) |
| | Working staff in the New Institute: 3 | Extension Experts: 2 | | Local Agribusiness | 1(6 agribusiness owners) |
| **Total （43）** | 13 | 7 | 8 | | 3 |

*Interview Sampling: purposive sampling and sequential sampling*

In the stage of interviewee recruiting, purposive sampling was the foremost principle I employed. Since I identified my research scope with multiple stakeholders, several groups of targeted interviewees were determined including the New Institute working staff and directors, faculty who were involved in the real AE activities, local governmental officials who had partnerships with the universities, local governmental experts, local farmers and local agribusinesses who received the AE services from the universities. When interviews started, sequential sampling was also involved. After defining these criteria for sampling groups, I worked out a weekly plan with possible interviews of 2 or 3 per day with the help of my key informants in the field. After one week, I sat down with my coordinator on site to talk about the

interviews conducted as planned, interviews missed due to schedule conflicting or other issues and what other interviewees I need. For example, I did not plan to interview students in my initial interview schedule, but later I have found several interviewees have referred to those students who could provide insightful views about this new practice of AE within the universities, then I would talk with my coordinator to help me contact some eligible students. Usually, the coordinator would help me to fulfill the updated interviewee plan for the new week by trying to contact those missed interviewees again or we could choose someone else who had a similar role. This weekly period of interview plan worked out greatly since it helped me fulfill the goal of my intended interviews and also provided some flexibility for change based on what data I had already collected. It also fit well for my coordinator and the interviewees mostly working in the universities or the governments who could clearly know their schedule within one week.

### *Interview methods*

In several situations, I felt I should have asked better questions about the topic when made the interviewee transitioned from one aspect to another. But I also know that it is spontaneous. However, though I want to choke myself for the questions I have asked, in practice it is hard for "me" at that moment to know where the conversation goes. Since most of the people I met for first time, I do not have pre-assumptions about what they know or what they do not know, every conversation is a trial. It sometimes succeeds, and sometimes it may just fail. I cannot control. But with more experiences and more knowledge about my topic, I am becoming a better interviewer at this topic to interview people who work there.

There are some very wonderful moments that I totally hit the right button and the interviewees keep talking about their opinions on the important topic I am interested in. It really needed

several elements when it happens, I just asked the right question from the right person. It would have been great if I could stay there longer and have more contact with those people but based on the limited time I had and the schedule they had, it would be very luxury to stay there longer and make more contact. But in-depth interviews are very important information sources for me to understand how the new system works.

Another important aspect of my interviews is the involvement of the coordinator who also works in the New Institute and helps me to find the right people to interview. She sat aside and asks some questions from the insider perspective during the interview, too. Since there is no sensitive info, there is no pressure for the interviewee to be afraid to talking in front of her. She can help explain to me about some basic structure from the institution perspective, but also gain knowledge from people who do the daily work about the details of different branches. There are some great moments that the coordinator says that she learned a lot from my interviews, too. The interviewees did reveal something that is not known or realized from the New Institute and now when the coordinators know, they feel there are some actions can be done to improve some parts of their work. Communication is so important in the agricultural extension. Good and effective feedback mechanism is very important for the work to be done. But currently there are still large room for improvement.

But there are many cases that coordinators do not accompany me with my interviews. Some are due to time issues, and some are because of being bored to hearing what they have already know and be familiar with.  When I interview people to collect the data, I find out some pressure coming from the coordinators, too. Most time, they are glad to offer help and info. They are very familiar with many aspects of their institute and how it runs. I can tell from their expressions that you as an outsider are learning something I already know. Why are you an expert? What is your

expertise in this situation? I think this feeling still is related to the core question of how sociology can contribute. We have a very different role in the context or field from the experts in natural sciences. They can offer very advanced techniques or knowledge about the crops the farmers plant, or they know more about the seeds and safety info about agricultural products. The expert knowledge is more easily viewed and realized. But our social knowledge is more fluid, and our work may take 10 or 20 years to take effect. So it is hard for people to know exactly what distinguishes social scientists from ordinary people and also nobody wants to wait so long to see our work play a role within a rapid developing background and context of capital market in which everyone wants to earn money and especially quick money.

## 3.4 Data Management and Analysis

### *3.4.1 Data analysis: transcribe, code, and write, but also translate*

The process of my writing includes several steps including transcription, translation, and then coding, and then writing. What is unique for my methods apply for the research conducted in non-English contexts and background, which means data were collected not in English, but in other languages, in Chinese for my case. Therefore, there is one extra process of translating. This no doubt prolongs the process of data analysis and final writing.

### *3.4.2 Translation from Chinese text to English or Writing in English directly*

There are debates around how to write with non-English data since there so many tradeoffs when we choose where we start to write when we collect data from a non-English context (Belcher 2016:56). Since most of my data is in Chinese, my writing process is mixed with the two processes of translating materials from Chinese to English and writing in English directly. These writing style apply for different parts of my construction of my dissertation. For laying out the supporting evidence, I tend to translate the Chinese text into English since it displays well clearly

about how the empirical evidence supporting my arguments. When I develop my arguments, especially for Chapter 2 Literature Review, I tend to write in English directly due to the more analytical and argumentative characteristics of English writing. For my writing process, these two procedures are not clear cut, but can be combined with different writing goals.

### *3.4.3 Transliteration or Paraphrasing*

Translation is an important process in my dissertation writing. Though I did not translate all my field notes from Chinese into English. I had to write them out in English at the final stage. Most of the translation goes well, however, some certain terms takes me a while to find the proper corresponding English terms such as “tizhinei”(working in the government offices or public institutions instead of private companies), “bianzhi”(working post when you work in the government offices). These are important concepts to understand how the existing structure influences the recent organizational changes in government-led rural development. So I tried my best to find the appropriate words to translate these terms to make them understandable to those outside the Chinese setting.

### *3.4.4 Qualitative Research Method: writing is analysis*

Another important thing emphasized by my advisor is that writing is analysis, so we need to keep writing in the process, especially for qualitative research methods. Unlike natural sciences, they write out what they have done and what they have found with data and numbers, but we need to keep writing to analyze our data. Through writing, my analysis becomes more complete and clearer. Many arguments are formed already in the data and analysis, but it is writing that helps me sort them out and put it on paper.

### *3.4.5 Writing Process of Qualitative Research: Like solving a puzzle*

Doing qualitative research is not straight-forward like quantitative research. We do not have the same path to follow and may vary in different stages during the process. This is also true in writing out these qualitative findings. It is more like solving a puzzle. It is easy to get lost in get out the findings in the sea of our text-based data. I started to picture the story from some details and used that as a clue to find similarities and differences, and the big picture would appear when all the details are put together. I often feel marvelous after I put together some pieces and something turns out. I think that is the fun for doing qualitative research.

With this characteristic, qualitative research method also fits best for this study. My role of being both an insider and an outsider can play out as a strength with qualitative research method. There are many Chinese scholars write and publish journal articles in English journals nowadays, but with quantitative methods, we can repeat the results with the same dataset. My background would provide a unique insight about cooperation and tension happening between or among institutions with the same goal of agricultural extension.

### *3.4.6 Writing process: deal with emotions*

I was overwhelmed by the process of writing the whole dissertation in a short time, especially given some concerns from my interviewees that they do not want to get bad reputation from my dissertation. But I find that to keep writing out what I am thinking or what I am worried about is a good way for me to keep producing and reducing my anxiety for my research or study. At least, I realize that not everything I wrote would be useful and something I wrote may be edited later. But writing out what I am nervous or concerned about is important to keep my sanity.

## 3.5 Ethical Concerns

Different from other research methods which do not directly study human subjects, the case

study method requires the researcher to have special care and sensitivity in terms of ethical issues. The study of a phenomenon in its real-life background obligates the researcher to follow important ethical practices akin to those followed in medical research.

### *3.5.1 Gain informed consent*

For my interviews, the first thing I do is to gain their consent. The director and working staff of the New Institute at the universities are formally informed ahead of time before I went to the field. All other interviewees are most planned three days to one week ahead and I obtained their consent on site when I physically met them. There is no such procedure like IRB and people are not used to the written consent document in the local setting. There are some studies showing that having people signing formerly on the written documents hampers their willingness to provide their answers. To make it proper and workable, I gained their verbal consent before the interview started. I explained the confidentiality principle, how the information would be used, and the purpose of my study and other relevant questions they are interested in. I tried to make sure they understand these principles and still agree to do the interview with me.

### *3.5.2 Gain the IRB approval from my study institution.*

After my initial research plan was completed and defended in my academic committee, I submitted my IRB form and got approved after the review.

### *3.5.3 Protect the confidentiality and privacy of the participants.*

I have kept my records in my own computer and used anonymous names in my writing. To make their position clearly to support my arguments, I would use a general title of “a local governmental official” or “a university faculty” to avoid identifying the individuals who participated in my study.

### *3.5.4 Avoid any possible harm*

One important thing for harm in the study involves deception. In my study, there was no deception used in the whole process. This topic is not political sensitive and I usually make a straightforward statement of the purpose of my study and talk directly why I am interested in this topic. In most situations, I received a warm welcome when people know I am interested in the work they did and are very willing to share their experiences and thoughts with me. I usually carry on more caution after that valuable information shared to avoid any unintended leaking or talking out since most people work in the same institution, and some information might incur interest conflict and tension within the organization. Even in my final analysis writing, I did not write personally or write out any information my interviewees do not want me to share.

### *3.5.5 Selecting participants equitably and respect for my participants.*

I selected my participants equitably without any specific group being excluded from my study. All the people who are involved in this new practice and are willing to share the information are welcome in my study. I also respect their decision of participating or not. There indeed were some participants who agreed to talk with me in the interview early but ultimately decided not to. In those situations, I respected their decision and cancelled those scheduled interviews.

### *3.5.6 Precaution of vulnerable groups.*

One important consideration has to be given to vulnerable groups who might experience possible harm which other groups might not. In my case study, there are no children, handicapped people or any limited ability people involved in my study. But I do keep an eye on any possible interaction which involves power dynamics.

### *3.5.7 Academic integrity and objectivity*

From the researcher's end, it takes me some time to filter which data I can use or not. I have to think carefully to write about anything that is critical. The Institute would think of our research could be one part of their propaganda, but my intention is to objectively describe what really happened. I have followed the ethical standards of my academic training of not creating harm to those who I interviewed or collected data and yet also sought to be sure the objectivity of my research was not influenced by the power dynamics of the Institute and the scrutiny following by.

### *3.5.8 Possible harm*

When I was in the field and people are very nice and generous to talk with me. But I would receive warnings or a friendly reminder about not talking negatively about their work or settings. This becomes more sensitive when I state that I am studying in the US, particularly to those people working in the Institute or university. Since increasing tension can be seen between China and US such as the trade war, I get great pressure for collecting data when I was in the field. I get more warning from one place than another one. I cannot say clearly why this is different. But I can obviously feel the pressure coming from the hierarchy of the institute and I have shouldered these stresses with me in the field which no doubt quickens the degree of my tiredness. Another reason for this is also because of their cautious screening of any researchers, I am not allowed to use recorders for all my interviews, which was a great challenge for me especially at the beginning. Though I have discussed with my advisor about this kind of situation, I still feared that I may lose information from my interviews. So, I had to lock myself at the hotel room every day and write down every piece of the interview I can remember. Thanks to my training on the qualitative research methods taught by Professor Lori Peek, we have received the training of writing down your field notes as soon as possible every day. I know how the information may

get lost if I did not write them down “tonight”. Field observations and interviews do not stop, and I have new people to meet and talk next day. There is no time for me to wait and write. Writing has happened whenever I have time to write. When I write out all my interviews and field note every day, it works well at the beginning since I am fully energetic and ready for the field work. With time goes on, my spirit and energy were exhausted. In the end of my field work in that place, I find myself so exhausted after working in the field for one month. But keeping notes during the interviews are greatly helpful and these transcription on site are great later since I do not need to spend time to transcribe them.

However, in another part of my field work, I have experienced a totally different environment. I got some permission for recording our interviews, so I have some intervals for resting. Those people who agree to be recorded are farmers in the local level, but I do not want to take advantage of this just because of their identities. I will delete my recordings once I have transcribed all of them.

One way I have benefited from my identity as a young female Ph.D. student is that my age is very similar to the age of their children of several professors at university. In this way, it is easy for them to accept me into the field and as university professors, they are more familiar with the research process. In this way, they provide much help and support during my field visit. Another benefiting I had was that I was a Ph.D. student who has extended her graduation which really got some empathy and compassion from some young professors or young officers who just graduated with their own Ph.D. degree. With similar experiences, they also showed a lot of empathy and understanding about my work and position. Therefore, in many ways, my identity does benefit me in my contact with many people in the field.

### 3.6 Role as a researcher

Besides these general ethical concerns, I have also encountered situations that make me rethink the role as a researcher or a sociologist in the field.

#### *3.6.1 People do not understand you as a sociologist V.S. People know what you are doing as a sociologist*

In the field, I encountered a lot of people who do not know sociology and what sociologists do. But I also met a person who knows exactly what I am doing as a sociologist. To use the words of my advisor, "He caught you." Yes. He caught me when I navigated our conversation to the direction I want to, or when I shifted the topic to the one I am interested in. He knew what I was doing. In that moment, I felt very nervous about it because I felt this might influence my future interviews. Will my interviewees see this as deception or interesting? I cannot tell surely until I found out my interviewee did not have too much response to what this person has revealed. I think our reaction is also very important even when we were caught on site for what we are interviewing. We surely want to get in-depth info from the interviewees, and we use conversations a lot in those situations. But when someone in that situation recognizes what we were doing, the neutral and harmless response we give can help a lot. Even though we have used some skills to navigate our conversations, it does not mean we deceive people or take advantage of them. To be clearer about that, I am more confident in how to handle these situations now. Our skills are not secrets and many people think our discipline does not have expertise. Since the concept "society" in China has another ordinary meaning of tactfully surviving in society, many people joke with me with "I am also an expert on society" when whey first heard that "I am studying sociology." Some professors even think of sociology as a discipline of relationship which means you have made good relationship with everyone important. I feel a little bitter when I heard all those comments, but I did not show much strong disagreement with them because I know allowing them to think of me or my discipline in their own way is also respecting them.

Field work is not an appropriate time for me to educate them about my discipline, but rather a time I have come to learn from them. So, I always keep open-minded about these jokes and write them down to share with other sociologists. Those are how ordinary people think of sociology which I can show to the community of sociologists.

As my advisor suggests, it is better to be thought of as being silly instead of being viewed as dangerous. I think it is a great point here about how we present ourselves in the field. To be thought to be silly somehow can help the informants or respondents help us understand what they truly understand. But being viewed as dangerous might lead to a serious result, which is the termination of our field work. Therefore, how to properly convey the possible harm we may bring and the possible benefits we may make to the local people is also important. I usually make a brief response when my respondents or informants show their concern. Serious emphasis on our research ethics may not get the ideal result we want. Sometimes, it scared away the respondents, and sometimes, it shifts their attention to our end instead of focusing on their work or life experiences.

### *3.6.2 Insider VS. Outsider*

My role as a researcher in the field included being both an “outsider” and an “insider”. I grew up in northern China and have great understanding of our mainland culture with my mother tongue of Mandarin. In the cultural aspect, I am an insider, and these provides me a lot of convenience when communicating with most interviewees since I do not need a translator, and they can view me as a fellow country person. In the northern of Anhui, I found people who had migrated from my hometown city at the field. This really helped in minimizing the distance between me and the interviewees at the beginning. Our cultural closeness and similar original location made them feel free to talk with me about their experiences. They saw me as a guest from their hometown.

They shared with me a tale about how to tell who coming from my hometown in the field site. They told me that men from my hometown have a sixth toe in their feet and that is a symbol for where they come from. Another tale I kept hearing from people I met in the field was about some customs which is related to the Spring Festival. Since the name of my hometown City means the place where dates are produced, people migrating from that place actually would reserve the old custom of cooking dates cake during the period of Spring Festival. Since this festival is the foremost time for Chinese people, this heritage signifies that they still remember where they come from, and they would make some worship during the most important days of the year. These tales are not from one person, it was a group story I keep hearing from people I met in that place. It was a great experience for me as a researcher to find a connection with the local people in the field. It enriched my personal life meaning and deepened my own connection with people.

But meanwhile, I am also an outsider in two aspects. On one hand, China is a large nation and there are local cultures in these fields which are different from where I grew up. In Sichuan, I did meet the problem of translation even though they speak mandarin but with local accents so I needed translation in the process.

Another aspect of being an outsider came from my education background. By studying Sociology in US for more than five years, I have learned the Western approach, more specifically American sociological approach, to study Chinese phenomena. What is the difference between Chinese sociological way and American sociological approach? Someone might ask: What is the difference of your approach from the western approach adopted by other western scholars? As Dr. Belcher explained in her book, “The paucity of published research on non-Western cultures by non-Western scholars is largely because African scholars have limited access to Western journals and books and cannot relate their findings to Western approaches, and

partly because these alien approaches infrequently explain their findings.(Belcher 2016:107)" Because of this, my role of being both outside and insider can be beneficial, too. On one hand, I have access to the western literature, and I have the good training of how to explain my findings. On the other hand, I have the insider perspective of how our people think of this issue. It would not result in the issue of "eulogizing" or "defaming" of the place, the institution, or people involved. As we all know, the positioning of the qualitative scholar is very important and politics would influence academic performance in many ways, directly or subtly. How to find a proper position to deliver more objective findings would be a critical issue before we actually reveal the final results.

### *3.6.3 Tension of being a researcher and being a learner*

With the qualitative methods training, it is okay for us to listen to people's talk and ask for their knowledge during the interview. However, the tension begins coming out when you contact people and start the interview. People will expect you to be an expert when they hear you come from a higher education institution. That is a kind of stereotype about academic scholars. They suppose you know more than them and you have more knowledge about something. It is so important to dispel that stereotype for us as sociologist in the field since they would skip things that they suppose we already know or think it is not important to mention. However, in the field time, we come to hear their stories and life experiences. It takes some time for them to figure out what we are trying to do, not to telling them how to do, not coming to teach them, not only caring about their successful experiences which emphasized by their bosses. The good thing is that people get used to our existence and the mode of our conversation. Let them talk, and don't talk too much. How to not occupy much conversation time in introducing ourselves and our role sometimes can be challenging since it is the important foundation for us to build the rapport and trust relationship with the interviewees.

### *3.6.4 Positionality of researcher: Evaluation of researcher as a case study researcher*

Good research requires a good reflexive ability on the part of the researcher. Besides the general discussion of the positionality of researcher, a case study researcher also needs evaluation. As Yin suggested, the basic desired qualities for a case study researcher are: 1) ask good questions; 2) be a good listener; 3) stay adaptive; 4) have a firm grasp of the issues being studied; 5) conduct researcher ethically(Yin 2018).

Although no one can be the perfect case study researcher, we need to be honest when assessing those attributes. Since 1) And 2) are overlapped with discussion of conducting interviews and 5) would be discussed in ethical concerns later, I would focus on 3) and 4) here. As very few case studies go on exactly like the research design, it is critical for the researcher to be adaptive when bearing in mind the main purpose of the research (Yin 2018). My research mostly followed what I planned initially. One main reason came from the initial research plan which contained great flexibility and high predictions of what might be different from the two universities. The help and support I need for my study highly depended on the coordinators who helped me connect with my interviewees and introduced me to possible site visits. Luckily, the coordinators in two cases were very supportive and helpful. The short interaction during the pilot study made it easy for us to communicate my needs and build trust between us.

Arranging schedules and gaining access to relevant sources of evidence are important to the management of a case study (Yin 2018). Since the working schedule of the people on the site would remain in a length of week, I needed to remain adaptive to what might be available for me at that certain period. It was somewhat challenging, but I felt I could handle it well though with

exhausted mentally and intellectually. This is especially the case for the first several interview in each university. Since I had little information about the interviewees and the information, they provided would be hard to predict. I have pulled myself up with 100% concentration to listen to them and to prepare possible questions to ask in the follow.

### *3.6.5 Case study needs some judgement call on site*

I did gain new information in the middle of my visit on site. For example, at AAU, during the first week of my interviews, I heard about a new type of master's program on Agriculture Extension. Many interviewees including the director of the New Institute and several faculties in different departments who conducted AE within the universities mentioned them. This piece of information was unexpected to me at that time and was not in my research plan. But I feel this might be an important aspect of the new practice of AE conducted by AAU. So, I communicated with my coordinator and added some students as my interviewees. Through the following interviews with students and some extended interviews with the relevant pre-selected interviewees, the fact of how the new practice of agricultural extension have an impact on teaching and students learning did stand out later, which formed a small but important portion of my in-depth analysis in Chapter 6.

There was also some information thread that I found interesting but decided not to follow up on in my current study. One example is gender difference. After the first round of interviews with the university faculty who are involved in the AE practice, some gender difference in doing Agriculture extension stood out. That is, several female faculties mentioned it is harder to do AE than their male colleagues since it involves travelling long distance within the province and hard for them to take care of their family and children. They must give up some opportunities or work tasks which required lodging overnight outside their home or taking several days to complete.

Two or three male faculty also admitted this gender difference has an influence on their ability to conduct this university-built AE practice. This can be an interesting aspect for my research question. However, I do not think my data collected could provide sufficient evidence to support this argument and the discretionary planned interview conducting schedule makes it hard to systematically test this argument. I also did not have enough time and resources to make more systematic data collection for this thread. So, I decided not to follow up too far about this thread.

### *3.6.6 The impact of social research*

Another thought occurred to me when I was in the field. I came to the field and saw the issues they face and realized everyone there knows more about the issues than me. One expectation I can sense from people there is to help them solve the issues they have. But I discovered out that I can help them to some degree by communicating among different sectors, but my direct goal, realistically speaking, cannot be to solve their problems. I have to collect the data and carry them back to my school, then analyze the data, and develop conclusions. But even in my final products which is my dissertation, I cannot provide a specific detailed plan for them to solve the issues they have. I am very conscious of ethical issues when I conduct my research. Besides not harming the subjects I have interviewed with; I am always afraid of not benefiting the people who trusted me to share their stories and work experiences. At first, it is disappointing to realize I might not benefit them directly a lot. After a long time of depression and feeling disappointed, I think it touches the deep issue of sociology which is the function and role as a discipline. As we learn sociology, we also hope our work can be beneficial in some way to the society and it is through our function that people can realize the importance of sociology. But when we told people we are sociologist, the first reaction we usually get is “Oh, what is that? What can you do?” We cannot explain our discipline like computer science that we can compute and write

software programs, we cannot explain ourselves like medical schools that we are doctors, and we cure patients.

After a long time thinking, my answer is as follows. The fact is that of course, most times we cannot offer a direct solution or develop an effective vaccine for a social disease if we see social problems in this way. We might not benefit or solve the sole or several communities we have collect data from, but we can have a bigger impact on the whole society relevant to the topic we discuss. For example, Mathew Desmound did research on eviction and evoked a rethinking of our understanding of poverty in the US. According to William Julius Wilson, Harvard University professor and author of When Work Disappears, "Evicted is that rare book that both enlightens and serves as an urgent call for action." Therefore, what our sociological work can bring to the society is a large effect on a higher level, which may benefit a large number of people in our society since it not only brings people's attention to those issues which may not be easily seen in our daily life, but also can urge our society to make some actions to resolve some issues, which provides a very important opportunity for our human society to reflect on ourselves.

### 3.6 Conclusion

In this chapter, I have introduced the main method of comparative case study method used in my research. The two-case comparative case study cannot only bear the advantages of general case study method which can examine contextual conditions and use multiple sources of data to triangulate, and also provides the benefits for comparing between the two cases with in-depth investigation of each case. With my research design, I have distinguished the case study method as a research method from those non-research methods used pervasively in many disciplines and fields. Under the umbrella of the comparative case study, the main data collection involves the direct field observation, semi-structured interviews, and secondary documentation. I have

discussed the writing process with the qualitative research method in data management and data analysis. Lastly, I have discussed the general ethical concerns and the special circumstances of being a sociologist in the field, which can provoke reflexive rethinking about the role of sociologists in our social research.

# CHAPTER 4 : THE ORGANIZATIONAL CONSTRUCTION OF UNIVERSITY-BASED AGRICULTURAL EXTENSION

In this chapter, I will discuss the analytical framework emerging from my study of the organizational construction of university-based agricultural extension.

Whether for AAU in which some professors previously did extension work out of individual interests or for SAU which has a long tradition of agricultural extension for many professors, organizational construction refers to the building of a systematic university-based agricultural extension system. This organizational construction involves two parts: within the organization and outside the organization. The organizational construction within the organization involves building the subsection within the university to manage the agricultural extension work. In relation to the basics of an organization, Feibleman and Friend (1945) recommended that we first regard organization as a whole and then analyze the parts of the whole. This procedure also holds true for study of my two university cases. When we talk about university-based agricultural extension, it is not all university people participating into this kind of activities, but rather some certain section of the university takes on this role. In my two cases, the New Institute is the main organizational construction for managing agricultural extension within the university. In terms of the part outside the university, the two universities both chose to build cooperative platforms with support from local governments as the main organizational construction.

Drawing on the method of comparative case study, I will provide a comparison between the two university cases. To make it easier to understand, I will clearly lay out similarities and differences related to organizational construction within the university and outside the university. Within the university, the two universities have both established a New Institute as required by

the national policy for university-based agricultural extension. The New Institutes in the two universities have shown us they have different work foci and distinct ways of legitimating their position within the university.

With regard to organizational construction outside the university, two important differences between the two cooperative platforms have emerged, that is, building types and building approaches. AAU chose to build a more physical-oriented experiment stations with physical land and required facilities, while SAU established several project-oriented local branches with only working offices. AAU chose to build these experiment stations all at once with unified standards, but SAU attempted to build one local branch after another by transferring the successful experiences of Ya'an Main Station to other places.

To lead into the discussion of later chapters, I will conclude that these two aspects are the important determining characteristics for cooperative platforms. Different types of platforms would influence what kind of activities taking place on these platforms and what the future development for these platforms. In addition, how they build these platforms has an important influence on the later development of these platforms.

### 4.1 A new policy for university to involve itself in agricultural extension

This study starts from a new policy related to agricultural extension in China. To address the problem of the separation between extension and innovation actors within the existing agricultural extension system, in 2012 the Central Committee of the Communist Party of China first proposed "to guide higher education institutions and research institutes to become important forces for the promotion of agricultural technology…incorporate the performance of agricultural technology extension service into professional job evaluation and promote the system of extension professors and researchers. Encouraging higher education institutions and research

institutes to establish agricultural pilot demonstration bases…"(Central Committee of the Communist Party of China 2012b). At the end of 2012, the Central Committee of the Communist Party of China further clarified that "supporting higher education institutions, vocational colleges, and research institutes to promote agricultural technology to rural communities through the construction of new rural development research institutes and agricultural comprehensive service demonstration bases…"(Central Committee of the Communist Party of China 2012a). With the guidance of these important policy documents, the first group of ten agricultural universities were selected to implement this national policy. Later in 2019, another 29 universities were chosen to continue this policy. From then on, these universities become pioneers in exploring university-based agricultural extension in China.

### *4.1.1 Organizational construction for university-based agricultural extension*

To begin their new role in agricultural extension, the selected agricultural universities had to carry out out new organizational construction. I have adopted the definition of organizational construction of Carroll and Wheaton in their study about authenticity in contemporary food and dining in the US. They denoted organization construction as "a specific lasting feature of the organization (usually part of its structure or operations) radiates the symbolic meaning …that lies at the heart of the appeal of the producer and its products or services"(Carroll and Wheaton 2009:274). For something constructed organizationally, it means "tightly and visibly integrated into the structure of an organization"(Carroll and Wheaton 2009:255) In my two cases, organization construction refers to those relevant organizational changes that university has had to make to shoulder the new role and embody the new value for agricultural extension in order to implement this national policy.

One of the most important organizational constructions within the universities introduced was that of a New Rural Development Research Institute ("xin nong cun fa zhan yan jiu yuan" in Chinese,) established within the universities to specifically work on the practices called for by the national policy. The reason behind the establishment of the New Institute partly mainly comes from the regulations of the national policy, but also corresponds to the functional requirements for an organization. As one SAU professor explained, "You need a sector in the university to do the work since you cannot expect all the people in the university to get involved in agricultural extension. Right? That is why we have to build such an institute, maybe with a different name if not called as 'New Rural Development Research Institute'"(Interview #2 (SAU) 2019).

Importantly, university-based agricultural extension cannot be completed solely with the New Institute. As one professor at AAU said, "You cannot stay in the university to promote any agricultural technology. This work means you need to go out to the field to see the real needs and solve the real problems" (Interview #30 (AAU) 2019). A particular organizational configuration is needed to fulfill its cooperative function. The choice for both AAU and SAU was to build "cooperation platforms" with the support of local governments to promote agricultural technology for local farmers. According to one SAU professor,

> "If science and technology really are to be applied, I found that it has to be in the local. In universities, research is our advantage, but the application and promotion of technology still needs the support from the local government."(Interview #4(SAU) 2019)

AAU and SAU have both have established their New Institute within the university to mobilize their institution's resources and talents to plan and implement practices related to agriculture extension. They have also both built several cooperative platforms in local places to launch the concrete activities related to agricultural extension. Currently, AAU and SAU have actual control

or management responsibility for eight “experiment stations” (AAU) or “local branches” (SAU) in their respective provinces. The structure of the organizational configurations in the two universities look very similar if you look at the layouts of the New Institute within the university and eight cooperative platforms spread out provincewide shown in Figure 4-1 and Figure 4-2.

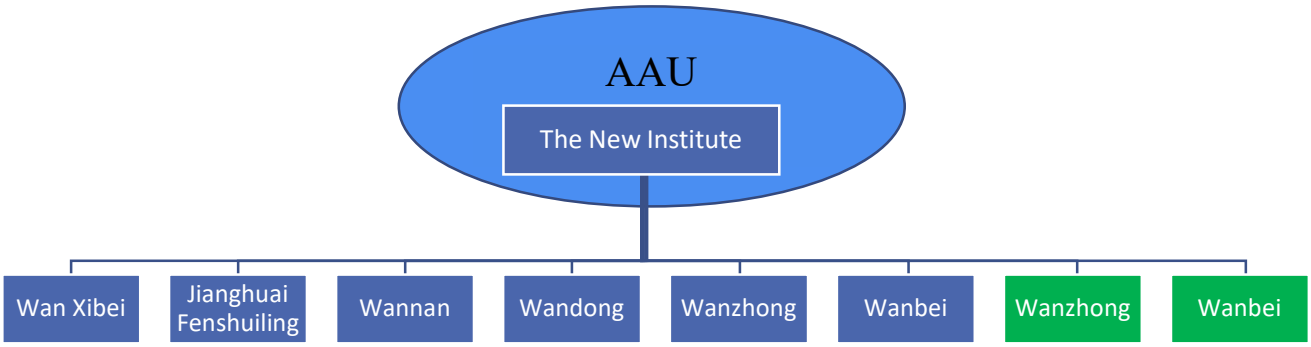


Figure 4-1 Organization Configuration for Agricultural Extension at AAU

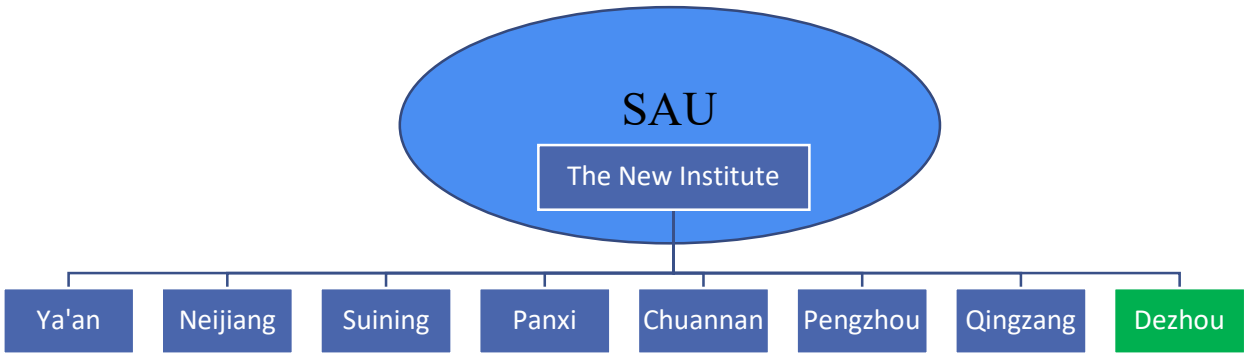


Figure 4-2 Organizational Configuration for Agricultural Extension at SAU

Now let's look deeper at the two important organizational construction in the two cases I have examined, the New Institute within the university and the cooperative platform they built with the support from the local governments.

## 4.2 The New Institute: managing agricultural extension within the university

Both universities' participation in agricultural extension begins with the establishment of the New Institute. It is the New Institute that shoulders the responsibility of managing agricultural extension work altogether for the whole university. The New Institute at the two universities have the same name (in Chinese) and similar structural position within the university, but have developed different work foci and distinct ways of legitimating themselves in the two cases.

### *4.2.1 Same name, same Ambiguity around the name of the New Institute*

As mentioned above, the national policy designated a certain name for the New Institute, however, from the start, the name of the New Institutes has created some confusion.

Among all the first 10 universities selected for participation, the New Institutes for university-based extension have the same name (later another 29 universities were eventually added) "Xin nong cun fa zhan yan jiu yuan" in Chinese. This name has been translated differently in English by different universities as "Institute for New Rural Development" (Guang Xi University n.d.; Peking University n.d.; Sichuan Agriculture University n.d.), "The Rural Development Academy" (Zhejiang University n.d.), "Research Institute for New Rural Development" (Anhui Agriculture University 2018).

The ambiguity of the name of the New Institute comes from its confusion with other national policy names. The name for this New Institute (in Chinese) sounds similar to two other well-known governmental policies of promoting rural development, "construction of a new socialist

countryside"[3] or "Rural Revitalization" [4] (The CPC Central Committee and the State Council 2005, 2018). One of the working staff in the New Institute at AAU said,

> "When heard the name of our institute, people thought we are some Institute to do "Rural Revitalization". We did do some work on that, but we are not the specific institute for that. It is just so hard for people to get what we really do with our name"(Interview #35 (AAU) 2019).

Therefore, for most people who are not working directly with this institute, it is difficult to connect this name to the area of agriculture extension.

In addition, some confusion comes from the latter part of the name which sounds similar to "a research institute". This makes many people view the New Institute as a regular research institute in which scientists or researchers conduct some certain area of research and graduate students are trained in these areas. According to one of the staff members who work in the New Institute at SAU,

> "We really want a more proper name since the current name is so confusing. People do not know what this institute is and what we do. Frequently I got questions such as 'Do you enroll any students this year?' or 'What area of research did your institute work on?'" (Interview #13(SAU) 2019).

Therefore, it can be difficult for ordinary people to connect the New Institute at both universities with agriculture extension, which poses difficulties for establishing the symbolic legitimacy of the New Institute outside the university and even within the university. Some professors who did not work closely with the New Institute at SAU said when asked about the New Institute, "I do not know this institute, is it a new research institute? I guess it might be a new research area where I am not very familiar with. I never heard of it before. Sorry about that. "(Interview #12 (SAU) 2019).

[3] "xin nong cun jian she" in Chinese.
[4] "xiang cun zhen xing" in Chinese.

### *4.2.2 Similar Structural Position within the university*

Besides the same name, another similarity can be seen from the structural position of the New Institute in the two universities. Organizations come with a certain structure and those corresponding functions. The main principle of the New Institute is to fulfill the intended goal of agriculture extension while integrating into the university as an organization. Therefore, it is important to put the New Institute at the proper place in the hierarchy system at a university. I discovered that AAU and SAU put the New Institute in similar positions within the university structure, in the sector of social service paralleling the traditional university function of teaching and research.

As Feidleman and Friend (1945) suggest, it is important to explore the purposive functions of the organization, but it is also critical to analyze the composition of the organization which fulfill those functions. This establishment of the New Institute is intended to achieve the goal of university-based agriculture extension. However, as a new part of the university, it is important for the New Institute to integrate into the pre-existing organizational structure of the university to play full effect of its function.

If we look closer at the organization structure of AAU (shown in Table 4.1), there are four segments with the corresponding roles and functions. The Party and Government Groups are the core management units responsible for decision making related to the development direction of the university. The teaching units are composed by different colleges in these different areas, shouldering the main functions of teaching and researching for the university. Research institutions are research centers and laboratories which clearly focuses on the specific research areas, while public service sector are the supporting organs for the university to run. The New Institute is located under the “Party and Government Groups” segment which parallels with

"Teaching Units", "Research Institutions", and "Public Service." This structural position has signified that the New Institute is placed in the important management division of the university but separate from the teaching and research units.

Table 4.1 The New Institute's Position Within AAU's Organizational Structure

| University Divisions | Detailed Units | Number |
|---|---|---|
| **Party and Government Groups** | Office; Discipline Inspection Office, Supervision Office, Audit Office; Organization Department, Party School; Propaganda Department; United Front Work Department, General Branch of the First Party of the Organization; Retirement Office; General Branch of the Third Party of the Trade Union and the Organization; Youth League Committee; Development Planning Office, Advanced Educational Research Institute; Personnel Office (Talent Office); Academic Affairs Office; Teaching Supervision Office (joint with the Academic Affairs Office); Science and Technology Office (Journal Editing Department); Graduate School (Research Institute); Finance Office; Student Work Department, Student Office (Academic Funding Management Center); State-owned Assets Management Office; Armed Forces Department, Security Office; General Affairs Management Office; Infrastructure Office (joint with General Affairs Office); International Exchange and Cooperation Office; Admissions and Employment Office; **New Rural Development Institute** | 22 |
| **Teaching Units** | College of Agriculture, College of Zoology, College of Resources and Environment, College of Economics and Management, College of Sports, College of Plant Protection, College of Tea and Food Sciences, College of Engineering, College of Humanities and Social Sciences, College of Continuing Education (Vocational and Technical College), College of Horticulture, College of Science, College of Textile Engineering and Art, College of Marxism, College of Economics and Technology, College of Forestry and Gardening, College of Life Sciences, College of Information and Computer Sciences, College of Foreign Chinese | 19 |
| **Research Institutions** | Tea tree biology and resource utilization national key laboratory, Microbial control key laboratory, Anhui Province crop biology key laboratory, Joint local engineering laboratory for crop anti-reversal breeding and disaster reduction countries, Agricultural science and education combined research center, Biomass molecular engineering center laboratory | 6 |

| | | |
|---|---|---|
| **Public Service** | Library, Archives, Agricultural Park Management Center, Hefei (national) Forestry Irradiation Center, Biotechnology Center, School Assets Management Co., Ltd | 7 |

By comparison, SAU has divided its organizational structure into two main functional divisions including the Teaching and Scientific Research Units and Management and Service units (shown in Table 4.2). Teaching and scientific research unit shoulders the main functions of teaching and researching for the university, while management and service units takes the responsibilities of managing and providing services for the university to run. From Table 4.2, we can see that the New Institute at SAU is located within the University's *Administration Sub-sector* which is one of the three sub-divisions of the *Management and Service Units.* This reflects a fact that the designed function of the New Institute at SAU is assigned as a part of management and service for the university.

According to one staff member in SAU's New Institute,

> "As you know, the university needs to do the work of teaching, research and social services. In recent years, social services become an important part of university work. That is exactly what we are responsible for. You can see where our institute located in the organizational structure of our university. We are not in the same part of colleges and departments, but Administration Service Sector. That is the positionality of our institute"(Interview #9(SAU) 2019).

Comparing Table 4.2 and Table 4.3, AAU's Institute differs from SAU's new Institute in that it is located under the larger sector of Administration and Party Group while SAU locates its Institute under the Administration sub-sector. This difference is very slight and if we look at the bigger picture, both universities have placed their Institutes under sectors separate from the teaching and research unit. From the organizational position of the New Institute within the university, we can say the New Institute has different functions from the traditional functions of university of teaching and research, more towards social services. In later chapters, we will see that this organizational structural separation from teaching and research units can lead to

Table 4.2 The New Institute's Position Within SAU's Organizational Structure

| University Divisions | Sub-divisions | Detailed Unit | Number |
|---|---|---|---|
| **Teaching and Scientific Research Units** | **Campus #1** | College of Science, College of Life Sciences, College of Electrical and Mechanical Sciences, College of Food, College of Information Engineering, College of Water and Hydropower, College of Humanities, College of Law | 7 |
| | **Campus #2** | College of Agriculture, College of Animal Science and Technology, College of Grass Science, College of Animal Medicine, College of Forestry, College of Horticulture, College of Landscape and Gardening, College of Resources | 8 |
| | **Campus #3** | College of Architecture and Urban and Rural Planning, College of Civil Engineering, College of Business and Tourism, College of Basic Teaching | 4 |
| **Management and Service Units** | **Party Group Sub-sector** | Party Office, Organization Department, Party Committee Propaganda Department, Party committee United Front Department, Inspection office, Discipline Commission office, Discipline Inspection and Supervision Office, Teachers Work Department | 8 |
| | **Administration Sub-Sector** | Academic Affairs Office; Student Office; Admissions and Employment Office; Graduate School; Development Planning and Discipline Construction Office; Technology Management Office; **The New Rural Development Research Institute**; Personnel office; Finance Office; Audit Office; International Exchange and Cooperation Office; State-owned Infrastructure Department; | 12 |

| | | | |
|---|---|---|---|
| | **Service Sub-sector** | Library, Archives, Information and Education Technology Center, Logistics Management Office, Logistics Services Corporation | 5 |

competition within the university between the New Institute and other subsectors, especially colleges and departments, for the qualified faculty members who are valuable for teaching, research and promoting agricultural extension.

### *4.2.3 Different work foci*

Though the New Institutes in the two universities have similar organization structures and roles related agriculture extension, they have different work foci. The New Institute at AAU has a lot of work that involves cooperation between university faculty members and outside actors, while the one at SAU does more work on summarizing and consolidating what had already been done via university professors' projects.

These different work foci of the two universities are related to the history and the condition of agriculture extension work conducted in the two universities. AAU's newly built Experiment Stations and agriculture programs offer many opportunities to the university researchers. Many professors have their first chance to participate into this new practice with direct contact with local farmers or giving lecture or workshop etc. According to one working staff of the New Institute at AAU,

> "We have organized some workshops for the local farmers on the experiment stations. We have a lot of new professors who never attended such activities but showed great enthusiasm for such activities. We are very happy to help connect our professors with the local farmers"(Interview #35(AAU) 2019).

For advanced professors who might have some cooperative programs, the New Institute would provide services in a new way, for example, building new cooperation with agribusiness, starting

new breeding experiment on the land of Experiment Stations. One senior professor of Horticulture shared her experiences,

> "We have experiences working with the local farmers previously. What is different now is the New Institute welcomes us to do the work on the land of our experiment stations, kind of a new channel for us to get to the local farmers. Like last year, I have successfully trialed planting tulips and host an exhibition in one of our experiment stations when the tulips were blossoming. It is great and attracted so many nearby farmers to come and visit. [A proud look on her face when she speaking of this]I personally greatly appreciate the support from the New Institute and they do a lot of coordination and networking work in the process"(Interview #25(AAU) 2019).

At SAU, the work foci for the New Institute are another story. Since there is a long history of professors providing technology services to the local farmers at SAU, SAU's New Institute does a lot of work of counting and recording these services that have already happened. According to one staff working at the New Institute at SAU,

> "What we do actually is to make records of what our professors have done through their research or projects with the local farmers or agribusiness. But because they have done this before our institute is established, so there are still many projects going on which we do not know. So now we try our best to find them out. Once we hear some project, we will make records of it. It will take some time for us to get all the information"(Interview #6(SAU) 2019).

Therefore, they have devised many ways to motivate faculty to get contact with the New Institute (See details in the section of "Different Ways of legitimating the New Institute").

Would this mean that SAU's New Institute has no need to create new channels to promote agriculture extension? The answer depends on the situations of different professors. According to another staff working in the New Institute at SAU,

> "Senior professors or full professors mostly maintain a lot of cooperation with local companies and connections with entrepreneurs. They do not need much help from the New Institute. However, for younger faculty members, they are gradually transitioning from basic to applied research. They do need help and support from the New Institute to create the opportunity to cooperate through the horizontal projects or providing technological services"(Interview #13(SAU) 2019).

### *4.2.4 Different ways of legitimating the New Institute*

Institutional change needs both cognitive legitimacy and sociopolitical legitimacy (Hargrave and Van de Ven 2006). Cognitive legitimacy refers to those assumptions taken for granted by people about what reasonable, desirable and proper institutional changes should be like based on widely shared value system. (Stryker 1994). Sociopolitical legitimacy consists of critical endorsements and assistance including financial support, government officials and other group people who are necessary to initiate or sustain an innovation. (Carroll and Hannan 2000). To help the New Institute gain both cognitive and sociopolitical legitimacy, both AAU and SAU have made a lot of effort to get the support and endorsement for this new organizational change from other key components of the university.

However, from my findings of my two university cases, AAU and SAU have different ways of legitimating the New Institute's role in the university from a functional perspective. AAU has helped complete the structural requirements for the New Institute to run effectively within the university (e.g., build a party branch, build a trade union, establish students' internship working position etc.) and smooth the work with other units of the university (such as purchasing procedure for comprehensive experiment stations). By contrast, SAU has tried to legitimate the New Institute more functionally (such as allowing the New Institute to manage the university seal, etc.) and offer some authorities to get the New Institute involved into the management of faculty's work (such as assigning evaluation points for doing agricultural extension work).

Let us look at AAU first. As seen from Table 1 above, AAU's New Institute occupies a parallel position with 20 other units within the sector of "Party and Governmental Groups". The Institute's development and everyday operation involve significant interaction and communication with other units. Sometimes they need coordination from them and sometimes

the New Institute has to fulfill their responsibilities to other units. For example, as a provincial university, AAU also has the responsibility to provide employment for students who work while they study. The New Institute provides such positions within their offices. During my field visit, I observed two students coming to the main office to help deal with some office work. They informed me that they were new to their job and that their more senior classmates had transferred their responsibilities to them. Therefore, the New Institute has to work with the Office of Student Management to handle these work-study job positions.

Second, AAU's legitimating strategies involve structural requirements specific to the Chinese organizational setting, the establishment of University's Party Branch and trade union within the New Institute. Having these parts built within a unit has official supporting documents, and it also has gained the symbolic meaning of being completeness as a unit among people.

The supporting document for building party branch comes from Constitution of the Communist Party of China. In Chapter V. Primary-Level Party Organizations, Article 30: "A primary-level Party organization shall be formed in any enterprise, villagers' committee, government organ, school, research institute, subdistrict and community, social organization, company of the People's Liberation Army, and any other primary-level danwei [an organization where people work] where there are three or more full Party members" (Constitution of the Communist Party of China 2017). According to the director of the New Institute at AAU,

> "We [The New Institute] have built a Party Branch in our unit. This signifies the completion of our organizational requirement. You know, it is a significant step for an institute to be officially formed in China"(Interview #38(AAU) 2019).

In terms of trade unions, Trade Union Law of the People's Republic of China (2009 Amendment) provides the general guidance. According to Article 10, "The trade union of an enterprise, public institution or government organ with 25 or more members shall establish a basic-level trade

union committee." (Standing Committee of the National People's Congress 2009). The basic duty of the Chinese trade union is to safeguard the legitimate rights and interests of employees and no organization or individual could obstruct or restrict the workers joining the trade union. The university also have required the staff members to build the trade union for the employers within the institute. As one staff member explained,

> "We have also established our trade union in our institute. It is a little tricky here. Many people do not want to join because joining in these groups requires more administrative work. But we have to build this in our institute since it is important to show our completeness as an institute. The good thing is that some other people also view this as an opportunity to be more involved and gain more political capital. So we still have a good enough numbers of people joining in the trade union"(Interview #36(AAU) 2019).

Despite of the different attitudes of the working staff in the New Institute, this establishment of party branch and trade union unquestionably makes the New Institute more complete in organization configuration.

Third, some legitimating challenges involve intra-unit communication between the New Institute and other subsectors within the university. Currently, AAU's New Institute maintains active communication with Accounting Department since there are many travel expenses for the staff and other funding from the local government in the New Institute. Moreover, the Institute's personnel hiring must be handled by the University Personnel office. Office tools and equipment in the New Institute have to be recorded and registered in the General Office of the university. In terms of international cooperation, the New Institute cooperates with the Office of International Cooperation and Exchange. For example, since the Institute has established cooperative relations with Colorado State University, the AAU Office of International Cooperation and Exchange provides substantial support and assistance with event planning, visa application, travel organization etc. This Office helps clarify the requirements of international communication or travel to the New Institute which must abide by related regulations.

In addition, AAU staff members also try to legitimate the New Institute by showing the effectiveness of their agricultural extension work done with a WeChat official account for the New Institute (shown in Figure 4-3). According to one working staff of the New Institute,

> "We also started a new WeChat official account for our university agricultural extension. It is us [the New Institute] that maintain the updates for this official account. We believe more people would know us and the work we have done via this account. So they would know that we are doing meaningful work and would recognize the importance of our institute"(Interview #39(AAU) 2019).


Figure 4-3 Screenshot of WeChat Official Account of AAU University-based Agricultural Extension

SAU, by contrast, aims to legitimate its New Institute functionally. Instead of focusing on the structural completeness, SAU try to offer authority with functional configuration such as

relocating the university seal[5] to the New Institute and allowing it to assign evaluation points to faculty. By assigning evaluation points to it, the New Institute can have a say in the evaluation of the work done by the university faculty members.

Among the Institute's new functions is to grant the university seal which is required to conduct any university research project. During my visit, staff members collected and screened all yearly projects planned or contracted by the university professors to make sure everything in the contracts meets university regulations. The documents are submitted by university faculty members because they need the university seal from the New Institute. According to staff interviewees at SAU's New Institute,

> "Many professors have run their own research projects for many years, and they do not need us. So, the university try to add some functions to the New Institute. For example, now we have the authority to manage the university seal, so the professors have to visit us if they have applied for new projects or signed new contracts. Since they cannot bypass us, they soon will recognize our existence"(Interview #29(SAU) 2019).

In addition, another legitimating effort made by the university is to offer 100 points to the New Institute every year for it to assign agricultural extension work to university professors. Although 100 points may seem a small number compared to other evaluation points, this indeed increases the recognition of the New Institute. One of the working staff in the New Institute remarked,

> "100 points might not seem like a big number, and it would be much smaller for each faculty member can get. But this did help us gain the feeling of existence among the faculty members. Now many professors know us and realize they can get points from us, so they are very active to join in the agricultural extension activities we hold. We can say this is an effective way to populate our institute in our university"(Interview #10(SAU) 2019).

[5] The University Seal is an important document for colleges and universities to carry out activities inside and outside and to clarify their rights and obligations. It is required to have university seal when the faculty members sign the cooperation contracts or apply for research projects outside the university.

## 4.3 Cooperative Platforms

AAU and SAU both chose to build cooperative platforms to implement activities related to agricultural extension. What is different are the types of cooperative platforms they have built and the building approaches they have adopted.

### *4.3.1 Different types: physical-oriented vs project-oriented*

AAU and SAU have different types of platforms built with the local governments. The platforms at AAU have shown a strong physical basis for cooperation, while those at SAU has a stronger project-driven feature.

*Cooperative Platform Construction at AAU: Physical station with* ***required facilities***

AAU's New Institute has developed a "physical" institutional platform based on establishing eight Experiment Stations on land owned or acquired by the university.

Experiment stations at AAU received a great amount of support from local government in the form of physical land and facilities. This external support has made AAU experiment stations look very differently from SAU local branches. The detailed support and constructions of each experiment stations is shown in Table 4.3. Besides its facilities, the local government also committed to providing 1 million in operational funding for the experiment station in its area. Whether all the funding was received and how the funding came in another story (See details in Chapter 5 below), this still shows the great support AAU has gained from local government for its role in extension.

Table 4.3 Detailed Information of Eight Experiment Stations at AAU (Anhui Agriculture University 2018)

| CES name | Construction unit [location] | Land area (mu) of construction | Land area (mu) of agricultural use | Comprehensive building area | Completed State |
|---|---|---|---|---|---|
| **Wanzhong CES [located in a university owned farm]** | Lujiang County | 30 | 500 | 19800 | Completed |
| **Dabie Mountain CES** | Jinzhai County | 15 | 500 | 6380 | Completed |
| **Wanbei CES** | Yongqiao District | 21 | 650 | 8570 | Completed |
| **Wandong CES** | Mingguang City | 25 | 500 | 6699 | Completed |
| **Wannan CES** | Huangshan District | 15 | 500 | 6168 | Completed |
| **Jianghuai Watershed CES** | Dingyuan County | 15 | 500 | 4700 | Completed |
| **Wanxibei CES** | Linquan County | 15 | 500 | 7043 | Completed |
| **WangJiang CES** | NanLing County | 20 | 1000 | 8000 | Completed |

*A university footprint on these physical-oriented cooperative platforms at AAU*

With physical land of their own, they have significant power to decide how to use these land and facilities to promote agricultural extension. My observations in the field can provide some evidence. To be noted, the activities listed here are not a complete summary, but a partial display due to the limits of the timing and perspectives of my visit.

*Corn experiment:* During my visit, one professor came to the Experiment Station to conduct his corn seeds breeding experiment. He has already informed the Experiment Station in advance and the staff had plowed the land for him to make it ready for sowing these seeds. The process of sowing would take place over three days and temporary workers who are farmers nearby would offer assistance. The professor would use 2 mu land to sow 213 new breed of corn seeds. Based on his explanation, the seeding process can be very tedious, and he would come back to check them months later. But with the help and assistance available on the Experiment Stations, he feels it is much easier to operate this process. This is the land for the university so the university can use it for free, and the experiment stations also want them to experiment on their land since the experiment results would be valuable for the local farmers.

Figure 4-4 Field Work: Sowing for Corn Test With Assistance of Employed Local Farmers

Figure 4-5 Deworming Treatment on the Land of One AAU Experiment Station

*Tulip flower New Breeding:* One of the most famous scenes in one of the Experiment Stations I visited mentioned by many people are the tulip flowers blossoming on the demonstration site. In April, the tulip flowers introduced by one of the professors specializing in vegetables and flowers are. Since the experiment station is open to the public, this beautiful scene of colorful tulip flowers attracted a great number of the local farmers living nearby to visit. It arouses great sensation among the farmers to recognize the existence of the Experiment Stations and satisfy their curiosity about how to plant these flowers. It is surprising for them to see how the foreign flowers grow in their homeland. According to the director of the Experiment Station, "This demonstration of tulip flowers is a big success for us. Local farmers are very curious about this kind of flower, and we will continue this demonstration next year"(Interview #23(AAU) 2019).

*Supporting local agribusiness entrepreneurs by renting at low cost*

Currently in rural China, land is undergoing consolidation. More and more entrepreneurs rent land to run their agribusiness compared to household farmers who farm their own land, and this undoubtedly adds more economic cost to their operation. With its physical land, the Experiment Stations can help local agribusiness by renting them land. After the experiment station is

constructed, their communication with the local agribusiness started. One of the local agribusinesses which started up by a disabled lady who is expert in producing works of art from gourd plants. Her business has provided more than 50 jobs for other disabled people, which created both great economic and social support for the rural community she lived in. The leaders of the Experiment Station have decided to support her agribusiness by offering her land in the experiment station to plant her gourds free for the first three years and with a small rental fee after that. According to the director of one of experiment stations,

> "We try our best to providing some support for the local farmers, and our experiment stations with physical land makes it much easier to do. I can feel that such actions were appreciated by the local farmers and agribusiness entrepreneurs. There are many other local agribusinesses trying to contact us from then on"(Interview #23(AAU) 2019).

*Summary*

AAU has laid out construction of eight comprehensive experiment stations province-wide with unified standards. The two comprehensive experiment stations I have visited are located in a county with great agriculture economic development needs. They each have a physical base with 500 mu land for demonstration and some land for buildings and facilities. The local governments would also provide 1 million yuan (equal to around 153,800 dollars with a currency ratio of 6.5) for this experiment station to run each year. Though there is some variation, the general layouts and organizational configuration of those comprehensive experiment stations built by AAU are similar. All agricultural extension activities are visible on these physical platforms and make them important bases for AAU to leverage technology and research advantages to promote rural development in the areas around these comprehensive experiment stations.

*SAU's Project-driven cooperation platform*

Compared to the experiment stations at AAU, for SAU's local branches only working offices are provided and research projects and programs play more important role in university-based agriculture extension.

SAU does not have its own experiment fields in local counties. Instead, they use local farmers' fields for production and experimentation. Though not providing buildings, experiment field, and other facilities, local governments in Sichuan Province offer locations of working places when SAU signed contracts with them to build local branches to promote agricultural extension. For example, in one local branch, the local government provides the working offices in one of the local Vocational Technical School. According to the director of that local branch, "We only use that office for documents, storage etc. We usually go to the farmers' fields to do the real work, so it is enough for us to have several offices in the local place. More will be wasted"(Interview #5(SAU) 2019).

Many cooperative projects and programs are being implemented through these local branches. Take Ya'an Main Staiton as an example. Based on SAU statistics and records, each year there are more than 1000 projects being implemented based on collaboration between the university and local cities under the Ya'an Main Station. From Table 4.4, we can see that their cooperation projects have covered varying areas, including poverty reduction, increasing farmers' income, helping the agribusiness solve technical issues etc. and the number of cooperation projects has a steady increase each year. Project funding has also increased from 0.6 million to around 1 million between Year 2016 and Year 2018. According to one staff member at SAU's New Institute, "This is a large amount of money being devoted to local rural economy development

through these projects, and we believe it will have important influence to our local rural areas in the long run"(Interview #10(SAU) 2019)

Table 4.4 2016-2018 SAU Project Funding at Ya'an Main Station (compiling by working staff of the new institute at SAU)

| **Project-type** | **Detailed project content** | **2016** | | **2017** | | **2018** | |
|---|---|---|---|---|---|---|---|
| | | **Number** | **Amount (10,000 yuan)** | **Number** | **Amount (10,000 yuan)** | **Number** | **Amount (10,000 yuan)** |
| Horizontal | Cooperation with local governments | 518 | 3,534.81 | 592 | 4,051.78 | 650 | 5636.06 |
| | Cooperation with entrepreneurs | 450 | 2,311.73 | 579 | 3,265.21 | 573 | 3594.36 |
| Others | Transformation of Achievements | 14 | 338.00 | 17 | 292.84 | 15 | 187.10 |
| | Enrich people and strengthen county | 8 | 84.90 | 3 | 16.40 | 1 | 4.50 |
| | Poverty Reduction with technology | 19 | 239.00 | 34 | 344.24 | 32 | 272.75 |
| | Research Recycle | 11 | 60.38 | 4 | 1.99 | 49 | 311.95 |
| Total | | 1020 | 6,568.82 | 1229 | 7,972.45 | 1320 | 10006.73 |

We can also see the project-oriented characteristic of SAU's cooperative platform from the local branch of Dezhou. SAU's local branches are mostly located in Sichuan Province, except for the one located in Dezhou City, Shandong Province. This branch originated from a research project led by previous SAU researchers in and mostly focused on specific areas of agricultural technology including coordinated corn-soybean planting technology, multi-level comprehensive utilization technology of straw, solid-liquid separation of cattle and sheep dung, technology for

feeding earthworm decomposed manure, and demonstration and new corn planting cycle technology. According to the director of this local branch,

> "Our local branch is built based on the research projects done by one leading professor and his colleagues in the College of Horticulture. He has provided some planting technology for the local farmers in Dezhou City, and the local branch is built to strengthen the cooperation between SAU and the local government. Our local branch did not require intensive management since is distant from SAU. It would require more attention mainly when a project is underway that requires SAU expertise and technology. Mostly, the local government operates the branch. This is an effective mechanism since we are only responsible for the technology and the local government would do other non-technology stuff. It is a clear division of labor(Interview #9(SAU) 2019)".

From the establishment and management of this local branch of Dezhou, we can see SAU mainly focuses on technology expertise via research project and leave the management work to the local government.

*Needs more obvious university footprint at SAU project-oriented cooperative platforms*

For SAU, within these seven within-province local branches, the local government provides offices for working but does not provide land or facilities as in the case of AAU's experiment stations. Instead, the format of SAU's university-based agricultural extension takes a more fluid shape in the format of all kinds of programs or projects. SAU researchers will perhaps not be seen doing agriculture extension on an Experiment station, but there are many different projects running on farmers' lands, agriculture co-ops' orchards, or agribusiness companies' experiment land etc. Some professors view this way of doing agricultural extension is very effective. As one professor has shared her thoughts,

> "I feel our way is great. We might not have our own land, but you can see our programs are diversified with solid and direct goal setting and needs fulfilling in many cases. It is the real work that matters in terms of agricultural extension. Don't you think so?"(Interview #30(SAU) 2019).

However, the leaders of SAU's New Institute and its local branches prefer to have more of a SAU footprint attaching to their extension work. One of the vice directors of the New Institute at SAU expressed his appeal of increasing the influence of their university,

> "People cannot see what we have done for agricultural extension. We achieved a lot in promoting agricultural technology, but the footprint of our university is lacking. I do hope people can know it is our **SAU** professors who did the work.(Interview #16(SAU) 2019)"

People in both universities are aware of the differences between the cooperative platforms they have built, especially for SAU. In interviews, SAU staff in the New Institute expressed their admiration related to the support AAU has received from local government since most of the physical support they received has been  some working offices located within either in the local governmental building or in some local schools (Interview #9(SAU) 2019). According to the Director of SAU's New Institute,

> "These support with physical land and facilities reflect successful cooperation of AAU with local governments. However, that kind of cooperation has not been easy to achieve in many other places. We would also like to have land and building support from local counties similar to the AAU receives, but that has not been possible for us. It would be complicated to explain why. Comparing to them [AAU], we have very different conditions."(Interview #8(SAU) 2019).

*Summary*

By contrast with AAU's experiment stations, SAU's local branches display a more obvious characteristic of programs and projects rather than land or physical facilities funded by local governments. Though not providing buildings, experiment field, and other facilities as in AAU, local governments arranged working locations for experimental work when SAU contracted with them to build a local branch to promote agricultural extension.

The current cooperative platforms built by SAU stems from the demands of local governments. Through projects or programs, the University mainly provides technology and expertise; the

daily management of local offices, funding, working staff etc. is left to local governments to handle. Though making possible effective agricultural extension, some SAU interviewees would like to see a clearer university footprint in the extension they have done.

### *4.3.2 Distinct building approaches: all at once with unified standards vs one by one by transferring the successful experiences from one to another*

Another big difference between the two universities is shown in the approaches to building their platforms and the development trajectories behind them.

#### *AAU Experiment Stations: all at once with unified construction standard*

In response to both the requirements of national policy and the actual needs of the construction of beautiful villages and agricultural modernization in Anhui Province, AAU has devoted most of its available resources and funding to building the Comprehensive Experiment Stations.

The comprehensive experiment stations built by AAU are different from those Experiment Stations commonly seen in the US universities which are mostly under the supervision of Departments or Colleges of agriculture. Based on investigation of the local conditions and communication with local governments, AAU has set up unified standards of the experiment station construction of 8 comprehensive experiment stations:

- One 3600 $m^2$ comprehensive service building.
- One 1000 $m^2$ production warehouse.
- Three functional laboratories (1 for the test of produce quality and safety, 1 for soil chemistry, and 1 for psychology and ecology).
- One set of new agricultural extension information remote service terminal.
- Sufficient technology service facilities for 200 students' internship.
- One 500 acres innovation demonstration base for the test of standardized modern agricultural science and technology.(Anhui Agriculture University 2018)

*Varying development among the experiment stations*

However, a unified construction standard could not guarantee a unified development trajectory. Instead, AAU has lost control or management of two experiment stations among the eight experiment stations they have built.

AAU built eight comprehensive experiment stations at the beginning. Currently, AAU now actually manages six stations. First, Wanzhong Experiment Station is constructed on the university research base with a modern agricultural demonstration park established previously by the university. Out of convenience, this experiment station has been managed by another department of the university, the Office of Infrastructure. Second, Wanbei Experiment Station is built on the cooperation with a private agricultural company. This experiment station over time came to be mainly in the control of this private company and the university does not manage it on a daily basis[6].

Furthermore, there are still some differences in required construction standards among these experiment stations. If we look at Table 4 again, even though they are marked as "completed", those stations largely remain under construction. I visited the mostly finished experiment station (Jiang Huai Watershed Experiment Station) in which all the building and facilities are mostly in place and experimental lands are also in use. But multiple interviewees told me that this station is

[6] It would be interesting to explore the development of this experiment station. However, due to limited time and access of my field work, not much field data about it was collected. Meanwhile, other experiment stations are examples of cooperation with the local governments. Therefore, my discussion in this study would be based on the data of the other experiment stations, centering around the cooperation mainly between the university and the local governments.

exceptional in the completion degree of construction and other stations are still in different stages of construction. According to one vice director of the experiment stations from the university,

> "This experiment station [Jiang Huai Watershed Experiment Station] is our most developed station with completed building and facility construction. It has started to accommodate for our students to come for their internship. There are also many research projects going on. There is a big gap, huge gap between it and other experiment stations. Some of them are even still in construction for their buildings, let alone the further development" (Interview #34(AAU) 2019).

This also corresponds to my observations in another station where only office buildings were set up with dormitory buildings and even the kitchen still in construction. The conference room is just finished and will be ready for use soon. Part of the experimental lands are in use and the watering systems needs to be reestablished. There is also a greenhouse lab in construction.

### *SAU local Branches: one after another by transferring successful experiences of Ya'an Main Station*

In comparison to AAU, SAU adopted a different approach to building its cooperative platforms. They did not build all the local branches all at once with the same standard, instead they actually began with Ya'an Main Station, a very successful example of cooperation between the University and local government, and then tried to build one local branch after another by transferring Ya'an experiences to other places. According to the director of one of the local branches,"One of the characteristics of our [university-based]agricultural extension is the local branch. These [local branches] come from the 'Ya'an model' because of its success" (Interview #5(SAU) 2019).

Based significantly on the successful experiences of Ya'an mode, SAU has built seven branches of the university-county agricultural extension station. SAU's current local branches include the Neijing Branch, Chuannan Branch, Pengzhou Branch, Dezhou Branch, Panxi Branch, Suining Branch, and Qingzang Branch.

Table 4.5 List of Cooperative Platforms Built by SAU With Year of Establishment (complied from SAU official website)

| Local Branch | Year of establishment |
|---|---|
| Ya'an mode | 2012.4 |
| Neijiang | 2015.5 |
| Suining | 2016.10 |
| Panxi | 2017.6 |
| Chuannan | 2017.11 |
| Pengzhou | 2018 |
| Dezhou | 2018.5 (outside the province in which SAU is located) |
| Qingzang | 2019 (still in construction) |

From Table 4.5, we can see that starting from 2012, SAU continues to build local branches in the following years. By 2019 when I visited, SAU had just planned a new local branch of Qingzang. According to one of the vice directors of the New Institute at SAU,

> "The Qingzang Branch is our newest branch, and it is still involved in a negotiation process between SAU and the local Autonomous Prefecture[7] [same administrative level with Province]. We will discuss the detailed construction plan later with the local government"(Interview #13(SAU) 2019).

*A good example of transferring Ya'an experiences to other places*

The local branch of Panxi is a good example of transferring Ya'an experiences to the local place. Let us first look at the Ya'an Main Station, then I would introduce the local branch of Panxi. By comparing their organizational chart, we can see the good transferring results from two aspects, leadership team and technology service team.

[7] It is one of China's administrative divisions and has the same administrative division level with provinces, municipalities, and special administrative regions. It is a provincial-level administrative region of the People's Republic of China and is established in a concentrated residential area of ethnic minorities. There are currently five autonomous regions in China (www.gov.cn 2013).

*The Ya'an Main Station*

The full name of Ya'an Main Station is "Ya'an New Rural Technology Service System". Its name was based on effective cooperation between SAU and Ya'an City. Based on my interviews, cooperation between SAU and local government around extension has been strong. Even the momentum for SAU to be among the first wave of universities to participate in agricultural extension comes from local government not the University. The city of Ya'an informed SAU about the new University-based Extension policy and encouraged them to apply.

The leadership team of the Ya'an Main Station is composed of the top leaders from both Ya'an city government and Sichuan Agriculture University. Specifically, the team lead is taken by Ya'an Municipal Party Committee Secretary, the city Mayor, and the Party Secretary and President of Sichuan Agriculture University. The deputy team head are the Ya'an Municipal Party Committee, Municipal Governmental official in charge, and the deputy president of Sichuan Agricultural University.

In the Ya'an Main Station, SAU has built a three-level technology service team with the Ya'an Service Station as the core. Its organizational structure is shown in Figure 4.6. With advantages of university talent and scientific and technological achievement, SAU have combined authority in agriculture technology with administrative authority of the local governments, which leads the development of five featured agricultural industries in Ya'an city, including tea industry, fruit and vegetables industry, Chinese medicine industry, livestock industry, and forest industry.

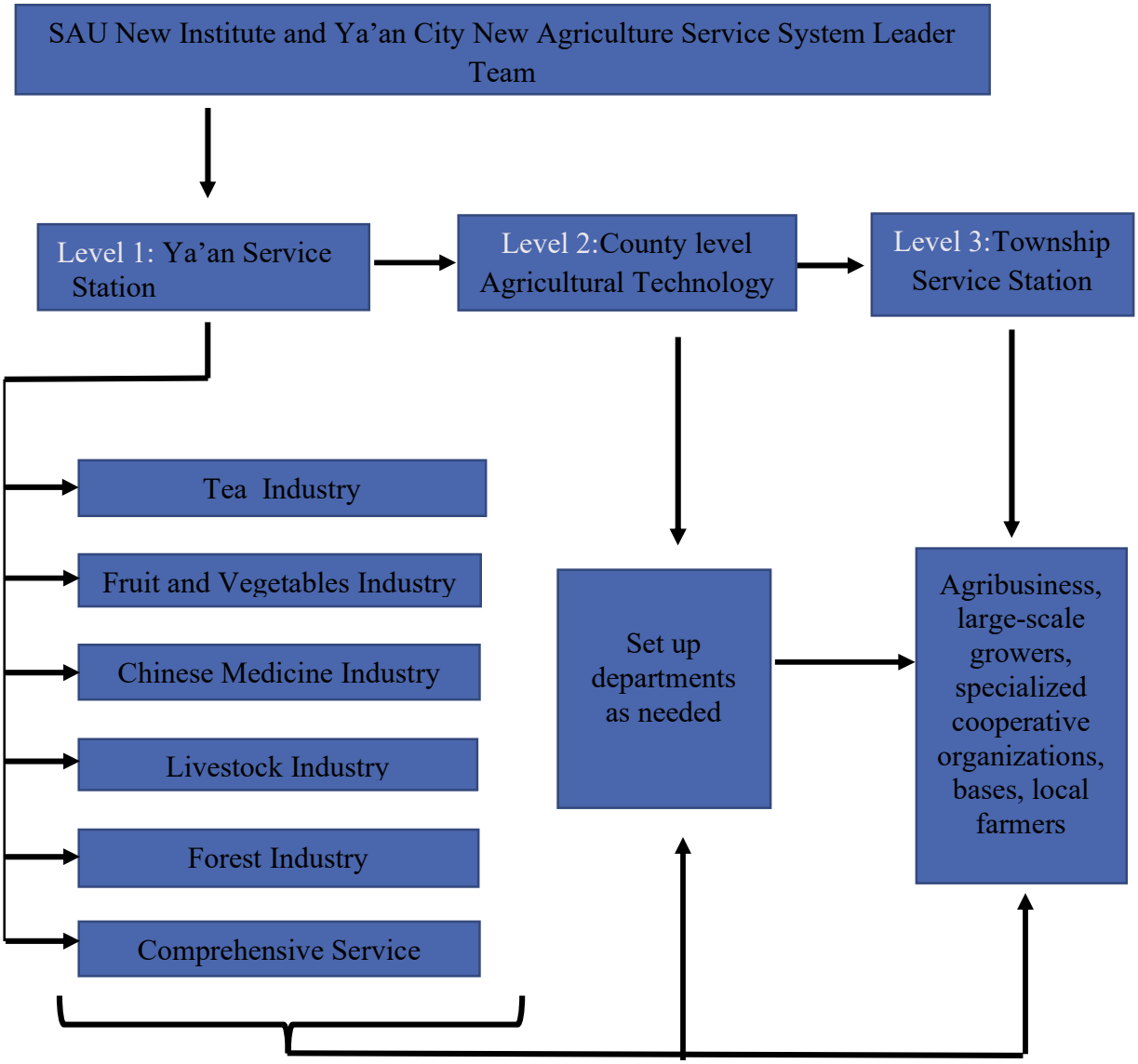


Figure 4-6 Organizational Chart for Ya'an Main Station

*Local Branch of Panxi*

In 2017, SAU and Dechang county established the Panxi Branch of the New Rural Development Research Institute. Their leadership team is similar to that of Ya'an Main Station. The Branch's leader is the Secretary of the County Party Committee and the County Head of Dechang County, and the Secretary of the Party Committee and President of SAU. The Deputy Group is led by governmental officials who are in charge in the County Party Committee and the County

Government and the vice president of Sichuan Agricultural University. (Institute for New Rural Development, SAU 2018).

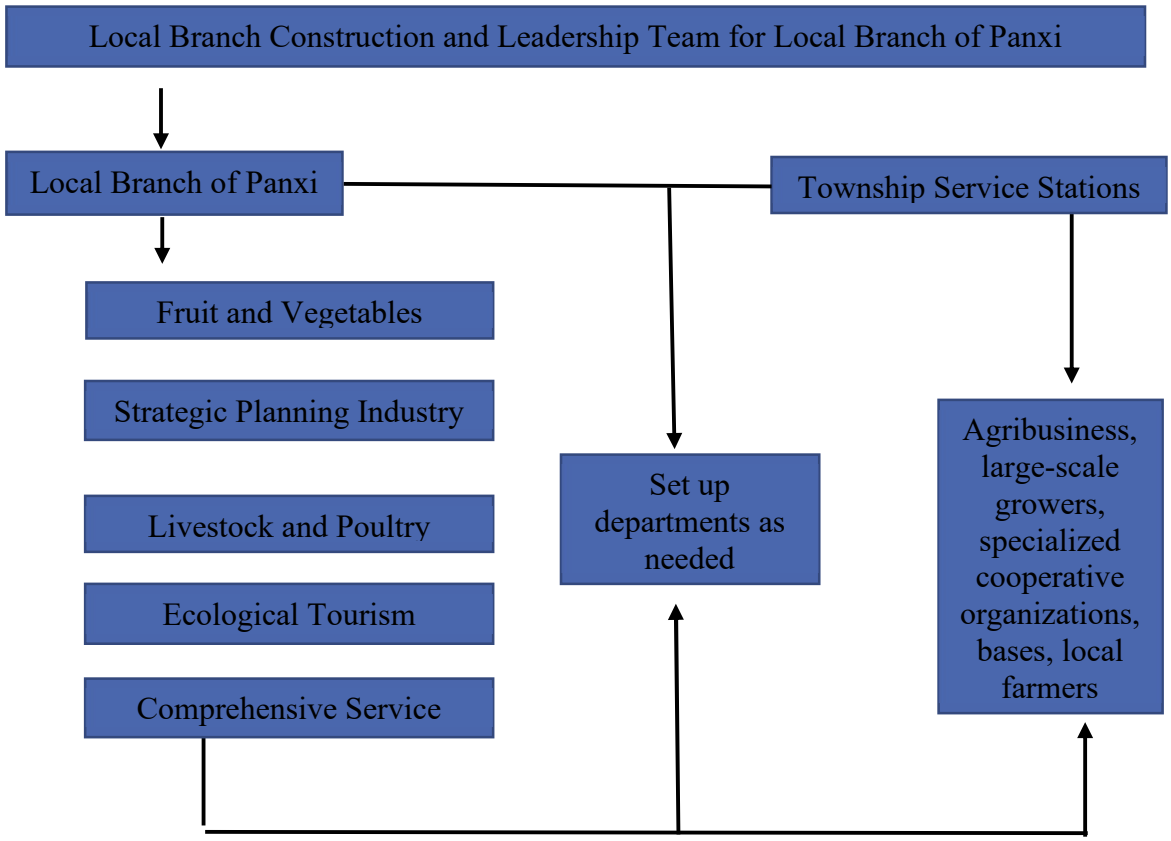


Figure 4-7 Organization Structure Chart for Local Branch of Panxi at SAU

Comparing Figure 4-6 and Figure 4-7, we find that local branch of Panxi has built a similar service team as the three-level service team in Ya'an Main Station. The local Branch of Panxi has built a service team around four agricultural industries, including strategic planning, fruit and vegetable, livestock and poultry, and ecological tourism. They set up township (town) service stations (as shown in Figure 4-7) as needed to form a two level from local branch to service station of science and technology service system.

This similarity with Ya'an Main Station was also verified by the working experiences of the working staff from SAU. According to the vice director of this local branch,

> "We did not experience many difficulties to do extension work like we do in Ya'an Main Station. The local government is very welcoming of our coming and the local farmers also have a higher recognition of agricultural technology"(Interview #5(SAU) 2019).

*Varying results of transferring Ya'an experiences*

However, not all the local branches have had positive results with transferring Ya'an's successful experiences. SAU's local branches are being built gradually year by year with the efforts of the New Institute. But how the local branch finally looks like depends on negotiation with local governments based on local contexts. According to one staff member in the New Institute at SAU,

> "Our local branches are developed from Ya'an Main Station, but each one is different. For example, in one local county, we adopted the form of Private non-enterprise which is under supervision of Bureau of Civil Affairs and the local branch there is more like a social organization. We have to consider the local contexts when planning for the new local branch since each county or city is different. We try our best to get most for our new local branch"(Interview #29(SAU) 2019).

**4.4 Conclusion**

What can be taken away from my findings are two parts involving the organizational changes within a unit and outside a unit. When forging new organizational changes to fulfill a new role or function, we examine two parts separately. One is the part within the organization, and the other is the part outside the organization. For the part within the organization, even though the national policy has made regulations, there are still differences when the implementing unit conducting the policy in the local level. This can be seen obviously from the building of the New Institute within the university. The New Institute in the two universities have the same name, and similar structural positions, but their working foci and ways to legitimate differ by the specific contextual situations in the two universities.

The part outside the university to do the agricultural extension is more innovative. The two universities have more freedom to choose their own organizational configurations to do

agricultural extension. By coincidence, the two universities chose to build cooperative platforms with local governments, but they adopted different approaches to build different types of platforms. At the time of my fieldwork, AAU had established eight physical-oriented experiment stations all at once with unified standards, while SAU had built eight project-oriented local branches one after another by transferring the successful experiences of Ya'an Main Station to other local branches. My data collected from the two cases shows that the different types and building approaches for these cooperative platforms really matter. In the chapters below, I will show that these differences have become important foundations for the agricultural extension activities done by the university professors, perpetuated transformations in the previous extension mode, and also given birth to challenges they encountered. Those differences in types and building approaches of these cooperative platforms also have a great influence on the institutionalization of these organizational changes made by the universities and the future development directions for the newly explored university-based agricultural extension.

# CHAPTER 5 : COOPERATION AND CHALLENGES

In this chapter, I will discuss cooperation in university-based agricultural extension. Technology is commonly thought as the core area of agricultural extension. It is undoubtedly important, but for university-based agricultural extension, agricultural technology alone is not enough, but cooperation with relevant stakeholders such as local farmers or local governments is essential. This can also be seen from the organizational construction made by the two universities talked about in Chapter 4. In this study, cooperation is viewed as one kind of organizational behavior, which is "study of human behavior in organizational settings, the interface between human behavior and the organization, and the organization itself" (Moorhead and Griffin 1995:4). Blau and Schoenherr (1971) point out that a comprehensive understanding of organizational behavior requires examination of both the social-psychological processes that produce action and organizational structures that provide context for processes to happen.

In Chapter 4, I introduced the important organizational construction made by the two universities. One important part of organizational construction is that of cooperative platforms which are the organizational structural settings where multiple different actors work and cooperate together in order to achieve a certain goal. These platforms are important organizational contexts where the cooperation takes place. However, to examine how cooperation happens requires more than looking at the organizational structural setting in which it takes place but rather also probe how the cooperation process itself. It is necessary to explore how different actors work together on these cooperative platforms built by the two universities with local governments. A working mechanism can provide great insights into these cooperation processes. I use the term "working mechanism" to refer to how to organize multiple different

actors to work together to achieve a certain goal. In each of the two universities, distinct effective working mechanisms are emerging out of their cooperation with local governments in agricultural extension. Hopefully, discussion of these two different but both effective working mechanisms can shed light on how the cooperation in university-based agricultural extension can look.

Cooperation is not always easy to achieve since there are other factors influencing the whole process. To offer a more whole picture of the cooperation process, I will discuss challenges encountered by the two universities in the cooperation process in the second section of this chapter. There are many sources of challenges for the cooperation as organizational behavior. For my cases, the main challenges come from the multiple social identities involved in the cooperative platforms built by the two universities. Social identity an important topic in the area of organizational study. From the perspective of organizational theory, social identity can help bond the individuals together and provide benefits to the organization itself, making organizations different from markets (Kogut and Zander 1996). Some scholars argue social identity should be maximized because it can result in people's loyalty and altruistic behaviors towards the organization's objectives (Brown, Humphreys, and Gurney 2005). More recent literature on social identity has transitioned from the structural view which sees social identity as oneness with an organization, to a more fragmentationist perspective (Brown et al. 2005; Humphreys and Brown 2002; Willem, Scarbrough, and Buelens 2008). From the perspective of the fragmentationist camp, social identity "is viewed as multiple, fragmented, processual, and situational" (Willem et al. 2008:372) . Scholars in this camp argue that the multiple social identities owned by organizations might create tension or conflict over power which can be harmful for the development of these organizations. (Humphreys and Brown 2002). Following

the more structural view of social identity for organizations, it might be assumed that the involvement of multiple organizations in one cooperative platform can bring more resources, broaden the influences of the cooperative platform, and therefore improve the effect of cooperation. However, my findings align more with the fragmentationist perspective of social identity. I will discuss below developmental issues related to cooperation experienced in the two platforms built by AAU and SAAU in this section. The multiple identities and interests involved they involved may create some difficulties in daily management and then for their future development, albeit in different ways.

In the third section of Chapter 5 below, I will make a brief theoretical summary based on the discussion in the first two sections. The effective working mechanism discussed in the first section shows a positive relationship between the organizational structure (platform construction) and interaction process (cooperation building). In this positive relationship, good results achieved in either one of the two parts can facilitate the improvement of the other part, finally leading to further development for both parts. However, in the second section, some issues in the organizational structure (e.g., the multiple social identities of the cooperative platform) hamper the cooperation process (very challenging daily management), and then poor cooperation results discourage investing into the platform construction. This pernicious cycle could lead to a more pessimistic future development for both parts.

### 5.1 Cooperation: working mechanism

As I discussed in the last chapter, AAU built several experiment stations province wide as its platform for organizing cooperation around extension. Below, I look at the cooperative mechanism associated with its organizational platform. Good cooperation cannot happen without an adequate cooperation mechanism. Effective cooperation will combine the strengths of all the

relevant partners. AAU and SAU have each adopted different ways of organizing their partnerships with local government to do the concrete extension work.

### *5.1.1 AAU's Agricultural Industry Alliances*

AAU's cooperative mechanism involves agricultural industry alliances in each experiment station in which the university faculty and local government work directly with local farmers. AAU interviewees themselves summarize it as "1+1+N" where the first "1" represents the research team led by the university faculty, the second "1" means the extension agents who are governmental employers and work in the traditional state-led extension team, and the "N" refers to the local farmers who are willing (having the necessary knowledge and a high level of acceptance to new things) and capable (having a moderate size of land and relevant skills) to test the new technologies introduced by university researchers(Anhui Agriculture University 2018).

To conduct the work of agricultural extension, AAU and local governments work together to build agricultural industry alliances to provide technology services to local farmers, especially local agribusinesses. These alliances are formed around principal local agricultural products and aim to promote development of local agricultural business. The alliance team in each experiment station usually consists of 8 to 10 experts, with 4 to 5 experts from each of the university and the local government. A faculty member from the university assumes the role of director of this alliance and experts from the local "Farmers' Bureau", the traditional governmental agricultural extension agencies, perform the work. While university faculty members have knowledge of advanced technology and information about crops, local experts from "Farmers' bureau" have more experience in communicating with local farmers, are more familiar with the local agricultural economy and can recommend technology service activities and objectives for the alliance. AAU calls this mechanism "4 in 1" which integrates four different entities in this

alliance, the university, local government, traditional extension agents, and local farmers or agribusiness (Anhui Agriculture University 2018). Each experiment station has several different agricultural industry alliances based on the local agricultural economy(Examples are shown in Table 5.2).

Table 5.1 Agricultural Industry Alliance in the Two AAU Experiment Stations

| **Agricultural Industry Alliance** | **Experiment Station #1** | **Experiment Station #2** |
|---|---|---|
| *1* | Wheat | Wheat |
| *2* | Corn | Rice |
| *3* | Fruit Trees | Fruit trees |
| *4* | Vegetables | Vegetables |
| *5* | Seedling and flowers | Seedlings and flowers |
| *6* | Grassland animal husbandry | Grassland animal husbandry |
| *7* | Healthy Farming | Aquatic products |
| *8* | Agricultural product quality and safety | Pigs and poultry |
| *9* | Pest green prevention and control | Miscellaneous grains |
| *10* | *Chinese herbal medicine* (cancelled in 2018 due to insufficient local needs) | |

Cooperation with the agricultural industry alliance is organic with participants making adjustments each year after evaluation. According to one professor who works in one agricultural industry alliance, “Our industry alliance is not unchangeable. For example, in 2018, in Experiment Station #1, we dissolved one industry alliance on Chinese herbal medicine because there was insufficient technology need for this agricultural product in the local county. We did

such evaluation every year to make sure we have the proper agricultural industry alliances to provide services for the local farmers"(Interview #27(AAU) 2019).

As industry alliances often overlap among different experiment stations at AAU, university professors are not assigned to one single experiment station. Instead, in the cases of Experiment Stations #1 and #2, faculty work with both stations to promote new technology among local farmers.

These university staff members are supported by local government agriculture experts working in local governments (similar to extension agents in the US). This makes university-based agriculture extension at AAU more flexible and effective. For example, according to one local vegetable farmer, "In terms of technology, the local Agriculture Bureau can help with general issues such as soil conservation, but they do not have specialties in vegetables. Since the Experiment Station was established, we contact the university faculty with expertise in vegetables and they are very nice to offer any guidance needed. " (Interview #4(AAU) 2019) An owner of the local Fruit Planting Cooperative shared that "They [the university faculty members who work in the agriculture alliance] travel here frequently and check our planting techniques and crop growing regularly. They also bring free seeds of new breeds to test in my field in these two or three years. Those new breeds of cucumbers and watermelons grow well and sell well in the market. Next I will try the new seeds of tomatoes they gave to me last time" (Interview #3(AAU) 2019).

Interviewees remarked that for university faculty who must travel to different experiment stations, it is very challenging for them to take the lead in  two industry alliances, and expressed

respect for one colleague who leads three industry alliances (Interview #24(AAU) 2019; Interview #28(AAU) 2019; Interview #29(AAU) 2019; Interview #30(AAU) 2019).

To see how this cooperative mechanism works on AAU's experiment station-based platform, let's look at an example.

### *AAU: Experiment Station #1*[8]

In 2015, the Comprehensive Experiment Station #1 was built in a county north of the Jianghuai watershed. It serves 22 townships in the county with the largest population within the province. The county has a land area of 2,998 square kilometers and a population of 975,000. With its rich agricultural products, the county is one of the top 100 grain producing counties in China. Jianghuai's annual live pig stock also ranks highest in the province (County Level Party Committee of Dingyuan & Dingyuan County Government 2019).

Comprehensive Experiment Station #1 covers an area of 14,000 square meters and has a total construction area of 4,700 square meters. The building complex includes an experimental building, training center and restaurant and housing for 50-80 employees' study, research, training and living. Four comprehensive laboratories costing 3 million yuan have been constructed, and two experimenting facilities for soil agrochemical and mutton semen freezing technology have been established. According to internal documents, since its establishment, nine industrial alliances have been developed as part of Experiment Station #2's activities; 139 new agricultural varieties have been introduced; 50 new agricultural technologies and new models have been explored, 80 agricultural enterprises have been served, and 2031 people have been served; 76 training session have been carried out, and 5840 people have been trained; 26

[8] The No. (#1 and #2 later) for the experiment stations at AAU are chosen by the author for the convenience of presentation.

technical commissioners were selected to serve 26 poor villages(County Level Party Committee of Dingyuan & Dingyuan County Government 2019).

According to interviews, AAU's Comprehensive Experiment Station #1 represents an important platform for supporting the development of modern agriculture in the county and Jianghuai watershed areas. The Station has established 500 mu of high-quality farmland for trial demonstrations of a standardized production system for southern grassland animal husbandry; multiple-purpose rapeseed planting; efficient breeding of broiler chickens (under construction); planting of high-quality rice varieties, and cultivation of green vegetables etc.

Experiment Station #1, which I visited, was constructed later than AAU's other experiment stations. Nevertheless, the last two years this Experiment Station has become the most advanced of all AAU's experiment stations. It was initially planned to build this station in another county in Anhui Province, but according to interviewees the original construction plan was delayed by a tricky issue that there are around two hundred graveyards on the plot of land designated for the station. Despite efforts of university directors to communicate with local village members that land use issue was resolved. Government officials in Dingyuan County where the Experiment Station is currently located reached out and made it happen in one of that county's villages. According to the leader of the local village where Experiment Station #1 is located,

> "The land issue is a difficult one, we also have some graveyard on the land where the Experiment Station is now. We only have 17 graves, far less than 200 in another county as I heard, but it takes a lot of work for us to persuade these families to agree to move x their graves government from this piece of land. It is hard, but we are glad that the Experiment Station can be built here, and the University's professors indeed bring a lot of new agricultural technology to us. For example, crop rotation. Now the land is so expensive, and we never realize that we need crop rotation on our arable land. They also introduced some new breeds of fruit such as strawberries, grapefruit, and watermelon etc. When needed, they would provide guidance for our farmers on how to conduct some critical technical details such as grafting for fruit growing." (Interview #10(AAU) 2019)

*Early challenges*

According to interviews, the construction of Experiment Station #1 did not start smoothly. The main reason was impending expiration of office terms on the county level and related elections. Based on Article 27 of the Party Constitution of the Communist Party of China, "The Party committees of counties, autonomous counties, municipalities without districts, and municipal districts shall serve for a term of five years"(Partially Revised by The 19th National Congress of the Communist Party of China 2017). On June 20th 2016, the 14th Congress of Dingyuan County of the Communist Party of China officially opened and the election of a new county committee leadership (Shi 2016). This routine government work interrupted the construction plan of the Experiment Station. According to the Vice Director of this Experiment Station,

> "It [The experiment station] did not develop very well at the beginning due to bad timing. After we have signed the cooperation contract with Dingyuan County, it happens to be the time for them [the local government] to prepare for the reelection of the new county leaders. The county governmental officials focus on that piece of work as priorities and do not have time to deal with the construction stuff of our experiment station. At that time, you cannot find the right people to talk about the details, either." (Interview #40(AAU) 2019) Therefore, the construction of this experiment station was delayed and recovered until this Party Congress finished with the new county leaders.

Nevertheless, two years later the development of this experiment station had caught up and even exceeded that of other stations. According to the Director and several working staff of AAU's New Institute , "This station was built last, but it is the best developed currently." (Interview #35(AAU) 2019; Interview #38(AAU) 2019) The working staff of this experiment station expressed optimism about its near future since it has begun to perform many functions by providing full services for student internships and offering experimental land for several on-going research projects. The quick development of this experiment station can be attributed to the efforts both from the university and the local government.

From the university perspective, the Director of AAU's Experiment Station #1 has led the initiation of many research projects related to the county's agricultural industries.

*Grassland Goat raising*

As an expert on genetic breeding and reproduction of goats, the Director of Experiment Station #1 led the research team on the grassland goat program, visited a number of local stockbreeding enterprises and large farmers, and found the factors that limited the local aquaculture development include several aspects: "serious degradation of goat varieties, non-standard breeding process and facilities, insufficient forage resources, poor awareness of disease prevention and control etc."(Interview #41(AAU) 2019). To solve these issues faced by the livestock industry in Dingyuan county, he and his research team came up with a solution, the "Modern grass and animal husbandry standardized production system" based on his own research. According to the Director,

> "A standard production unit covers an area of 30 acres, including 10 mobile goat sheds, 2 grass sheds, 2 waste disposal sheds, can raise more than 2000 goat; In this standardized production unit, the floor space, the employment, the input, the output are all determined and replicable. With this standard unit, one person can manage a thousand goat.(Interview #41(AAU) 2019)"

However, on the first meeting to promote this standardized production system held in 2016, local farmers and agricultural enterprises were reluctant to participate. They had two main questions: 1) Dingyuan county is traditionally considered not suitable for goat raising in large numbers because goats like to be dry but dislike hot and humid conditions while this county is located too southern to be cool. 2) Second, this new production system was too new and how it works in the local county was still not certain (Chang and Ma 2021).

To dispel these doubts, the Director of Experiment Station #2 used the experiment station as a demonstration site to display the standard goat production system to the local farmers. He also

organized local farmers and agribusiness company representatives to visit and learn about agribusiness enterprises in nearby counties that had have adopted a standardized production system for large-scale goat meat and breeding enterprises. According to the Director,

> "We often say, what you hear about may be false; what you see is true. The local farmers will believe it only if they see this works in other companies and how much profit it could bring. After the visit, several agricultural businesses came to ask for technology support of our standard production system from our experiment station. One of them introduced 2000 goats the first year, and then sold more than 8000 goats each year after, reaching a net profit of one million yuan ($154,000). This makes more local farmers came to the experiment station to learn this new technology of production."

With the continuous expansion of advanced production technology for goat farming, the goat yield has increased from 100% to 210%, the goat survival rate has increased from 50% to 95%, and the economic benefits of grass-grazing in Dingyuan local agricultural areas have been significantly improved (Chang and Ma 2021). Starting from this successful promotion of a new goat production system, the Director led development of Station #2's "Grassland animal husbandry" industry and later promoted a series of related goat farming and production technology such as automatic feeding systems for goats, trials of goat manure returned to the field to repair soil ecology, goat frozen semen quality product development, etc. One local goat farmer said, "We all know that you should go to Dr. Li if you want to farm goats. The experiment station has many technologies that are useful." One local county government official commented, "Through the experiment station, Dr. Li [The professor director] has used science and technology to support the whole industrial chain of Dingyuan goat production." (Interview #14 (AAU) 2019).

The grassland animal husbandry industry alliance in Experiment Station #1 reached a new level with the research projects conducted by the Director. In 2018, he successfully applied for a national key research and development program "Application and demonstration of high-

efficiency and safe breeding technology for goats" (College of Animal Science and Technology 2019). This research project would bring a large amount of funding a round 1.6 million dollars(1030.25 wan yuan in RMB based a currency ratio of 6.48) from the central government which would be devoted to further research about safe breeding technology of goats (China Gateway to Corrosion and Protection 2018). Considering the location of the experiment station, the goat farming development in Dingyuan county would continue to benefit in the foreseeable future.

*Support from the local government*

From the beginning when Experiment Station #1 faced an issue of choosing its site, Dingyuan County government showed their awareness of the importance of cooperation with the university. After seeing the economic impacts and research projects brought via the establishment of the experiment station, the Dingyuan county government became more supportive of the station 's development and also warmly welcomed AAU's professors to conduct agricultural extension activities. According to one of the Vice Directors of another AAU experiment station, "Dingyuan county has become the most active local government source of working funding for Experiment Station #1's activities among all the experiment stations. This really boosts its development and it becomes very hard for other [experiment] stations to catch up"(Interview #35(AAU) 2019).

In addition to the important support from the local governmental officials for the rapid development of Experiment Station #1, management personnel also played a critical role. Interviewees from both the University and local government attributed the Station's relatively smooth cooperation to the contributions of the then local government expert who is now the vice

director of the experiment station representing the local. He did much work to make the Experiment Station #1's construction possible such managing demolition issues when selecting the land to build the station, communicating the construction needs of the experiment station to local government bureaus, dealing with land border issues with the local village, etc. Local tensions related to the current enclosure around the experiment station are a good example. For management purposes, the experiment station wanted to put up fences, but this would have created inconvenience for nearby farmers since they have to take a detour around them. When the experiment station drew a white line to mark the border, farmers would wipe them off the next day. When the experiment station placed wooden pegs to signify the border, farmers would remove them. This tug of war around the Station's boundaries lasted for a while until the Vice Director finally persuaded most of the villagers to live with the current enclosure built around the experiment station. According to the head of the local village near the experiment station,

> "He [The vice director of the experiment station from the local government] was previously a county governmental official and then became the vice director of the experiment station after it is built in 2015. He also came to help us with the poverty alleviation work since we have many poor households in our village. We know each other very well and we worked together a lot. Our farmers also had a lot of trust in him and they would listen to what he said. Many tricky negotiations especially about the land issues need him to be there. Otherwise, it would be hard to handle these disputes.(Interview #10(AAU) 2019)"

*A minor land dispute*

This statement from the village head in the last section is supported by my observations during my visit. On the second day of my visit, after my interviews for that day, I took a walk by myself in the fields around the experiment station. It was late afternoon, and the sun was sloping over the edge of the vast green field. Not far away in a piece of land of a dry rice field, two village farmers were fertilizing their dry rice land. They placed two bags of fertilizers on their electric tricycle parked on the side of field path, used two baskets to pack some fertilizer, then walked to

their field with the basket, and sprinkled the fertilizer into the land. It was a quiet and peaceful afternoon until a loud quarrel broke out. When I passed the corner of a small section of trees, I saw an old village woman in her 60s or 70s speaking loudly with two other farmers in their 40s or 50s. As I neared them, I realized that the old woman had gone to the city to see a doctor about her aching leg two days previously and upon returning found the peanuts she planted on her land were destroyed. “My peanuts seedlings just grew out of the soil and now they are all gone. It must be the goats from that experiment station, and I need to talk to someone”. The farmer with a straw hat replied, “What if you just stand here and not let the goats pass next time? You won’t let the goats go if the Experiment Station doesn’t pay you something?” The old village woman ignored this advice, continuing to complain, “Why don’t they know to block the goats from farmland when grazing them? What a pity for my plants!” The other farmer said, “They [the experiment station] have a flock of goats. How could they control all of them? It is not one or two. Totally impossible for them to grab them all at hand. You should understand that.” The old village woman argued, “I even built a fence to avoid such things, but you see, they even knocked down the fence.” Following the direction she pointed, I saw an irregularly shaped piece of land with the area size around $8m^2$ (86 sq ft), located very close to the walking road. On the land, some seedlings were half eaten, some were eaten up, and a simple fence built with two branches and some plastic bags also fell down to the ground. The two farmers continued to console her for her loss. The farmer with a straw hat on remarked, “If the goats eat our plants in our land here, they need to make compensation. We will let it go if not much eaten, but they have to pay if the goats eat too much.” The old village woman sighed, “Nowadays where could you find someone who still reason with you?” The farmer continued to suggest, “Just go to the experiment station.

They belong to AAU which is never short of money. Ask them to pay you." As the sun went down, the small crowd dispersed amid complaints and discussions.

The next early morning, the village woman did come to Experiment Station #1, complained that her land had been damaged by the station's grazing goats and asked for compensation. This caused a small disturbance at the experiment station. The vice director was called back from the field work and instantly arranged a meeting with this woman. With interviews prescheduled for that day, I was not present in that meeting. After I came back to the experiment station, the old village woman had left, and it was the vice director that settled this minor dispute. Since that piece of land is cultivated on the roadside by herself without authorization, strictly speaking, the old village woman should not farm on that piece of land. But she did suffer some loss and it was not easy for an old farmer to live by farming alone. After bringing out the facts and reasons, the Vice Director persuaded this old village woman to accept a small amount of compensation for her loss. One staff member later commented,

> "There are a lot of similar things, especially land issues. In most times, farmers do not buy it if you play the card of university, and all have to be left to him [the vice director] to get it done. Thankfully he had a lot of working experiences in dealing with land disputes previously. Without him, it would be hard to say when our [experiment] station could be built on this land. (Interview #42(AAU) 2019)"

Above, we have discussed one example of AAU's successful cooperation happening on the cooperative platform they built. However, the successful cooperation experience at SAU is another story with different types of platforms and distinct working mechanisms.

### *5.1.2 SAU: University Professor Serving Temporary Position in County Leadership*

As described in Chapter 4, SAU's cooperative platform is not physical but programmatic in nature and depends heavily on relationships established through projects developed among SAU faculty, local government extension representatives and local agricultural industrial actors.

Consequently, the cooperative working mechanism in SAU's cooperative platform is somewhat more complex and needs some clarification to understand it. Based on the experience of the Ya'an Main station (introduced and described in Chapter 4 above), SAU built several extension "branches" in Sichuan's local counties. Although SAU does not own its own land in those branches as AAU does, they still have achieved good cooperation that takes different forms. According to one government official in the Department of Agriculture and Rural Affairs at Ya'an City, there are four kinds of effective extension cooperation achieved by the local government and SAU in Ya'an, including building an agricultural technology park to demonstrate; establishing an "Expert Yard"(a place where a group of experts can work together) to provide advanced agricultural technology; sending science technology commissioners from SAU's New Institute or department of agriculture) to provide services, and lastly, university professors assuming the role of Deputy County Director in charge of science and technology (Interview #16(SAU) 2019). I will focus on the last form of cooperative mechanism below since, according to interviews, SAU people themselves view it as the core cooperative mechanism in their most successful Ya'an main station (Interview #13(SAU) 2019). The most significant characteristics of this cooperation mechanism are summarized as "the organic combination of administrative authority and technology authority[9]" (Interview #8(SAU) 2019). "Administrative authority" refers to the administrative power of local government. "Technology authority" refers to the knowledge power possessed by university professors who are experts in certain agriculture areas. According to one Ya'an city governmental official,

> "The local administrative unit has a better understanding of the local situation. For example, for this piece of land, what name the original farmer is called, what, and how they farmed, the local governmental officials know better than university experts and professors. In addition, because he is an administrative staff, he has administrative power

[9] "xing zheng zhi hui quan he ji shu zhi hui quan de you ji jie he." In Chinese.

> to order farmers to carry out or implement new practices or technology. This is administrative command power. On the other hand, technology and knowledge is the strength of our experts and professors, so they own the technology authority." (Interview #13(SAU) 2019)

When the university faculty member assumes the role of Deputy County Director in charge of science and technology, he or she can wield both kinds of administrative and technology authority, a critical factor in promoting university-based agricultural extension at SAU. We can see this more clearly in the case of cooperative between SAU faculty and local government and agricultural actors around the Hanyuan Sweet Cherry initiative. The origin of the cooperation mechanism of Deputy County Director of Science and Technology also emerges from this case.

### *Hanyuan Sweet Cherry Case*

Hanyuan Sweet Cherry is the brand name for cherries produced in Hanyuan County which is a county under the jurisdiction of Ya'an City, Sichuan Province. Located in Ya'an City, Hanyaun County, Ya'an Main Station has become a very successful cooperation case for university-based extension at SAU (Interview #11(SAU） 2019; Interview #13(SAU) 2019; Interview #29(SAU) 2019).

### *The emergency of the effective cooperation mechanism*

When Ya'an Main Station was built, as part of the cooperation contract signed by SAU and local government, university faculty members were selected to work in the local governments to help develop the local agricultural economy. Professor Dr. Xu was one of these selected professors. He was then one full professor in College of Horticulture at SAU and was assigned to take the role the Deputy County Director at Hanyuan County for two years. Serving temporary positions in another unit is a form of cadre exchange system. It originated in the governmental system and mostly occurs among civil servants. Historically, the principal purpose for this form of cadre exchange is for training. On one hand, it is conducive for cadres especially in the upper level to

understand the implementation of public policies at the grass-roots level and the uniqueness of the work of the grass-roots government itself. On the other hand, it can enhance all kinds of practical abilities of cadres since in the new position they must improve their ability to adapt to and learn the new environment, analyze and understand new situations, and solve new problems. Some scholars argue that a temporary post in another unit is logically conducive to promoting the construction of the ideal cooperative or partnership relations such as inter-government relations, government-enterprise relations and political-social relations(Liu and Wang 2020). With the need for development in many remote places, the scope of cadres' posts is also expanding to cadres in state-owned enterprises and institutions such as universities in addition to the civil service. In recent years, it is more common to see university faculty serving temporary positions related to technology in local governments. According to Xu and Guo(2012), “Putting on the practice of cadres in colleges and universities can speed up the training of cadres, …, promote good interaction between universities and regional, and promote university to outreach with society and to enhance the function of college to serve the community”. Moreover, the exchange of cadres between organizations is conducive to the establishment of good relations between the sending and receiving units, especially when the cadres sent by the sending units are in short supply or in urgent need of talents in the receiving units(Liu and Wang 2020).

Sending personnel out to serve temporary positions is related to a particular kind of organization behavior. How the organizations arrange work for temporary cadres will also affect the impact of the temporary position. "Xu Gua" (serving the post in the formalistic sense) is the most common situation when an organization arranges a position for cadres from outside the unit(Liu and Wang 2020). Opposite to "Shi Gua" which is to arrange real duties for the temporary cadres and to stimulate the cadre’s great enthusiasm for work and strong ability to work, “Xu Gua” only offer

some superficial opportunities for the cadres to visit or walk through the organization. Some scholars explain, “Xu Gua” is reasonable from the perspective of the receiving unit since the organization needs to continue to operate effectively after the cadres leave; however, the cadres often approach the new job passively and not much real work is done in such situations (Liu and Wang 2020).

This is also the case for SAU’s previous experiences with sending personnel out to serve in temporary posts in local governments, and many faculty members have become accustomed to this “Xu Gua” format (Interview #1(SAU) 2019).But Dr. Xu has different thoughts. According to Professor Dr. Xu,

> “When I was assigned to serve temporarily in the local government, I prefer “Shi Gua” to do some real work in this new role. Since "Shi Gua" offers us real authority and power to do the work, I can get more concrete work done. After I have communicated my thoughts to the university and Hanyuan County government, the leaders on both sides are very supportive and my request was approved” (Interview #4(SAU) 2019).

As Professor Dr. Xu explained, as a Deputy county director, he was substantially in charge of several areas including education, culture, health and tourism etc. among which agriculture and science and technology were his most important responsibilities(Interview #4(SAU) 2019). That is also how the title of “Deputy County Director of Science and Technology” emerged. To illustrate why real power was exercised by Dr. Xu in his new temporary post, we can look at the division of labor in the county government. In China's governmental management system, the county government and county committee represent the lowest level of decision-making power, resource allocation power and management ability; each county can design social policy, build institutional setting, and arrange the staffing etc. based on their own needs and circumstances (Wang 2016). Broadly speaking, the County Director is responsible for leading the overall work

of the county government, and several Deputy County Directors assist the County Director in carrying out work according to their respective divisions of labor. If we look at the division of labor among governmental leaders in Hanyuan County (see Table 5.2), we can see Dr. Xu has been assigned similar authority as other deputy county directors with his own work focus.

Table 5.2 A Diagram of Division of Labor Among Hanyuan County Government Leaders (www.hanyuan.gov.cn 2021)

| **Job Position in county** | **Work responsibilities** |
|---|---|
| County director | presiding over the full work of the county government |
| Deputy county director #1 | Focus on transportation, traffic preparedness, coordination and management for highway construction |
| Deputy county director #2 | Focus on civil affairs, market supervision and management, military veterans' affairs, medical security, ethnic religion, county archives, earthquake prevention |
| Deputy county director #3 | Focus on sports, radio and television, local disease prevention and control, new corona pneumonia epidemic prevention and control |
| Deputy county director #4 | Focus on immigration, ecology and environmental protection, industrial economy, energy construction, information construction |
| Deputy county director #5 | Focus on public security, justice, letters and visits, social stability |
| Deputy county director #6 | Focus on statistics, planning, housing construction, comprehensive law enforcement, service industry development, investment promotion, landscaping, urban and rural environmental comprehensive management |
| ***Deputy county director temporarily taken by SAU professor*** | ***Focus on education, culture, health, tourism, agriculture, science and technology*** |

It turned out that his work performance was so excellent that the county director of Hanyuan County requested he extend his working period one more year (Interview #29(SAU) 2019). In an interview, Dr. Xu commented that in his temporary post he actually managed to have real power

and authority and led the County in making important positive changes in the cherry sector. Before Dr. Xu became involved in their extension work, the price of sweet cherry was around 15- 20 yuan per half kilograms. After one year of effort and changes, the price increased to 60-80 yuan per half kilograms, which more than tripled the original unit sales price. According to Dr. Xu,

> "I think we really did a good job in improving the industry of Hanyuan sweet cherry. After we get involved, the AHIG (average household income growth per year) of cherry farmers in Hanyuan county has increased up to around $4600 (30,000 yuan). In addition, we really pay attention to improving the fruit quality of the cherry produced in the county. So you can see the good result for that. Hanyuan Sweet cherry has been sold to *Zhong Nan Hai* (It is where the office of the State Council of the People's Republic of China, the Secretariat of the CPC Central Committee and the General Office of the CPC Central Committee are located, and is regarded as a symbol of the high-level Chinese government) for four years, which symbolizes the high quality of sweet cherry produced in current Hanyuan County"(Interview #4(SAU) 2019).

Dr. Xu's work performance in such format from with authority of co-assisting power to that with authority of real power in practice reportedly helped transform the working mechanism related to temporary post in SAU's cooperative platform. After Professor Dr. Xu finished his temporary post three years later, another university staff member took over his position as the Deputy County director of Science and Technology in Hanyuan County. Meanwhile, more university faculty at SAU served similar positions in other local counties. According to one staff member in the New Institute at SAU, "After that, when university faculties at SAU serving temporary post, it would go in the format of 'Shi Gua'"(Interview #9(SAU) 2019), that is with the temporary staff member exercising real power and authority at the local level. With recognition from the local farmers, the county government and the university, this cooperation mechanism has been referred to as "Deputy County Director of Science and Technology".

Then we need to ask the question: how did this happen? According to Dr. Xu, the most important accomplishment of his work has been to help rebuild and redevelop the fruit of sweet cherry for which the county is best known(Interview #4(SAU) 2019). He mainly did a series of things around the Hanyuan cherry including quality improvement, unifying the product name, product advertisement on the market etc. More specifically, he made major changes to increase the price of Hanyuan sweet cherry by working on three fronts including improving the fruit quality by standardizing the production process, formulating an official brand name for the fruit, "Hanyuan Sweet Cherry", and advertising the fruit brand by holding a lot of sports competition events.

*Quality Improvement Technique made*

Cherry has a long planting history in Hanyuan county. Based on historical records, Hanyuan County has a long history of more than two hundred years in cherry cultivation. Hanyuan County has a unique geographical environment with the proper temperature, long lighting time, and rich precipitation which are necessary conditions for farming high quality cherry. After visiting the field and market investigation of cherry produced in Hanyuan County, Professor Dr. Xu found however that the quality of sweet cherry produced here was not very high and the local farmers only sold the fruit at a very low price with poor quality. To solve these issues of sweet cherry industry in Hanyuan County, he first developed technical specifications, technical guidance and training for producing sweet cherry. Then he makes sure local farmers followed standard planting techniques through the three level of service team from Ya'an main station, county level agricultural technology and township service station.

According to Dr. Xu, the most important change has been an improvement in quality of the county sweet cherries. The quality issue was one of the most important problem found by Dr. Xu

after investigation when he started his job as the Deputy County Director. He then built a technology service team in the county which is composed of SAU university faculty who are experts on sweet cherry production and the local experts who are county agricultural extension agents.

*A Three-level service team*

According to Dr. Xu, university faculty teach the local experts and then the local experts teach the local farmers. This way of approach organization of a technology team, according to Dr. Xu, has been effective in communication and increasing the market profit for sweet cherry in Hanyuan county. First, it is well communicated between the university faculty members and the local county extension experts since the local experts able to achieve a higher level of farmer acceptance of new technology and knowledge. Local extension agents can also better communicate with local farmers since they understand the local culture and language and have generally longer work experience in the place. This is especially true in villages or town where mainly minority group of people live, and they have fairly distinct cultures and languages.

One significant feature of Dr. Xu's technology team involved his leadership of the Community party branch in SAU. In the case of the sweet cherry-related extension, most of the technology team members were Communist party members. Dr. Xu assembled a team of university Professors who were Communist Party members to form the technology service team. Why? Dr. Xu explained,

> "There are several reasons for this. First, our university members of the technology team worked without charge from the local farmers, and these service work are extra for our professors besides their teaching and research responsibilities. Therefore, it would have been difficult to ask non-Party member professors to do this kind of work for a long time. Second,

> as you know, as Communist Party members, we have this "dedication spirit" which means to serve for the public without counting personal gain or loss. It is pervasive in all kinds of local organizations and no exception for our university professors. With this kind of spirit, it is much easier to mobilize our Communist Party members and organize into such a technology service team"(Interview #4(SAU) 2019).

At the local level, Dr. Xu reports, it is also easier to work with local experts who are also Communist Party members as they have similar political beliefs and goals. In all these activities the work of these local government and university Party members also involves another layer of meaning of Party Building which is much emphasized a lot by the national central documents. This close involvement of the Party in his cherry extension initiative, according to Dr. Xu, has also helped him gain support from both the university level and local government level.

At the village/town level, especially in poor regions or areas, local farmers who are Communist Party members are usually more educated, engage more often and at higher levels of communication outside the village and also are motivated by the Party's spirit of "Sacrifice". Dr. Xu believes, therefore, that it is much easier to pass along the modern planting knowledge and technology to the local farmer who are also Communist Party members and let them to teach the local farmers.

In this way, according to Dr. Xu, the three-level technology team effectively communicated modern knowledge and techniques to local farmers combining them with the political party building activities. The changes in the level of development of the sweet cherry production and marketing, from increases in its sales price to improvements in product quality cannot be separated from the work and efforts of agricultural extension technical people and local leaders led by Dr. Xu.

*Project Alliance*

Based on the three-level service team, Dr. Xu built a project alliance for Hanyuan Sweet Cherry among SAU, Department of Science and technology in the county, and the local farmers (family farms, farmers' co-ops, or agricultural entrepreneurs). According to Dr. Xu, "With this project alliance, university researchers who have applied for horizontal or vertical research projects would have deep connection with the local farmers or agribusiness in the process of project application and implementation" (Interview #4(SAU) 2019). Meanwhile, if the local farmers or the county department of science and technology need some projects relevant to cherry production, they would contact SAU faculty via this project alliance, too.

Based on Dr. Xu's experiences, this project alliance is greatly beneficial for the implementation of projects related to new technology in agricultural extension. According to Dr. Xu,

> "As I was in charge of science and technology when I worked in the local government, I found that a project alliance including the three parts [university, local government, and local farmers] is so important. You know, we need a strong support from the local government for the promotion of certain technology and implementation for our projects. Much work cannot be done without the approval or support of local government. In addition, it is not enough to only have our university [in agricultural extension] since projects needs to be implemented and we need to see the results of these projects. That is where local agribusiness, farmers' co-ops, or family farms come in handy. They would implement these projects and apply for the technology we promoted in their real production. That is why I say the formation of this alliance is a guarantee for the implementation of science and technology projects in agricultural extension."

*Product Advertisement in the market*

After he improved the quality of the sweet cherry through his expertise knowledge, Dr. Xu also worked create a brand of "Hanyuan Sweet Cherry" by hosting national sporting events, getting reported on CCTV-7, and recommending final products of sweet cherry to the market in

economic developed areas such as Shenzhen city or Shanghai city etc. After 4 years, the price of sweet cherry produced in Hanyuan county doubled several times from 10-20 yuan/half a kilo to 60-80yuan/half a kilo(Interview #4(SAU) 2019). It is also successfully sold to "Zhongnanhai", the central headquarters for the Chinese Communist Party (CCP) and the State Council (Central government) of China, which signifies "Hanyuan Sweet Cherry" becomes a famous brand with high quality.

*Support from the local government (necessary for agricultural extension)*

In the successful extension activities conducted in Hanyuan Sweet Cherry case, support from the local government is necessary or essential. According to Dr. Xu,

> "If you really want to apply science and technology, I found that it has to be at the local level. In universities, research is our advantage, but the application and promotion of technology still needs the support of local government"(Interview #4(SAU) 2019) .

For detailed information, he mentioned three aspects of important support from the local government. First, more flexibilities in funding approval procedure are required. As the Deputy County Director responsible for science and technology, he was allowed to make his own decisions for funding use for activities related to agricultural extension and rural development. Based on the rules of funding use in the county-level, once our expenditure exceeds any amount, it needs to be approved by the county committee standing committee of our government. Now with this permission from the county director, the university professor can easily launch those activities needed for local agriculture economy. Second, the local government itself can be a good platform to plan events of extension. According to Dr. Xu,

> "I planned a lot of such activities, including promotion, brand packaging, and technology promotion. These rely on the government platform to connect with outside resources. When I go out and use the name of the local county government, it provides more trustworthy for

other units or company to cooperate and promote the agricultural products for the local farmers."(Interview #4(SAU) 2019).

Third, the scrutiny of technology implementation from administrative departments. It is not hard for the university experts to make standard planting techniques or processes to help improve the quality of the agricultural products. The challenge is to make sure the local farmers follow these guidelines. Here is why the administrative power from the local government matters. To ensure safety and other issues in this whole production process of agricultural products, the university and local government set up a technical supervision and quality inspection team. Besides the university professor who provides the technology guidance, the town mayor takes the role of Deputy director of this technical supervision and quality inspection team since the governmental command from the local governmental official would make it easy for the local farmers to follow the planting rules. In addition, the scrutiny of technology implementation also needs cooperation from the local experts or technicians who work in the local department of Agriculture and Rural Affairs. "These [departmental cooperation] are beyond the reach of universities", remarked by Dr. Xu (Interview #4(SAU) 2019).

Ya'an Main Station's success has been in large part due to the strong support it has received from its local government partner. This can be seen not only from how university professors integrated their participation into the local rural economy, but also can be shown from the process how SAU become one of the first ten universities included in the national policy mandating new collaboration between universities and local government around extension. Based on the interviews of both the Director of the New Institute at SAU and governmental officials at Ya'an city, it was the Ya'an city government that first heard about the national policy of university-based agricultural extension and then contacted SAU to apply for it. These interviewees both agreed that Ya'an city government played a great role in SAU 's getting

involved in agricultural extension promoted by this new national policy(Interview #9(SAU) 2019; Interview #13(SAU) 2019).

### *5.1.3 Analysis:*

One may ask what can be learned from these two case studies of collaborative university-based extension at AAU and SAU. With the details and thick field data discussed above, what we cannot ignore is:

#### *Effective cooperation: partnership among multiple entities*

Though different platforms and working mechanisms are built into these cases at two universities, effective cooperation happens in the alliance where all the partners involved in agricultural production can effectively interact, communicate, and negotiate. At AAU, they build industry alliances around the physical platforms (experiment stations) where university faculty work with local farmers and local agribusiness on new farming technology and ideas. The local government provides support with necessary facilities, facilitates interaction between the other two parties, and helps resolve land boundary issues around AAU's physical platforms. At SAU, Ya'an Station was established with offices and faculty sent out to serve as temporary Deputy County Directors in local governments. With authority in both technology and administration, these faculty have had success in motivating local farmers to implement new technology on their own fields which then become demonstration sites for SAU extension activities. The local government provides the position for SAU faculty, power to mobilize resources for doing agricultural work and offers help in advertising the agricultural products and name brands in the market etc. Though each actor has different work or roles the three parties (university, local farmers, local governments), do cooperate well in their alliances (industry or project) on the platforms both universities have built.

We can develop a theoretical framework for university-based agricultural extension: partnership among these three actors, university, local government, and local farmers. When doing extension work, universities play a leading role since they bring to bear important technology needed in the local agriculture. Local government plays a critically supportive role since as formal authority its top leaders determine whether extension will be implemented. Local farmers' acceptance of new technology represents the core of extension work. As different social actors are involved, the most common challenges underlying their cooperation arise from the conflicting interests among the actors. If cooperation is to be achieved, certain conditions must be met. Usually, these conditions include the overlapping of actors' interests or fulfillment of all parties' common interests.

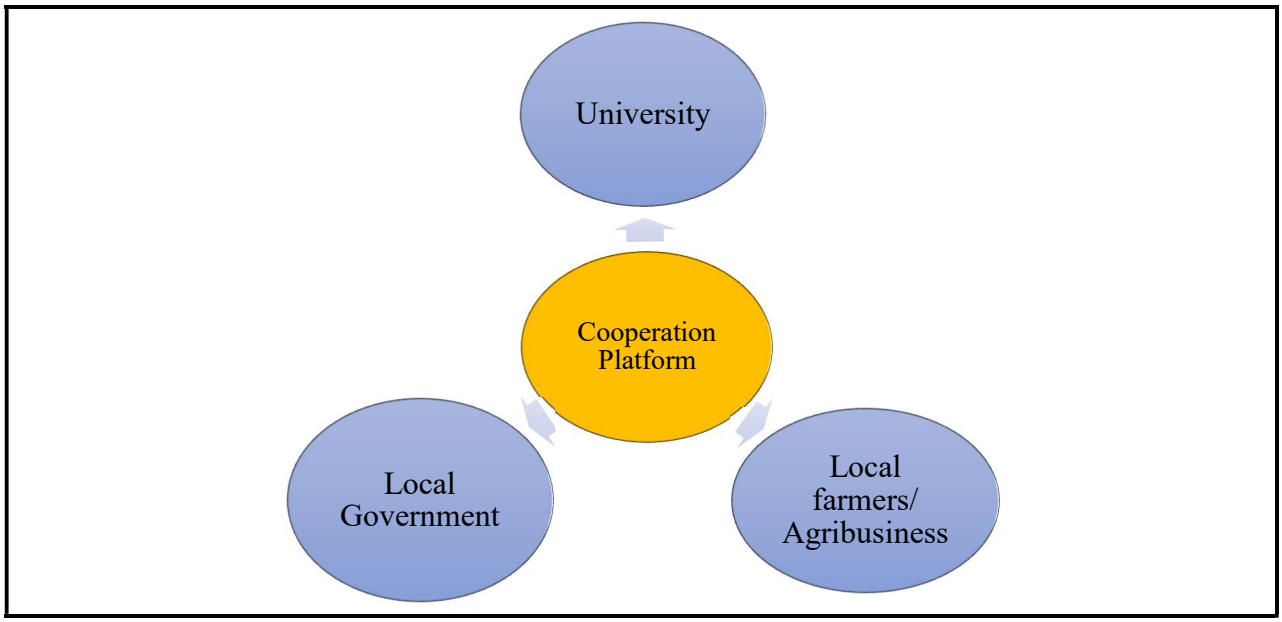


Figure 5-1 Effective cooperation of university-based agricultural extension: partnership among multiple entities

*University-based agricultural extension: Not only technology that matters*

The above figure depicts the process of university-based agricultural extension in AAU and SAU. Though they have followed distinct paths to build cooperation, faculty or researchers in

both universities started from field investigation on the local farmers' fields or on local agribusiness lands in order to discover the real production problems. This initial step seems simple but is greatly critical to later agricultural technology promotion and extension results. If technology is promoted blindly, ignoring the social realities of local agricultural production and the real needs of local farmers, promotion will fail. After determining which technology is needed, university faculty or researchers introduce new technology or updated techniques to the local farmers and agribusiness via multiple formats such as demonstration sites, training groups or working seminars. Then, the next step is that the local agricultural producers adopt these new technologies into their production. After the technology is adopted, there some effects should be seen from the outside. For some agricultural crops, this evidence of impact is seen in the increase in yields or the improvement of crop quality. For some, such impacts will be seen in higher market sales. These all show that university-based extension have effects on the local agricultural production and the development of local agricultural economy. Among these effects, the market results can be more influential for the future willingness of the local farmers to adopt new technology. According to one AAU faculty who was one of the leaders of horticulture industry alliance [deeply involved in university-based agricultural extension activities], "Our technology promotion is not as effective as market promotion. If they [the local farmers] can make money in the market, they are more willing to adopt new technology, yielding a better result of promotion"(Interview #30(AAU) 2019).

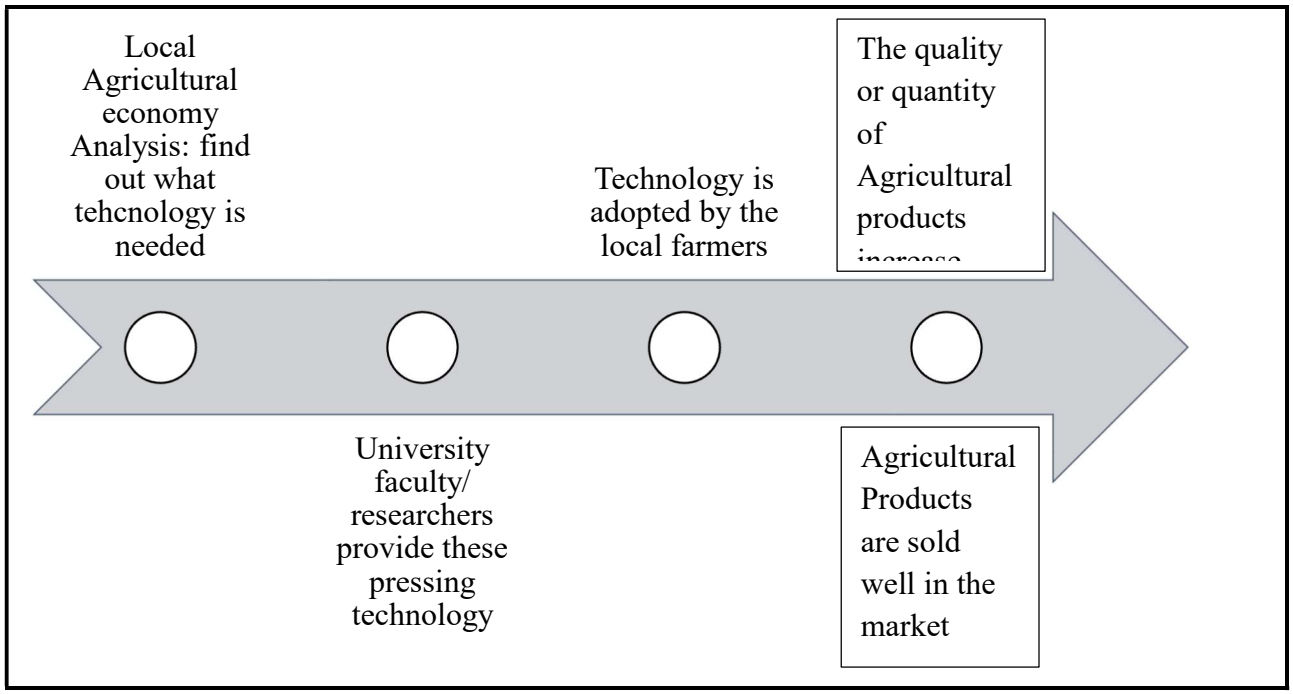


Figure 5-2 University-based Agricultural Extension Process

From the process of university-based agricultural extension discussed above, the strong cooperation happening in the two cases shows that agricultural extension is not only about technology but is also related to new ideologies of agricultural production. One important part is the sense of "industry" for some certain agricultural products. Good agricultural extension has to deal with the scope of industry. Doing agricultural extension is not only about helping some individual local farmers but helping many local farmers in a certain area to become involved in the larger industry of agricultural production. Second, quantity matters, but sometimes quality needs to improve; quantity and quality are both good, advertisement in the market would be important then. The uniqueness of each agricultural product and the industry in which it is located need to be considered. Third, agricultural extension needs to consider the product chain, taking the market into consideration. Both cases of goat raising and the Hanyuan Sweet Cherry show us the importance of market in agricultural extension. Interviewees spoke about how the

market is the testing ground for the technology promoted and the products produced. On one hand, strong sales on market can create a pull force for farmers to adopt the new technology or techniques necessary to produce high quality or high quantity products. On the other hand, considering the market force in the process of university-based agricultural extension can improve the performance of agricultural products in the market and then improve the effectiveness of these extension activities.

## 5.2 Challenges for cooperation: multiple identities of cooperative platforms

Cooperation does not always happen effectively on these two universities' platforms. There are many factors influencing actual cooperation results. In the cases my study has examined, the multiple organizational identities involved in the cooperative platforms stand out as an important factor which can greatly hamper their development. Next, I will talk in more detail about relevant cases in each of the two universities.

### *5.2.1 AAU: Experiment Station #2*

AAU's Comprehensive Experiment Station #2 was established in a northwestern county in Anhui Province. The county covers an area of 1,839 square kilometers, a population of 2.37 million, and governs 23 towns, 5 neighborhoods, 1 provincial economic development zone, and 395 villages (rural communities). Agriculture is the main economy in this county (Linquan County Government 2019). According to one local governmental official, "We [This county] are a major food production county" (Interview #12(AAU) 2019). By 2019, it had designated 1.65 million mu of permanent basic farmland, developed 280,000 mu land for special branded grain, built 180,000 mu of high-standard basic farmland, deeply turned over 307,000 mu of land. The total grain output of the county is above 1.1 million tons. There are 90 agricultural product

processing enterprises with a total processing output value of 10 billion yuan (RMB) (Linquan County Government 2019).

The total construction area is about 7,043 square meters, of which 1,737 square meters of new experimental building, 2,183 square meters of laboratory building, 2,260 square meters of canteen and dormitory, 863 square meters of farm tool room, and 530 acres of land transferred to the base for scientific research experiment demonstration. Since establishment, Comprehensive Experiment Station #2 has promoted 81 new agricultural technologies, introduced 428 new agricultural varieties, explored 12 new models, and demonstrated an area of more than 80,000 mu, serving agricultural enterprises, 116 new business entities, assisted enterprises in applying for 12 projects, providing more than 290 times of technical services with a total of more than 2,600 person, offering 51 group trainings with a total of 3756 persons (Anhui Agriculture University 2020).

### *Experiment Station #2's two nameplates*

Cooperation in Experiment Station #2 went well at the beginning but faced with some unexpected challenges over time. One main challenge resulted from the organizational arrangements stemming from multiple organizational identities of those participating in the cooperative platform. For example, next to the nameplate of "AAU Comprehensive Experiment Station", another nameplate reading "Linquan County Modern Agricultural Technology Cooperation Extension Service Center" hangs on the entrance to the experiment station #2. With these two nameplates, this comprehensive experiment station has since 2015 served as an important platform for AAU to serve the county and the northwestern area of the province in support of modern agricultural development and beautiful rural construction.

When Station #2 was first constructed, both the University and local government sponsors felt hopeful about the future the new Experiment Station, especially on the part of the local government. Not only did the top governmental official value this cooperation with AAU (Interview #12(AAU) 2019), but the agricultural extension staff also saw the promise of the experiment station. According to one local government employee who was assigned to the experiment station, "We were so happy at the beginning when the [experiment] station is built, and I was thinking there would be many research projects developing on it. It seemed very hopeful for my future promotion and salary increase"(Interview #11(AAU) 2019).

However, the multiple organizational identities the Experiment Station #2 have from the beginning have brought some management issues for later development. According to interviewees, though Experiment Station #2 was built earlier than Experiment Station #1, it now encounters communication challenges between government employees and university employees, which creates some difficulty for the station's daily management. From an organizational perspective, these communication issues come from two separate working systems adopted in the Experiment Station which is a result of the multiple organizational identities. Based on the cooperation agreement, the Experiment Station Director comes from AAU and the Vice Director positions are to be filled by an expert from the local Agriculture Bureau and one university employee. See Figure 5-3 for more details. The Director and Vice Director from the university are university employees, and their salary comes from the university; the Vice Director from the local government and several governmental workers would be paid by the local government. According to one AAU professor who have witnessed the process establishing Experiment Station #2,

"As you can know, our experiment station has two nameplates, and this has to be reflected in the composition of the personnel. Otherwise, any side who did not send personnel feels like they're not involved. That is why the current organizational chart look like this. The director [from the university] represents our university, and the vice director [from the local government] represents the local government. We [The university] also have a vice director [from the university] to assist our director [from the university], and the local government would also assign several working staff to manage the experiment station. This requires a lot of communication and efforts on both sides"(Interview #28(AAU) 2019).

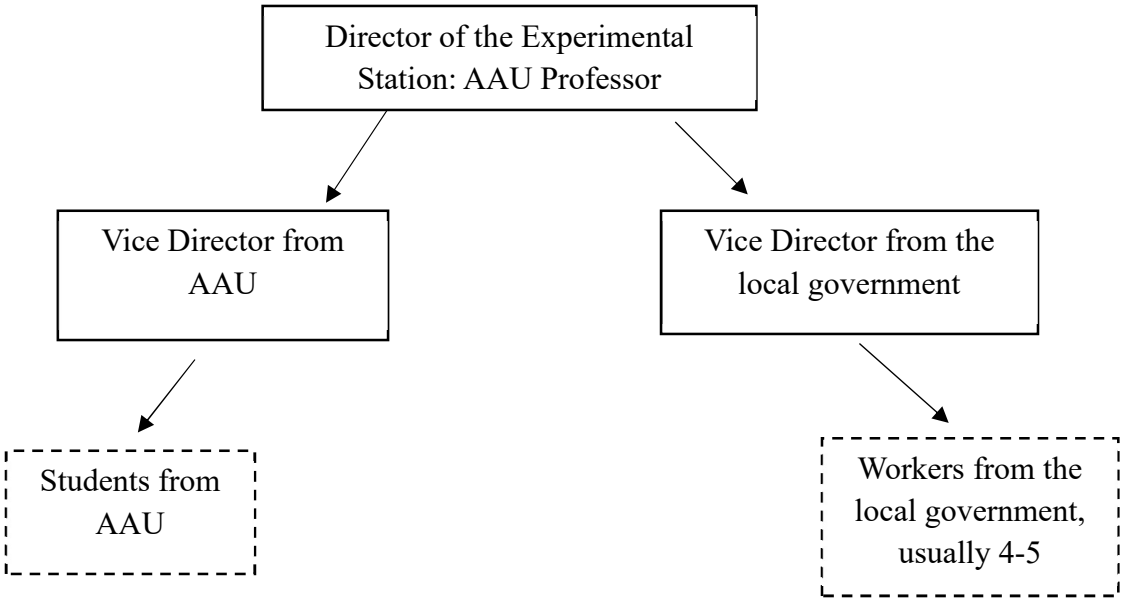


Figure 5-3 Organization Structure of AAU Experiment Station

With two separate working and evaluation systems, the governmental employees have felt less connection to the university and less willingness to communicate with the university employees who also work in the experiment station. One of the local governmental employees who worked in the experiment station talked about how this separate working system influenced their daily work,

"Since our working staff [in the experiment station] are partly from AAU, and partly from our local government. The salaries of our local staff are settled by the local government. The salaries of their AAU staff are settled by the university. Their university doesn't pay us. Our work performance is tied to the local government and has nothing to do with the university. If we do a good job, the university will not offer us any reward; If we do not do

> well, the university could not deduct any of our wages. Just a little thought. Things would be different if the university would offer some payment for our good work. We would feel somewhat to be related to the university since, in that way, we are recruited jointly by schools and the local government"(Interview #13(AAU) 2019).

### *Secondment of working staff*

Another impact of these separate working and evaluation systems is the frequent secondment of working staff who are still government personnel from the experiment station to other departments. In Figure 1, the lowest boxes are in dashes; I marked them so because I did not see them in the field even though they are in the Institute's formal organization chart. The two groups are not visible for different reasons. Due to the time I visited, students who usually stayed at the experiment stations to do experiments or conduct field tests were not seen because they had left for summer holiday. Government employees are not seen out of work assignment reasons. At one experiment station I visited, all 4-5 workers from the local government have been "borrowed" back to other sectors of the local government to help support the poverty reduction policy. This national policy of "poverty reduction" was announced in 2015 and set the goal of poverty alleviation as by 2020 all the rural poor under the current standards will be lifted out of poverty, and all poor counties will be stripped of their "poverty" hats, and overall regional poverty will be solved(State Council of the People's Republic of China 2016). One governmental official in the local Agriculture Bureau explained,

> "This phenomenon of staff secondment is very common in local government, especially when a national policy is announced. The local government is the "feet" of the state, all the groundwork is left to the local government, and they have to "eat the 'hardest' bone" of all the work. In contrast, at higher levels of government bureaucracy of the governmental, officials are mostly responsible for collecting and manage information from local government."(Interview #12(AAU) 2019)

This staff secondment might be reasonable from the perspective of the local government, but it did create difficulties in the daily management of the experiment station with understaffed situation. According to one Station Vice Director from the university,

> "The original system design is good, but there are some unexpected difficulties when implemented. When our experiment station was built, sufficient working staff [from the local government] were equipped. However, soon they were drawn away from the experiment station to do other working tasks assigned by their original working unit. Why did this happen? They were assigned to our experiment station on the surface, but the personnel relationship was still in the original unit which means it is still up to the original unit to decide on their job evaluation. We [experiment station] did not get involved in their work appraisal. So, when the original working unit assigned work to them, they have to follow the secondment order. Otherwise, their year-end assessment could be a problem. We understand them, this is not personal. But we have to think of other ways to get the job done by ourselves"(Interview #33(AAU) 2019).

This situation has worsened with personnel transfer away from the experiment station from the side of university. As mentioned above, the working team as originally designed is composed of one Director (university professor), two Vice Directors (one is from local government and the other a university employee), and five staff members from the local governments. After three years, the Vice Director from the university was transferred and there is now only one University person who works as the director in the Experiment Station. The lack of university colleagues complicates his supervisory role. According to one university Director in another experiment station, "You need your own man to implement your own working ideas. This is important as an director."(Interview #43(AAU) 2019). This director experienced some difficulty in assigning working tasks and distributing resources among the staff in the station since they are government employees and have their own working motives and authority systems.

This situation in Experiment Station #2 also raises concerns among some interviewees in the New Institute at AAU which is the central management institute for all the experiment stations. According to one staff member at AAU's New Institute,

> "We are worried that if we leave it alone and let the situation continue, our university staff members may no longer be directly involved in the experiment station [#2], and then the experiment station would be in the risk of losing the attachment or connection to the university. At last, it would become the property only belonging to the local government. If so, what a waste for all the manpower and money we [the university] have put in!" (Interview #39(AAU) 2019)

The local government does not concern this issue as much as the university. This might be because the experiment station is located in the local county and currently the governmental employees do the actual management of the experiment station. But the original intention of the local government for building this cooperative platform was to cooperate with university to promote development of the local agricultural economy and that local government's solid support of the practices, including land transfer for construction, funding of annual operations, and infrastructure for the experiment station etc.

Though the concern of some university-based participants has not yet materialized, it highlights some potential if cooperation does not go well that could lead to competition for leadership in the daily management and for ownership of the cooperative platform in future.

As described above, AAU has experienced some cooperation challenges from the organizing assignments due to the multiple social identities of the experiment station. In the next section, I will discuss how SAU has also encountered some management issues of its local branch resulting from multiple organizational identities, though in a different way. We can see this in the situation of SAU's Suining branch.

### *5.2.2 SAU's Suining Branch*

Suining Branch has also encountered some difficulties of cooperation between the university and the locality. By contrast with Experiment Station #2 at AAU, the management of Suining Branch involves three partners instead of the two at AAU. Suining branch's operation is complicated since its establishment, operation and working tasks involve three different entities, local government, private companies, and university. Out of all kinds of consideration of running cost, power relations, economic benefits etc., the three kinds of different units come together to promote agricultural extension. However, the different goals, working ethics, and organization interests give this branch multiple organizational identities that sometimes lead to tension between the university and the operating association for this branch set up by the local government.

When interviewed, the director and working staff of SAU's Suining Branch spoke about difficulties in their work. One leader from the Suining branch remarked, "The issue with Suining Branch is very complicated and creates many serious operational issues"(Interview #30(SAU) 2019).

Simply put, these difficulties emerge from the fact that Suining Branch was built on the base of a pre-existing agricultural product brand built by the local government, "Suining Xian". To understand the complex situation of Suining Branch, we need to look back how this local agricultural product brand of "Suining Xian" was built at first.

#### *The origin of the "Suining Xian" Brand*

The "Suining Xian" brand was established in 2015 and initiated by the City Party Secretary of Suining City as a government-built brand to promote sales of local agricultural products. According to the Director of the local Bureau of Agriculture and Rural Affairs,

> "The 'Suining Xian' brand was established out of the prior experiences of the City Party Secretary who has established the first brand in Liangshan Yi Autonomous Prefecture in his previous working position. His experiences are that it would be more effective in taking advantage of the market aggregation effect and the brand effect to promoting agricultural products selling than expecting individual farmer households to master planting techniques and marketing skills by themselves. Because when being an individual farmer faced with the market, you have to become a farming technician, salesman, communicator, which is very demanding for each farmer. But things would be much easier if we stick together as a group. That is why [our city government wants to build this brand]."(Interview #19(SAU) 2019).

In pursuit of this strategy, the Suining city government invested heavily in supporting a citywide brand composed of the most distinctive agricultural products in this city. To choose a good name for this brand, government officials collected 393 possible brand names nationwide and asked experts to select 10 semi-finalist brand names. The city governor and the City Party Secretary then together decided on the final name of Suining Xian for this brand, which combines the name of the local place and the "fresh" property of their agricultural products (Interview #23(SAU) 2019). After the name was decided, the Brand screened out 27 excellent agricultural businesses out of a total of 3000 enterprises initially and later expanded up to around 100 agricultural enterprises based on strict requirements for operatoing under the "Suining Xian" Brand. According to the president of the Brand,

> "We have strict rules, and not everyone can be settled under our Brand. Our selection criteria is 'Three products and One standard'[10]. 'Three products' means Green Products, Organic Products, or Pollution-free Products, and 'One standard refers to Geographical Indication Products [Detailed information is shown in Figure 5-4]. If your agricultural product is certified as either one of those would be qualified for our Brand"(Interview #24(SAU) 2019).

[10] "Three products and one standard" is the government-led public brand for safe and high-quality agricultural products. Agricultural enterprises who meet certain requirements would be certified by the government with this brand.


Pollution-free Products Green Products Organic Products Geographical Indication Products

Figure 5-4 Trademarks for "Three products and One Standard" (Beijing Agricultural EcoAgricultural Technology Research Institute 2018)

The "Suining Xian" brand is built by the city government which supports its promotion. What is noticeable is the management of this brand, which creates the complexity of management issues of Suining Branch built later. To better develop and operate this brand, the city established the Brand Development Association in 2016, which are composed of about 100 multiple agribusiness. But due to the limitations of job establishments and number of city government staff, operation of this brand was commissioned to several large-scale entrepreneurs who are also members of "Suining Xian" Brand (Interview #16(SAU) 2019). Therefore, the positions of the Association's president, vice president and secretary are taken by several entrepreneurs of large agricultural companies in Suining City. Since the Brand Development association is a public welfare organization, it cannot earn a profit (Interview #31(SAU) 2019). Therefore, the Association's president set up a company to provide financial support for the Association. According to the Association's president,

> "Our company is licensed by the [Brand Development] Association to operate under the brand name Suining Fresh. In the operation of our company, we get a lot of help from the municipal government leaders, as well as the Association to help unblock channels to promote our agricultural products sales. Our company mainly sold the agricultural products produced by the members in the association under the brand of 'Suining Xian' and what we earned would be partially go to the association for running the [Suining Xian] Brand."(Interview #24(SAU) 2019).


Figure 5-5 Diagram for the management of "Suining Xian" Brand

To better show how the Brand was managed by the association and supported by the company, Figure 5-5 explains the detailed relationships.

The "Suining Xian" Brand was defined as a public institution but running and management operates like a profit-making business. This is a very important point to remember here in order to understand why the cooperation happening in Suining Branch built by SAU has faced some challenges.

### *The establishment of Suining Branch*

The "Suining Branch" contract was signed by SAU and Suining City in 2016 and the branch as officially established as a private non-entrepreneur and non-profit organization in 2017. Suining Branch was built on the base of "Suinign Xian" Brand to make it more convenient for SAU and the localities to cooperate and work together. According to one local government official at Suining City,

> "We hope to use 'Suining Xian' Brand as a good base for our cooperation since it has been more mature with the development of one year. They also have more than 100 agricultural

> business and farmers as their members. With the help and foundation of this Brand, SAU branch would be much easier to make the contact with the local farmers and carry out the agricultural extension work here"(Interview #20 (SAU) 2019).

This good intention of building Suining Branch on the foundation of "Suining Xian" Brand illustrates the assumption that previous resources constructed under the Brand would be beneficial for the newly built cooperative platform between SAU and Suining City government. However, it turned out to be a very difficult one to fully realize. According to interviewees, there have been two main issues resolving the multiple organizational identities involved in y the Suining Branch.

First is the existence of some competition over management and control of Suining Branch. Before we talk about Suining Branch organization chart, let us look at the organization of Ya'an Main Station of which SAU has tried to transfer the successful experiences to Suining Branch. Why? First, Ya'an Main station has been cited as an example of effective cooperation between SAU and the local city government in promoting university-based agricultural extension. Comparison of organizational structure between Ya'an Main Station and Suining Branch would make it easier to understand the difficulties encountered at Suining Branch. Second, cooperation with Ya'an city is viewed as of SAU's the most successful cooperative extension experiences (Interview #8(SAU) 2019; Interview #13 (SAU) 2019), and they tried to copy the structure of Ya'an Main Station to other places. But the differences in transferring these successful experiences elsewhere can tell us where the problems are.

As we introduced in Chapter 4, the leadership team of Ya'an Main Station is composed of high-level leaders from Ya'an city government and Sichuan Agriculture University. The team's leadership is assumed by Ya'an Municipal Party Committee Secretary, the city Mayor, and the Party Secretary and President of Sichuan Agriculture University. The deputy team head are the

Ya'an Municipal Party Committee, Municipal Governmental official in charge, and the Deputy President of Sichuan Agricultural University. For daily management, one main office has been established (Institute for New Rural Development, SAU 2012) and the Director of the main office is taken by SAU professor who is also the Director of the New Institute at SAU. In the process of cooperation, this SAU professor has a say in managing the day-to-day affairs of Ya'an Main station. According to the Executive Vice Director from the local government working in the main office,

> "As the Executive Vice Director, I help with management and operation of the organization [Ya'an Main Station]. For example, every year Ya'an City provide 1 million RMB (0.15 million US dollars/6.48 currency ratio) working funds for the Main Station, it is handled by our department [in the local government]. I help sign on the official papers, and then the money is transferred to the [Ya'an] Main Station. Then it is up to Dr. ** [The SAU professor who is the director of the main office of Ya'an Main Station] to sign for its use. He can decide where to use for our Main station"(Interview #11(SAU） 2019).

Based on the quotes above and other interviews, the SAU professor serving as director of the main office at Ya'an Main station has been in charge of managing Main Station and decides the development direction of most activities happening in the Main Station. However, this is not the case for Suining Branch.

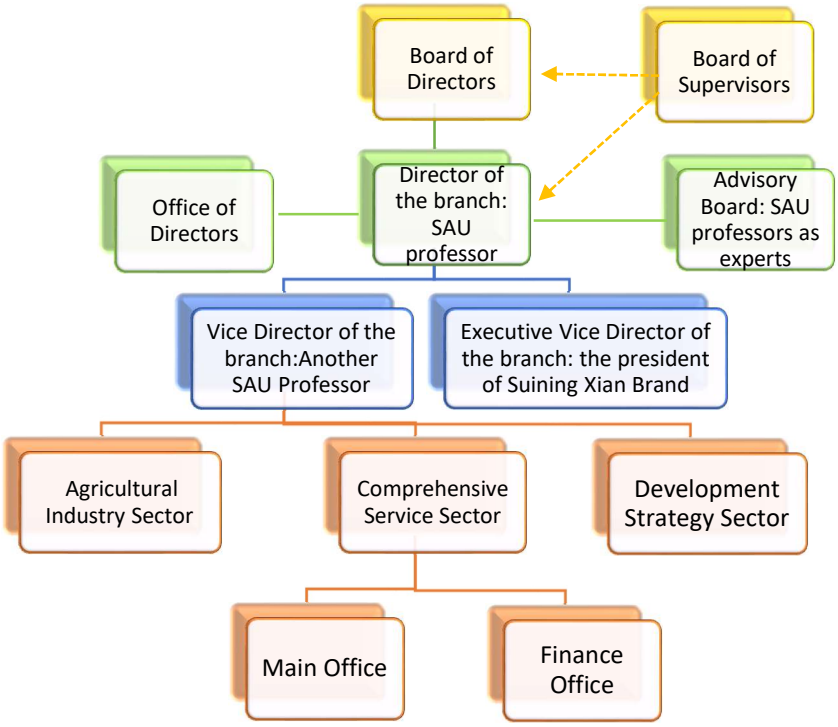


Figure 5-6 Organizational Chart of Suining Branch

Suining Branch was initially designed with a similar structure with Ya'an Main Station with leadership composed from both sides and professors from SAU to take the director role to play out their advantages in science and technology. The organizational structure of Suining Branch is shown in Figure 5-6. (Interview #31(SAU) 2019) An SAU professor from SAU is in charge of the branch, and one Vice Director is another professor from SAU, responsible for the daily management of this branch. An Executive Vice Director from the local government assists SAU professors with daily management.

However, according to interviews, things did not go according to plan at Suining Branch. First, the Executive Vice Director is appointed to a local entrepreneur who is the president of Suining Xian" Brand instead of a local governmental official as in Ya'an Main Station. University

professors from SAU shared some communication difficulties related to this deviation from the usual selection of personnel. According to the Vice Director of Suining Branch from SAU,

> "Based on our experiences, the Executive Vice Director should be a government official, and they can help us with the stuff related to the local government. He/She ("Ta" in Chinese) would have been familiar with the governmental working system and could help us with promoting public agricultural extension activities. But in Suining Branch, the local government named an entrepreneur as the Executive Vice Director. He has a strong logic of businessman, and as you might already know, 'Suining Xian' Brand is also run like a company even though it is established as a non-profit organization. I am not saying that is a bad thing, but this small difference on the personnel choice really gives us a hard time to communicate what we should do for our [Suining] Branch"(Interview #30(SAU) 2019).

Communication difficulties indeed have reflected different ideologies at work in the cooperation process. While the SAU professor would like to run Suining Branch as a public institution and non-profit organization, the entrepreneur prefers to operate the Branch like a for-profit company. For example, a hotel was built to help run Suining Branch. As described by the Executive Vice Director,

> "'Our city government built Suining Xian' first, and then cooperated with SAU to construct this new Institute [Suining Branch]. You need an implementing unit to do things even for the government, so I opened a company. I have a lot of business experience. Earlier I opened a trading company and developed my own snack product brand. But my stall is not limited to these aspects. I also manage a selenium-rich agricultural product cooperative, and we also have just opened a "Suining Xian" hotel"(Interview #24(SAU) 2019).

One of the managers who worked in the "Suining Xian" hotel explained,

> "The establishment of this hotel is an exploratory attempt by our boss [the Executive Vice Director], we try to solve the issue of production, supply and marketing of the agricultural products. What we eat here [in the hotel] actually are all local agricultural products. We hope we can help advertise these agricultural products while the local farmers supply their products for the hotel menus"(Interview #32(SAU) 2019).

Compared to those business or commercial approach adopted by the Executive Vice Director, SAU professors want to conduct some agricultural extension projects as in Ya'an Main Station. According to the director of Suining Branch who is from SAU,

> "We just want to do some solid agricultural industrial projects like we did in other places. It needs the local government to provide some project funding, local farmers or agricultural business provide some land, and we [SAU] could offer some advanced information technology needed. With all these resources integrated, we can indeed increase the income of the farmers, then promote the development of the local agricultural economy, and build a concrete demonstration site with a clear imprint of SAU. This can be beneficial for all of us. But this thought could not be fulfilled."(Interview #13(SAU) 2019).

When having different working ideologies, the deciding factor would be who controls the management. This question leads to our next discussion about the second deviation from the plan, which lies in the day-to-day management. The actual daily management of Suining Branch is not in the hand of the Vice Director from SAU, but run by the Executive Vice Director, the local entrepreneur.

This management issue started from the registration of Suining Branch during the initial stage of establishment stage. As a newly built public institute, Suining Branch had to be registered in the Bureau of Civil Affairs. According to the director of SAU's New Institute,

> "Registration in the Bureau of Civil Affairs is an important step for the institute since it means the institute has the independent legal entity status as a private non-enterprise organization. That is, according to laws, it has legally independent civil capacity, and can independently assume civil liability"(Interview #8(SAU) 2019).

Even though SAU representatives were aware of the significance of this step of registration, they did not realize that who did the registration could be an issue(Interview #13(SAU) 2019). It was the Executive Vice Director who went to Bureau of Civil Affairs to complete the registration process. According to one SAU staff member,

> "We lack management experience since we are all professors who mainly deal with technology issues. We thought registration was only a part of logistic work required by the establishing procedure and we [SAU] could start to work at the branch once its registration is finished. We did not realize whoever registered mattered so much. But after the registration, the seals[11] of our branch as a legal entity are all in the hand of the executive vice director. Now if we want to do anything, we need to get his 'nodding'[consent] first. We are really in a very passive position in the management of our Branch"(Interview #30(SAU) 2019).

To understand this management issue, we need to know the role of seals in the registration process for a legal entity. Seals and a bank account are required for registration as a legal entity. According to Regulations on the Registration of Social Organizations, "Social organizations should apply for engraving seals and open bank accounts based on the Certificate for Registration of Legal Entity of Social Organizations. Social organizations shall report the seal pattern and bank account number to the registration authority for the record"(Ministry of Civil Affairs of the People's Republic of China 2016). Meanwhile, as an independent legal entity, the seals are the tangible representatives and legal documents of its external activities (Findlaw.cn 2016). Therefore, with seals in hand, the Executive Vice Director has the actual management and control for Suining Branch.

According to one staff member at the New Research Institute at SAU who was involved in the establishment of Suining Branch,

> "Whoever does the daily management for our Branch might not be an issue if the vice director of Suining branch was done by a government official because we can easily keep our branch as a non-profit public institute and run it like Ya'an Station. Moreover, there is a distance from our campus to Suining City and it would be unreasonable for our professors to go there every day. However, even though the branch is called a non-profit organization, it is more like a company, and it runs in the way how companies operates since the real director of it is an entrepreneur."(Interview #29(SAU) 2019).

Therefore, from the perspective of the university, the multiple organizational identities of Suining branch have complicated the process of cooperation and the university did not have the

[11]

real control for the development of this branch. These cooperation challenges have hampered the implementation of successful experiences of promote university-based agricultural extension as Ya'an Main Station.

### *5.2.3 Cooperation challenges: Multiple organizational identities of the platform*

*One platform, multiple identities: good or bad?*

On AAU's cooperative platform, not only are university professors in different departments involved; all the experts in the local areas are mobilized. These include not only the experts in the government-led agriculture extension, but also technicians in the Bureau of Agriculture, Bureau of Animal Husbandry etc. Theoretically, AAU's cooperative platform can mobilize all the local experts relevant to agriculture. While not all these experts are involved directly in the cooperation platform on a daily basis, they will show up if needed. These can be great potential resources for effective agriculture extension.

According to interviews from both cases, the new practice of involving universities in agriculture extension at AAU and SAU has been very beneficial for multiple participating sides and have the transformative effect on their practices involved in agricultural extension.

Though they have developed via development of different types of collaboration, the two universities in my study have experienced similar cooperation challenges resulting from the multiple organizational identities of their respective platforms. It seems natural to have multiple organizational identities for the platforms since cooperation involves different stakeholders. At AAU, the platform is an experiment station to the university while to the local government, the platform has another identity of "Modern Agricultural Technology Cooperation Extension Service Center". At SAU, the platform is a local branch of university-based agricultural extension to the university, while to the local government it also has another identity of "Suining

Xian" Brand. These identities can be seen as the organizational identities for these cooperative platforms. When the cooperation began to be established between university and localities, multiple identities had an effect and became beneficial for the development of the cooperative platforms since all the cooperation parties have devoted money, land, or personnel etc. into the construction of the cooperative platforms. However, multiple organizational (social) identities also bring some unexpected challenges in the cooperation process, though in different ways for the two universities. This finding corresponds to the recent development of social identity theory.

My field data in this section reveals two possible ways in which an organization's multiple identities might create challenges for cooperation. For Experiment station #2 at AAU, the organizational arrangements which embody two social identities of the platform ("Experiment Station" to the AAU, meanwhile, "Agricultural Technology Cooperation Extension Service Center" to the local government) results in two separate working systems on the platform, creating some difficulties in the daily management work between university people and staff from the local government. For the SAU's Suining Branch, the pre-existing identity of the platform overshadowed the new identity built between SAU and the local government and the previous business approach of promoting agricultural products has prevailed.

In summary, the cooperative platforms' multiple identities operate as a double-edged sword. They might be beneficial at first and help encourage each stakeholder to put efforts into establishing the new organization. But we also have to caution that the organizational arrangements or organizational structures resulting from those multiple identities might at some point hamper the further development of these cooperative platforms. Nevertheless, it is too early to be pessimistic about the effect of these multiple identities. Further research would provide more insights on how they would develop in the future cooperation process.

### 5.3 Platform development vs cooperation building

Another fact we cannot ignore is that cooperation among university, local governments and local farmers or agribusiness does not occur in a vacuum, but on real cooperative platforms. Indeed, collaboration building is closely related to the development of AAU and SAU's platform

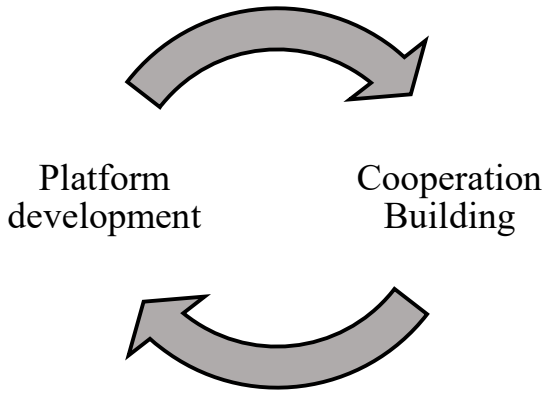


Figure 5-7 Relation Between Platform Development and Collaboration Building

development. They both could facilitate the further development of the other mutually. Similarly, limited development on one side can also hinder the other (see Figure 5-7).

This discussion is a summary of the whole chapter. From the first section, there is a close relationship between platform development and cooperation building. We can see that good platforms can provide good conditions for cooperation building with a good working mechanism, and good cooperation results achieved in the good working mechanism can in turn perpetuate the further development of the platform construction. At AAU, with experimental land and physical facilities on the Experiment station #1 provided good conditions for the director of the experiment station #1 to conduct the relevant goat raising research and demonstrate the standard breeding unit for the local farmers. For Ya'an Main Station, good cooperation platform makes it possible for Dr. Xu to take the form "Shi Gua" to serve on the

temporary working post as a Deputy County leader. It is the support from the local government and university to make his efforts to come true in reality and achieve very good extension results. Then these good results would provide hope and promises for the local government and university, which would encourage both sides to continue to invest on the construction of the cooperative platform. However, this mutually promoting relationship between platform development and cooperation building is not easy to achieve. The second section of this chapter showed us this point. More specifically, in my two university cases, the multiple social identities included in the cooperative platforms (Experiment Station #2 and Suining Branch) built by the two universities make it challenging for the cooperation building carrying on in the platforms. On the Experiment station #2 built by AAU, the multiple identities lead to two separate staff systems makes the daily management very challenging and this challenging situation makes the development of the platform slower than Experiment Station #1. On Suining Branch built by SAU, the multiple identities owned by Suining Branch complicated its management between the university and the local government. This confusing managing issues lead to a not very ideal cooperation results and hampers transferring the working mechanism from Ya'an Main Station to Suining Branch. The unintended cooperation results lead both sides of the university and the local government have a second thought when further investment is involved.

Poor cooperation results in turn leads to a low enthusiasm to continue to invest on the construction of the cooperative platforms. On one hand, cooperation with a designed working mechanism happens on the well-built cooperative platform. The building of the cooperative platform has provided good physical conditions and facilities necessary for the cooperation and research work on agricultural extension to begin with. On the other hand, good cooperation building with a proper working mechanism in which the university professors can play out their

strong abilities and strength in agricultural technology, indeed has achieved a good result of cooperation and performance in agricultural extension, this in reverse,

### 5.4 Conclusion

In this chapter, I have talked about cooperation happening on the two cooperative platforms built by AAU and SAU. In the first section, successful cooperation experiences in both universities were discussed with an emphasis on the differences between their principle working mechanisms. In the experiment stations, AAU adopted a way of setting up agricultural industrial alliances in which university professors, local governmental officials, and local farmers or agribusinesses come together to cooperate. By contrast, SAU adopted a "Deputy County Director" approach in which the technology authority of university researchers, the administrative authority of local government officials, and the implementation of the local farmers or agribusiness could be guaranteed. Good cooperation resulting in both universities show us that effective cooperation can happen in different formats.

There are three main take-aways in their positive experiences. First, effective cooperation in university-based agricultural extension requires the involvement of multiple partnerships including the university, local government, and local farmers (in the broader sense). Second, university-based agricultural extension cannot be limited to technology only but rather needs to consider the whole production chain, especially market factors. The case of goat raising at AAU and the case of sweet cherry at SAU both showed us the great influence university-based agricultural extension can bring to the local agricultural industry once the market is taken into consideration. Lastly, good cooperation and platform development like the reciprocal relationships. Effective platform construction can provide a solid foundation for cooperation to

happen, and conversely, good cooperation can ensure that all stakeholders continue to invest in the development of the cooperative platforms.

In this chapter's second section, I discussed cooperation challenges encountered by the two universities in the other platforms (Experiment Station #2 and Suining Branch) they have built. Even though the two universities have built different types of platforms and distinct approaches, it is surprising to see how the two universities have experienced similarities in the communication and cooperation process caused by the multiple identities owned by the cooperative platforms. At Experiment Station #2 built by AAU, it is the multiple identities leading to two separate working systems for university people and working staff from the local government. For SAU, Suining branch was built on a regional brand of "Suining Xian" set up by the local government but run by local entrepreneurs, creating the divergence of how to build and manage Suining branch. Finally, I drew on organizational theory related to social identity to analyze why the multiple identities could have big effect on the organizations itself and how multiple identities could be the source of conflicts and tension within the organization. Lastly, I suggest viewing these cooperation challenges with a more dynamic perspective since the tension caused by the multiple social identities might change with future cooperation going on, which shows the direction of further research on how to coordinate different social identities on the cooperative platforms to forge sustainable effective cooperation.

# CHAPTER 6 : TRANSFORMATION AND INSTITUTIONALIZATION

In the previous two chapters I discussed the organizational construction of university-based agricultural extension, especially the cooperation happening on those platforms. But how might these changes influence preexisting practices around agriculture extension? Below, I will explore how new University-local government cooperation has influenced the previous agriculture extension model in both local counties and the technology services offered to local offices by university professors. For both AAU and SAU, cooperation has upgraded and transformed previous agriculture extension practices. It will be important for any new organization or organizational unit to sustain this cooperation in the long run. Therefore, a critical question we must ask is: what is the future of these new organizational changes? To examine the need for institutionalization of university-local government cooperation in extension, I will discuss below challenges faced by the cooperative platforms built by both universities.

### *Summary of the Comparison between two cases*

Based on the discussion in the previous two chapters, there are clear points of comparison between the two cases (shown in Table 6.1 below). Though both universities established a similar institute within their respective institutions both adopted different approaches to building organizational platforms. AAU created a more tangible platform via Experiment Stations allowing people to see clearly AAU's footprint while SAU has a more intangible platform based on collaboration around projects. Their building approaches and related efforts to incentivize professors, issues of power and hierarchy, and funding management all differ. These differences determine the varying challenges each university faces in how to institutionalize new collaborative extension practices within their daily work.

Table 6.1 Comparison Between AAU and SAU (compiled from field work data)

### 6.1 Transforming previous agriculture extension

| | **AAU** | **SAU** |
|---|---|---|
| **Platform** | Experimental Stations with Physical land | Local Branches with Projects |
| **Building Approach** | Eight stations all at once | Built one after another by copying the first model that worked well |
| **Ways to incentive professors to work** | Travel and dining reimbursement; but mainly depends on professors' passion | Work evaluation system; also, sometimes start with CPC party members |
| **Power and hierarchy** | "Hard" hierarchical system that needs changes in the future | Soft hierarchical power; working culture or history from ground |
| **Funding management** | Needs more funding for their projects | Do not have flexibility in assigning unused funds |

The construction of cooperative platforms and their activities have led to a significant transformation in the agricultural extension work of Anhui Agricultural University and Sichuan Agricultural University. The term transformation has a wide range of connotations in the literature of organizational change and in frequent usage, "transformation functions variously as a description of something that has happened, as a claim that something has been achieved, or as a promise or an aspiration about what might be achieved" (Tosey and Robinson 2002). Here I adopt Barrett's notion of transformation as "a phase between change and evolution" (Barrett 1998). As Tosey and Robinson (2002) suggested, changes always happen, and they might last for a long time. But when change is not enough to describe what has happened, it is time to use

transformation which is on a higher plane than change. In the cases of AAU and SAU, transformations are happening within all entities involved, including university professors, local experts, local farmers, and even in students' education. We will below explore the details in the two cases of AAU and SAU.

### *6.1.1 University-based agricultural extension becomes more systematic*

Professors at AAU and SAU both stated in interviews that the establishment of university-based agricultural extension with cooperative platforms and working mechanisms makes the previous single-person, individual, sporadic extension activities more systematic.

#### *Changes in extension work done by the professors: AAU*

The building of the cooperative University-Local Government platform transforms the previous individual extension work done by university professors. Most of the AAU professors interviewed have had prior experiences of going into the field to provide technical services to local farmers. They now feel they are part of a team with the industry alliances in the experiment stations at AAU, compared to their prior experiences on their own. This team format increases the efficiency of doing the extension work for AAU university professors. According to one AAU professor,

> "We were more like going out and fighting all alone before, but now we have a team. Teamwork plays its advantages when one expert is not available which is common for us [university professors]. Other experts in the team can substitute for me to provide the services needed if I have class on that day. I will do that for them, too. (Interview #27(AAU) 2019)"

Another change is that university professors are doing extension work more actively. According to one university professor who participates in the agricultural industry alliance at an AAU experiment station,

> "Previously, we [university professors] adopted a passive role in agricultural extension since we just waited for the farmers or local agribusiness who need technology support to reach out. But now things are different. With the cooperative platforms, we are the experts on the

> [agricultural industry] alliance. So, you can see our faculty members become more active in researching the issues in real production and then try to find a solution. The previous feelings of 'disturbing others' when visiting the local farmers disappear since this is our job to help solve their technological problems. (Interview #25(AAU) 2019)"

### *Experiences from SAU professors*

In the case of SAU, the establishment of cooperative platforms and working mechanisms built on these platforms transforms university-based agricultural extension into a more systematic one from a management perspective. Previously, many SAU professors had experiences working with local farmers or agribusiness to help them solve the agricultural technological problems, but most worked by themselves and all these projects were carried out separately. Now with their configurations of cooperative platform and working mechanisms, SAU (more specifically, the New Institute) can theoretically mobilize all professors with expertise in agricultural technology into university-based agricultural extension activities.

As one staff member in SAU's New Institute built explained,

> "With all these changes [including establishment of the New Institute, construction of Ya'an Main Station and local branches, etc.], how we do agricultural extension has changed now. It transitions from the format of 'individual soldiers' into the format of 'organized army'. In fact, behind the phenomenon is our department [the New Institute] with a higher level of power now. In the past, we were only an office separately from all other departments. Professors would go out to do their extension work themselves and there was no need to contact us. Alternatively, if we call the professors to provide services for local farmers who contact us, they are doing a favor to us and they are not obliged to do so. So, our previous work depended greatly on personal relationships. But now that we are a department-level unit, the university has made it clear that it [the New Institute] coordinates all the experts in the university. Some professors might not buy it, but we do have the legitimate power to mobilize all professors within SAU. With these changes, when we go out to do agricultural extension work, we are actually an army backed up with all the professors in the university."

According to one SAU professor,

The establishment of Ya'an Main station and local branches by SAU strengthens management of SAU professors' agricultural extension activities. According to one SAU professor,

> "In other places we also have cooperative agreements, but money is always slow to arrive. But now it is our local branch that manages the cooperative funding. It [The local branch] is also in charge of communication with the local government, transferring funds from the county to our university, then allocating to various project groups. These are the local branch's job responsibilities, that is, to promote the implementation of the project and project funding to the account"(Interview #5(SAU) 2019).

### *6.1.2 Communication/networking: more efficient, more precise*

The university's new involvement in agriculture extension also changes the work of local experts who traditionally have taken responsibility for agriculture extension. It changes the situation of their knowledge and technology needs to update and improve. This platform makes it more efficient for local farmers to engage with the newest agriculture technology.

#### *AAU Local experts have received benefits*

Based on the views of local experts who worked in the government-led agriculture extension system, building cooperative platforms between universities and local government represents great improvement for their work by consolidating resources in one place. According to one local expert working with AAU, "It is much easier for the local farmers to find the university professors [with the experiment stations]. Compared to previously we have to reach out to several circles of personal relationships and ask someone to introduce, now one phone call will be enough"(Interview #17(AAU) 2019).

Some local technical experts who work in agricultural extension report gaining a good sense of achievement working with AAU's cooperative platform. According to two local extension agents in a local Bureau of Husbandry, "With our cooperation, we have built many new connections with university professors. We knew some of them before, but now we have deeper connections with more professors in our expertise area. We have learned a lot of knowledge from them, and we also feel so good that we can contribute our local knowledge to students' education and local agribusiness development. This is not about money, but sense of achievement" (Interview

#15(AAU) 2019; Interview #16(AAU) 2019). In particular, at AAU, some retired staff members from the government agriculture extension system supported construction of the experiment stations with their previous working relationships and expertise in some certain areas.

*SAU Local government experts: cooperation is more precise*

The SAU cooperative platform, according to some interviewees, makes cooperation more precise. According to one local governmental official, "In the past, we were fighting alone. If there were any technical problems in the counties, we usually make contact with SAU via several channels without any hierarchical differentiation" (Interview #16(SAU) 2019). This was not effective and sometimes they still could not find appropriate experts from the university. With the establishment of Ya'an Main Station and other local branches, the service teams for several agricultural products were built from the local site, and governmental extension agents could connect to the university experts in relevant areas, which makes it a good platform for cooperation.

### *6.1.3 Two-way Knowledge transfer*

Through the cooperation building by the two universities in agricultural extension, a two-way knowledge transfer is realized in the process.

*University professors help farmers by connecting them with resources*

One important benefit brought to local farmers by university professors is to connect them to resources they might need. For example, through AAU's experiment stations, one professor with expertise in fruit and vegetables helped connect local watermelon farmers to a Watermelon Grafting Conference. She explained,

> "Cultivation of watermelon is kind of special. If planted on the same land for two consecutive years, the next year's harvest of watermelon is often not good. This is because the watermelon plants' disease resistance of greatly decreases. With a large number of plant death, the watermelon would have a very low yield, or even no harvest at all. To solve this problem,

> people use grafting seedlings to graft watermelon seedlings onto birch plants such as gourds or pumpkins that only leave leaves. This method can effectively prevent the onset of severe problems such as withering disease, so the grafting technique is widely used in watermelon farming. When we invite local watermelon farmers to these conferences, farmers can communicate with the experts and see directly the strategies or experiences from other successful planters. These valuable experiences help local farmers learn the best techniques for their cropping and transform their daily practices. After coming back from the conference, their feedback is very positive and they appreciate such opportunities to learn these advanced experiences and techniques."(Interview #27(AAU) 2019).

On the case of SAU, university professors have used technology to bring more benefits to local farmers. According to one local farmer who raises mangos,

> "We directly benefit from cooperation with these university professors. As farmers, we have to know the technology ourselves and sometimes we hire a technician to guarantee our production. But professors bring some new breeds for free. At first, I am not sure whether it would be good or not. But they are university professors and I believe they would not lie to me. So, I try to plant some in the first year, and this new breed of mango would be 15 days later to ripen than the regular breed. Later I find with 15 days, this mango fruit has a better taste, and I can sell them with a higher price than the previous breed. My investment can bring more profit with this new breed. So, I welcome them [university professors] to come to visit often and bring me more new breeds".

New technology emerges not just from the university, but also from farmers' own experiences

With the cooperative platforms and working mechanisms built by SAU and local government, not only technology or knowledge from university professors are devoted to local agricultural production, but also knowledge summarized from local farmers' experiences. While visiting a large family farm in the local kiwi fruit co-op, I saw greenhouses built on the fields. Entering one of the greenhouses, cement posts stood beside each kiwi fruit tree and kiwi fruit tree vines were placed on wires connected to each post. Several kiwi fruits hung from almost every branch. Local extension agents and university professor remarked that this rate of fruit hanging is very high, and the quality of fruit looked very good. Each kiwi fruit had a paper bag cover, and one local extension agent explained,

> "The advantage of using the bag is to increase the appearance of fruit as a commodity, and to reduce the probability of pest infection. Now it is a very common and effective technology for farming kiwi fruit. We [local extension agents] and university professors help them with these techniques and the use of greenhouse. What you may wonder about is the posts we built here in the greenhouse. This is a grafting technique that comes from the experiences of one local farmer here. As you may know, there are a great many wild germplasm of kiwi fruit in our country and they usually have some advantages of adapting widely, growing sturdily, and performing well in terms of resistance to diseases and insect pests, resistance to salinity and waterlogging, etc. So, it is common to use graft seedlings in kiwi production. In the past, we did not pay attention to where to put the graft except to place it relatively low for convenience. But because the grafting site was too low, it was vulnerable to underground water flooding and rotting roots. Siting the graft lower also makes it easy to become buried in the growth process and led to grafting interface decay or infection disease. So, the farmers usually have a low survival rate of these grafting plants, and the growth of these plants was also very weak. Later, one kiwi farmer shared with us his experiences of grafting in a higher position and found that effective in solving these problems. One local farmer's ability to promote this technology is limited, but with our platform [between SAU and the local government] it is now a popular technique and all the farmers in these co-ops adopted it"(Interview #33(SAU) 2019).

*Professors learn much from cooperation*

In addition, through the new approach of university-based agricultural extension, university professors also benefit from learning from field experiences. According to one university staff member who worked in one of SAU's local branches,

> "It is actually a mutual learning process when we go out to provide agricultural technology services. Now we can go to the local farmers' field, and we have learned a lot of practical field production management experiences while introducing them to new technology or new breeds. (Interview #5(SAU) 2019)"

With the cooperative platforms, university professors also gain a good opportunity to learn the real field experiences which are usually valuable and opaque to outsiders. According to an AAU professor involved in one of the agricultural industry alliances at one of AAU's experiment stations,

> "In fact, [cooperation] is also very helpful for us [university researchers]. After all, doing agriculture cannot be separated from the land, practice, and grassroots agricultural production. We often say, 'the masters are among the people', because farmers conduct experiments in the field all day to sum up their experiences. In fact, their actual experiences are not known to many people, but they do not keep them as secrets to us.

> Take lobster as an example. I will tell you something which you know only if you are in this field. As a lobster farmer, you have to remember to catch lobsters in a timely manner. The more lobsters are caught, the more they reproduce. Many people are afraid that catching too early will influence final production and would wait for a long time. But in fact, lobsters have a habit of killing each other. If there is a dead lobster next to them, they will eat the dead lobster first, or even live ones. If you don't catch it in time, they will kill themselves, and then your yield of lobsters will not come up. When the farmer shared this information with me, I was so happy. I have worked in the university for many years and will retire in five years. I am so glad to have the chance of learning of these practical experiences. ”(Interview #28(AAU) 2019).

#### *6.1.4 Innovation in Students' education*

According to interviews, students' education at AAU has been positively influenced by cooperation in agriculture extension. For example, in 2017 AAU established a new master's program for agricultural extension majors (https://zhuanlan.zhihu.com/p/148908069). Luckily, I observed the master's students' defense day during my field visit (https://yjs.ahau.edu.cn/info/1015/1499.htm). This new program not only has a new focus on university-based agriculture extension but adopts an innovative mentoring approach. Compared to other master's programs in which most of the students have one or two advisors who are university faculty members, students in this new program have one advisor from the university and another advisor from the local agriculture sector. This program design aims to provide better and more practical education for students of agriculture majors with knowledge from both the university and the experiences of local experts.

The design of this program responded to the common disconnection between research in university and research required in the real world. One local government extension agent shared her opinion of the master's program for students' research, "Students need more education in practice, and they will not do foundational research if they stay in the laboratory. This issue is

very common in our current graduate student education" (Interview #16(AAU) 2019). This conclusion emerges from her work experiences:

> "Several years ago, we recruited a graduate student with research fields in molecular breeding. It sounded very high-end and professional but was too specialized to us. In our Bureau of Animal Husbandry, most of our work is grass-roots work, and the problems we encounter are more practical, general, and involve many aspects. This led to a result, that is, his expertise could not be applied in our work practice. Eventually he felt lost and frustrated in the daily work. We all felt pity for him as an individual and for the waste of resources for our Bureau" (Interview #16(AAU) 2019).

AAU's innovative new master program could provide some solutions to this disconnection problem. According to another local government extension agent who served as the co-advisor in the program, "the advisor in the university might think some issue could be a good research question, but our experiences would tell them whether it is doable or not" (Interview #15(AAU) 2019). She offered an example that one of her students wanted to research on local wild fungi. But her working experiences told her there was not much wild fungi in this place and there would not be much for this student to research, which helped the student change topics early and choose a more feasible and practical research thesis topic.

In the case of SAU, cooperative university-local government agricultural extension helps ground students' education in agriculture and bring it closer to reality. One local governmental official expressed his opinion on the issue of outdated knowledge in college education on agriculture and how cooperation SAU's university-based agricultural extension could possibly improve college education in agriculture,

> "You know how the university teaches students. When you are a teacher, you prepare material on the basis of the previous teacher's stuff, and then hand it over to the new students, but this knowledge is old. These knowledge does not match with current developments in agricultural production, so is "outdated knowledge." Our model [university-based agricultural extension] widens the world of professors who also teach classes in the university. In the process of providing social services, the professors will find urgent problems encountered in real production, and then they return to the university to carry out relevant research to solve

these problems. The research experiences and knowledge generated in the process directly enrich his teaching content"(Interview #11(SAU） 2019).

***Summary***

From the discussion above, we can see those organizational changes (establishment of cooperative platforms and primary working mechanisms etc.) have made the previous university-involved agricultural extension into a more systematic one. With participation of university professors, they have a team to work together and a university institute to manage their work. In the communication process, local farmers and university researchers are connected in a more precise and efficient way. Two-way knowledge transfer is actually happening in university-based agricultural extension. Both universities have experienced some transformation on their education for the undergraduates or graduates with the new form of university-based agricultural extension. Lastly, on the higher level of two systems between government-led agricultural extension and university-based agricultural extension, the latter would not replace the first one, but could be complementary.

Some of these changes were desired and some transformations were not expected. For many managers or people involved in these changes, what concerns them is to preserve favorable transformative results in future. This would lead us to the next important question of the institutionalization of the process of organizational change.

### 6.2 Institutionalization of the new changes

It has taken great efforts for each side, University and local government, to make transformations toward cooperative agriculture extension. Therefore, it is important to consider how new changes for future sustainable development of cooperative extension will be institutionalized.

Institutionalization is defined as "the attainment of long-term viability and integration of innovations in organizations"(Goodman and Steckler 1989:57). Besides rational choice

institutionalism and historical institutionalism, sociological institutionalism theory represents a new approach which views public administration more as grounded knowledge (Thoenig 2003). Drawing on this approach, Selznic made a unique point about institutionalization. He described the inevitable institutionalization process for any organization which needs to incorporate appropriate values. "To institutionalize is to infuse with value beyond the technical requirements of the task at hand" (Selznick 1957:17). Besides values, there are other aspects needed for strong institutionalization. “Thick institutionalization is achieved when some rules or procedures are sanctified, when some units or members of the public agency have become semi-autonomous centers of power and develop their own vested interests, or when administrative rituals symbols, and ideologies exist. Expectations, behaviors, beliefs are channeled and stabilized. Moral communities become set up.” (Thoenig 2003:131) However, as will be seen in this section, based on their current platforms and achievements AAU and SAU encounter different challenges in achieving thick institutionalization.

### *6.2.1 Institutionalization of cooperative platforms*

Foremost, the institutionalization issue comes from the cooperative platforms built by the two universities, though facing different issues and challenges.

#### *AAU: differentiation among experiment stations and management challenges*

As shown in Chapter 4, a single uniform strategy of organizational development was originally planned for all AAU’s experiment stations [see Table 3 Chapter 4]. However, the hard realities are that the development of the eight experiment stations started differentiating early on. Each experiment station’s development trajectory depended on the interaction of diverse factors such as the role of the university faculty Director, the nature of support from local government, personalities of staff members, and interaction among different divisions within the university and others.

At the beginning, eight AAU Experiment Stations were built, but only six remain under management by the New Institute. As explained in Chapter 4, Wanjiang Experiment Station is a trial cooperation with a private agribusiness company, and it turns out to be totally managed by the company and gradually lost planned expectations of public agricultural extension. Another is Wanzhong Experiment Station which is still under the supervision of the university. Out of convenience, the New Institute has transferred its management to the University Research Base Management Office since the experiment station is built in one of AAU's research bases.

The six experiment stations currently under management by AAU's New Institute have had varying development trajectories. We saw this in the examples of the two AAU experiment stations discussed in Chapter 5.

That all AAU's experiment stations experienced different management suggests they had a "Good plan, but hard realities". As described previously, AAU established all of its eight experiment stations more or less at the same time and according to a similar organizational plan. In practice, that single plan has made the units challenging to manage as they each face different conditions in their counties and receive varying degrees of support from local governments, which perpetuate the differentiation among the development of all the experiment stations. One staff member in the New Institute at AAU observed:

> "It [Construction of experiment stations] does not only involve our university, and many conditions in the local, especially the coordination of the leaders of the local government, have resulted in the uneven development of our experiment stations. For example, Experiment Station #1 [more details in Chapter 5] was originally the slowest in construction among all the six experiment stations due to poor communication caused by a local government leadership transition, but now it has the best development with great support from the local. The gap between it and the one in the second place is very large, let alone the gap among other [Experiment]stations. What's more, these gaps are widening expansively. The good ones will develop faster, and the poorly developed ones will have slower development, and may even be greatly slowed down.

> We have a similar building plan for each experiment station, but the degree of local support varies. Some places are crying out for us to build the experiment station and help develop their local agricultural economy, while some others show all kinds of reluctance to cooperate. These differences are obvious. Especially when the agricultural industry alliances match well with local economy, it will get strong local support"(Interview #35(AAU) 2019).

One university Vice Director of one of the experiment stations explained more detail how support from the local government influenced differentiation of the development among these experiment stations:

> "When our experiment station was built at first, we encountered a water supply issue. We first tried to contact the Agricultural Commission [It has the new name of Bureau of Agriculture and Rural Affairs in 2019] who are the local unit we cooperated with, but they told us that it is the local Water Conservancy Department that manages the water resources and water use, not them. So, we had to communicate with the Water Conservancy Department to solve the issue. In that process, we encountered difficulties and delays from the local water conservancy department because they always told us that they have more important work to do before they can help us solve the experiment station's water supply problem. We had to run to their offices several times in person and it cost us a lot of time and efforts before the water issue was finally resolved. That is only one small issue of the construction [of the experiment stations] [The interviewee sighed when saying this]. But this is the situation I met in our experiment station, and I heard that several other [Experiment] stations did not have such problems. It might be because their local government made a better communication between different departments"(Interview #32(AAU) 2019).

In addition to issues in the construction process, how funding was managed also influenced development of the experiment stations. Another university Vice Director of the other experiment station remarked:

> "With the establishment of the experiment station, we can actually help the local government successfully apply for some special funds for certain agricultural crops farming. We thought the funding could be used in our experiment station and develop some relevant projects, but sometimes the funding money is seized by the local government in the name of 'Overall Planning'. If we asked, we got the answer, 'we have other more important development matters need to be invested first, and you can wait for this'. We all know if you believe and wait, this wait will last for donkey years, and you would never see the money. This does delay some project development in our experiment station"(Interview #34(AAU) 2019).

To resolve these management challenges, AAU has developed a new management strategy of "One Station, One Policy" which allows each station to customize the previous uniform

development plan to cater to the specific situations it faces. According to one AAU New Institute staff member, "We have discussed this issue for a while, and it is necessary to put out this new policy in our current situation since each station becomes different now. It is unrealistic to require them to develop as the same plan" (Interview #35(AAU) 2019). More time is needed to see how this new strategy work for the AAU experiment stations' management, but it is certain that the unbalanced development of these experiment stations poses an important management issue for AAU now and in the future.

### *SAU: lacking stable safeguard mechanisms for cooperation in local branches*

The success of cooperation at SAU relies on stable and shaped regulations on how the cooperation should run. But this is a complicated issue. It has taken time for SAU's New Institute to figure out how to work in varying local conditions. Currently the lack of stable safeguard mechanisms makes the current cooperation hard to sustain or copy from Ya'an to other places.

When asked about cooperation between SAU and local branches, one director of a SAU local branch commented,

> "Any cooperation needs a stable mechanism to ensure cooperation's smooth progress so it would not change due to any changes in staff or transition. Without a stable safeguard mechanism with norms and constraints [ something having written rules, regulations and procedures to guide the operations], everything would rely solely on the subjective will of the people who get involved. The results of our work would become very random, and the success or failure of our cooperation would be just contingency. That is what we lack now"(Interview #8(SAU) 2019).

From the university perspective, without such an effective and running safeguard mechanism, governmental leaders and the individual official who is directly responsible can greatly affect the results of cooperation. According to a director of one of SAU local branches,

> "We find in our cooperation with the local government people who we are in contact in the work are important, especially their first-in-command leader who leads the county government. If they have a positive opinion of our cooperation, then everything becomes easy. Our local branch had a really good start with the local government since the top leader of the local county was an alumnus of SAU and knew how our university can play an impact on the local agricultural economy. But one year later, he was transferred to another county, and we had to work with a brand-new top leader at this county. This new leader has a totally different view of cooperation between university and local government. We had to start over our work and experienced a lot of hardships due to lacking the previous consensus for our cooperation. From our view, we cannot control who work with us and what kind of person he/she is. This creates a lot of uncertainty for our cooperation with the local government."(Interview #5(SAU) 2019).

In addition, the specific operator who directly deals with cooperation also plays an important role. Another Vice Director of a SAU local branch talked about her experiences working with local government,

> "When we went to the local, we did not realize the specific person who does the work is so crucial. He or she can be so important that it can even determines the success or failure of our work. First, it is their attitude towards of our cooperation [between the university and the local government]. Unfortunately, we first met a governmental official who thought the university should bring money and research projects, rather than from their local government. So, at the beginning we only had working funds for running the local branch, but no project funds to do concrete extension work. This was his personal view, but it did influence greatly how our work as done. Later, we met a more cooperative official who deals with our cooperation stuff. We have good communication with how we should work for the local branch and our work did go smoothly for a while. But then you know recently an institutional reform was carried out within the agricultural sector. The Agriculture Commission we cooperate with has been merged into the Bureau of Agriculture and Rural Affairs. What problem did this reform bring to our work? Although the person we directly work with does not change, his position was changed from the main leader into a situation where there is a person above him. Previously, as the main leader, he could decide and arrange the relevant cooperation work himself, but now he has to report to the person above him and get approval before any work can be arranged. Our previous smooth workflow now has been often interrupted in the procedure and delayed in time sense. It makes our work more complicated"(Interview #30(SAU) 2019).

The discussion above reveals that SAU suffers from management difficulties in its local branches because of the lack of a stable safeguard mechanism to guarantee cooperation. Personal

views about university-based agricultural extension of the top leaders and the person who is directly in charge greatly influence the real work carried out. What is worse, personnel changes in these critical positions also affect cooperation work between the university and the local government. These are obstacles SAU has to conquer before the cooperative platforms they built in the local places can be institutionalized.

This lack of a stable safeguard mechanism at SAU leads to cooperation depending on people who carry out the cooperation between university and the local government. This can lead to the next aspect of institutionalization, finding the proper people to do the work.

### *6.2.2 Institutionalization issues with personnel change and uncertainty*

Another important aspect of institutionalization is related to people. It is not hard to imagine that staff members need to remain in their positions long enough to run daily management and maintain the new working mechanism. On the contrary, frequent staff changes or transitions do harm to the new organization or the new subsection within an organization. The two universities are faced with different kinds of staffing issues. Simply put, AAU experienced turnover in key positions in the newly set-up Experiment Stations and within the university's New Institute, while SAU encountered the issue of finding the right people to do extension work in their local branches.

#### *Personnel change in the top university leadership*

First, personnel change happens on the presidential level. Both universities have seen the change of their vice presidents. During in five-month period between my pilot study and my lengthier field work, both universities changed the vice president mainly responsible for their extension work. In both universities, this change had slight influence on their work since the new university presidents still took the university-based extension work seriously with great support,

though this change aroused some concerns about the uncertainty for future work. According to one staff member in AAU's New Institute,

> "This change [of the vice president] usually adds some difficulties to the daily practice of our New Institute. How? Since the New Institutes were established not long time ago, our working routines have just been figured out and still need to be explored. When the highest leader changes, our working direction and emphasis might change. The previous efforts may need to be redone again. Fortunately, our new president has showed a great support for our work now" (Interview #36(AAU) 2019).

One staff member at the SAU's New Institute expressed a similar opinion,

> "The good thing is our president is a wise man and it makes our work much easier. As you know, we have a leadership responsibility system. With the support from the top leader, many things can be much easier to do. Things the top leader attaches importance to can be promoted better. When the president changes, we have to change our work focuses based on the instructions of the new leader. Of course, he might have some different ideas from the prior president"(Interview #10(SAU) 2019).

*Personnel change in the key positions in the New Institute*

Second, both universities faced the fact that the director of their New Institutes will retire in two or three years, and they need to find new directors. In both universities, the Director of the New Institute is a critical position for operating the New Institute and establishing cooperative platforms. In order to find the appropriate person to take the position, the top level of the two universities have considered many factors. As a senior professor at AAU who involved in the process of establishment of the New Institute remarked,

> "You do not know how hard to find a proper person to be the director of the New Institute. This person is so important since he or she will determine how our brand-new extension work will carry out. To ease the difficulty of building a New Institute, we need to choose an experienced professor who has worked for a long time at the university, who is very familiar with the university setting, and who also might have a good group of people working for him. Having a strong personality with charismatic traits is also important. Otherwise, people might not listen to you if you cannot make your words convincing. These considerations turned out to be effective for the building of this Institute. The current director is so excellent, and he shows great enthusiasm in his work. Many professors respect him a lot and he played an important role in pushing the construction of those experiment stations" (Interview #26(AAU) 2019).

At SAU, they chose a professor who had rich experiences in dealing with cooperation between university and county since SAU has signed the first cooperative contract with a local county in 1981. One SAU New Institute staff member said,

> "He [The current director] has a lot of working experiences in this area. He was already the leader when we are just an Office for cooperation between university and local counties. We are all at ease when he takes the leadership at our New Institute. Even when we have tried some new things which we are not sure if working or not, we know he would provide good advice for us. Personally speaking, I do not think it is an easy job to do and he had too much to consider and coordinate on that position"(Interview #9(SAU) 2019).

New Institute staff members expressed some concerns about how this personnel change could influence the university's the extension work. According to a vice director of one AAU experiment station,

> "To be honest, it [changing the director of the New Institute] would make it uncertain for the New Institute and Experimental Stations to continue in the future. It will still be a question whether they [the university] can find a compatible person to shoulder the responsibility. Even if they are successful, his or her different leader style and working ethics may lead to great changes in the New Institute and our Experimental Stations. The core in this leadership is to realize the importance of cooperation with the local governments and the awareness of the extension work we have done. Any ignorance of these would lead to detrimental change to our experimental stations"(Interview #34(AAU) 2019).

SAU is also faced with similar situation. One university professor who work in SAU's New Institute at describes the difficulties in finding a right person to take over this important position.

> "Since the New Institute is a relatively a new unit and involves much extension work which are different from research, it needs to be led by an older and experienced professor in this setting. But within the university, many of these eligible professors focus on their research and rarely willing to change their career trajectory. Even they want to do this work, they may retire soon. As I told you before, young workers in their 20-30s find it difficult to work with the local government, at least not in leadership positions. The best option for the New Institute to are those in their 40s and are energetic and passionate about this kind of work. But these talents are also important in each department. Therefore, to find such a proper person, there would be some competition between the New Institute and other parts of the university"(Interview #30(SAU) 2019).

Third, besides the director, the New Institute in both universities also faces staffing issues because of personal development or personnel transitions. On one hand, AAU experienced high staff turnover within its New Institute. According to one New Institute staff member, they have lost 4-5 critical employees within the past 5 years. He explained,

> "Many of our workers are doing great but it is hard for the New Institute to keep or maintain these talents. Actually, it is not hard to understand. As the saying goes, water flows low, and people go high. For example, one of our staff members has published four articles in the past two years and graduated from his Ph.D. program from one prestigious university. He certainly wants to take a better job, and this is fair needs for professional development. He soon will leave us [the New Institute] for a better position in another university. But we have to figure out who takes over his work and might need to find a new person for his position, which might not be easy to achieve now."(Interview #37(AAU) 2019).

On the other hand, SAU saw personnel shortages due mainly to the division of labor within the New Institute and some personnel transitions. According to one SAU New Institute staff member, there were originally thirteen positions with 5 leaders(1 director and 4 vice directors) and 8 staff (Interview #29(SAU) 2019). However, as more labor was assigned within the New Institute, less people were left to deal with extension work related to the cooperative platforms they had built. First, among the five leaders of the New Institute, only two directors are working to establish and manage the cooperative platforms they built. Two vice directors have travelled outside the university to take on the task of poverty alleviation (an important political task assigned to the university during my visit) and could not help with agricultural extension. Another vice director was assigned to be responsible to construct a new Institute with higher technology and his critical work tasks were taken over by the Director and the last Vice Director. Then, among the 8 working staff, at first, they were assigned to each different local branch and were responsible for the communication and coordination between the university and these local branches. However, later one of them took over the role of Deputy County Director of one local

county to continue their cooperation with SAU. After the Office of Technology Transfer[12] was built, 2 staff members were assigned there to be mainly in charge of technological contracts signed by SAU professors and local agribusiness. One staff member is mainly responsible for administrative work. In addition, one of the office staff had to change her position because of personal reasons during the time of my visit. Counting these together, only 3 people were left to deal with the detailed extension on the local branches. One SAU New Institute staff member commented how this staff shortage affected their work,

> "It seems we have many people in our Institute, but we are in charge of too many areas of work. For example, poverty alleviation is also on our shoulders. Actually, it is a piece of work for the whole university, but we as a unit have to take this big responsibility. Kind of too much for us. After assigning this work and that work, we do not have many people left to do the extension work. So, it is not realistic for us to be involved in a lot of specific projects in extension work now since we simply don't have enough people. Some of our local branches could have developed better, but we do not have enough manpower to run down to the local place very often, and that affected some progress of our cooperation work with the local government" (Interview #6(SAU) 2019).

*Personnel change in the cooperative platforms*

Lastly, the staff issue does not only happen in the New Institute main office, it also occurs on the cooperative platforms built by the two universities. For AAU, the working terms for the Directors of the Experiment Stations were to expire in 2019 and the university needed to make new personnel arrangements for these stations. As one Director of the experiment station estimated, four of his colleagues would not take on the position of Director for the next working

[12] As a new section within the university, the New Institute at SAU explores ways to make their work better. In 2018, after years of running with only two offices, a new SAU Office of Technology Transfer was built within the New Institute. A new office was established to respond to the needs of the market. Compared to the old Office of Promotion which is called Office of Social services, the new office is market-oriented. That is, local agribusiness would use marketing transaction way to purchase SAU's intellectual properties such as seed varieties, patents etc. The main mission of the new office is to serve for contracting management, contract consulting, and legal services for contract execution process etc.

term, and those Experiment Stations(four out of seven) would need new Directors (Interview #37(AAU) 2019). According to one staff member at AAU's New Institute, selecting the director for these Experiment Stations is also not an easy thing. He said,

> "Actually, all our directors [of the experiment stations] did a good job for the past working term. But two of them have reached the age of retirement and the other two did need to change. But it is not an easy thing to pick a new director. We have a specific selection procedure within the university. First, the leaders of the university would make a decision of the possible candidates, then we would make the lists of the candidates in public. If there is no problem happening in the process, then the choice of the persons would be finalized. However, previously we got several cases that after the list was published, and some problems of the candidates were reported, then the leaders of the university had to consider a new list of candidates. Even after the candidates are decided, many factors have to be taken into account. Foremost is matching their professional background with the local agricultural economy. For instance, a director with expertise in tea would be assigned to one of our experiment stations where there are many tea gardens and technology about tea are needed. With the experiences accumulated in the past several years, now we know what we look for as a director. Not only his/her scientific research abilities would be considered, but more importantly, it is the management and communication skills. A good personality is also important factor since it is necessary to work with the local government and local farmers. It takes a lot of efforts to figure this out and find the proper candidates to the director for these experiment stations"(Interview #35(AAU) 2019).

Besides the Directors, the experiment stations vice directors' positions are not steady as they look on the surface. Here we need to go back and review the organizational structure of experiment stations built by AAU. The local experiment station mainly is composed of the Director who is a professor coming from AAU, and two Vice Directors. One Vice Director comes from local government and another from AAU (marked in red circle in Figure 6-1). To fill these working positions, AAU has hired 6 Vice Directors specifically for these experimental stations, aged between 25 and 30, and male(Interview #32(AAU) 2019). They are the main workers in the Experimental Stations from the university and assist the director in dealing with

construction and management. They also attend weekly meetings at the AAU New Institute and report weekly work progress to the Director.

What is noticeable is that these working posts have the formal *bianzhi* of AAU. According to Brødsgaard(2002) , "A direct translation of the term bianzhi would be 'the establishment' and it usually refers to the number of established posts in a unit, office organization. By controlling the bianzhi, the state exercises control over the state administrative apparatus, from the highest state office to the local primary school". That means there is limited positions for the university to hire for these working posts. From the perspective of employees, a work post with bianzhi usually means stability, a steady employment relationship with the university. However, there is still some other factor influencing the steadiness of these working posts.

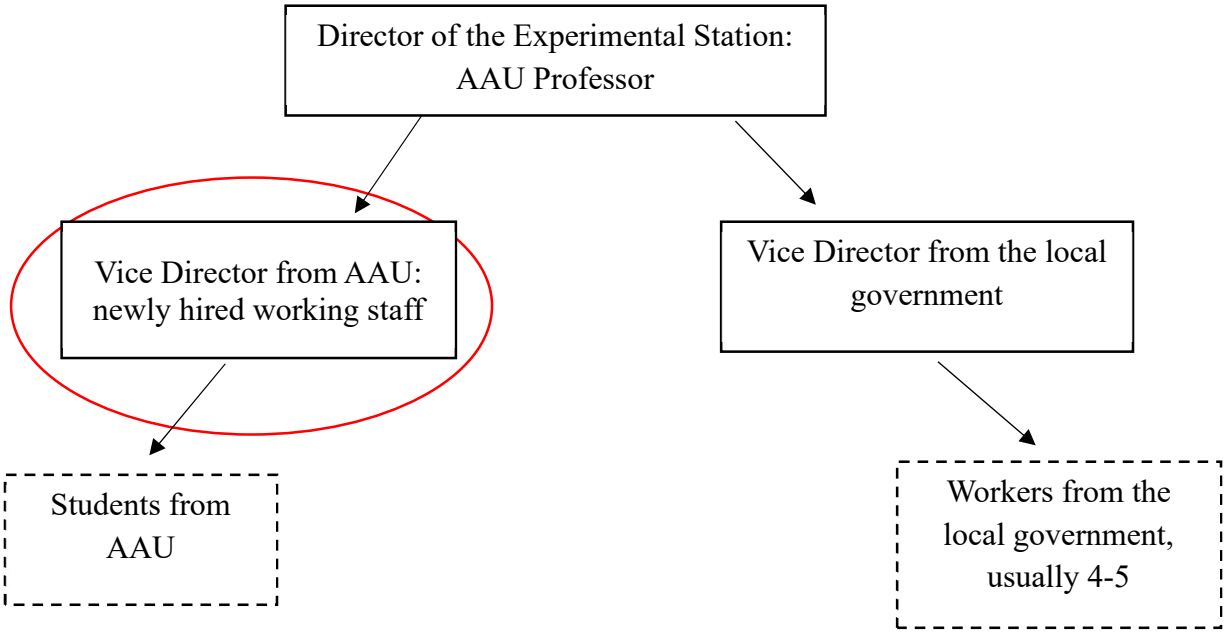


Figure 6-1 Organizational Structure Chart of AAU Experiment Station

More specifically, it is the tension between work and personal needs for relationship and family for younger employees. This problem goes back to the location selection of the experiment

stations. Currently all the experiment stations are built more than a dozen kilometers away from the nearby county (Interview #33(AAU) 2019). According to one professor involved in the process of establishing AAU's experiment stations,

> "When selecting the location for these experiment stations, the university considered it would be easier to do extension when the experiment stations are close to the rural communities. Meanwhile, we want to avoid the effect of quick urbanization in the nearby county. So the final location for our experiment stations are intentionally selected as a remote place a certain distance away from cities and counties"(Interview #26(AAU) 2019).

It is reasonable, we can even say wise, to plan for the development of the experiment stations. But it leads to the situation where the workers in the experiment stations need to travel back and forth between the university which is located in the capital of the province and the experiment station which is located in the remote village. Most of the time, they stayed in the experiment stations, but in the weekend, they had to prepare to travel back to the university to attend the weekly working meeting every Monday. This split of working time into two sections raises a lot of tension between work and personal life choice among the vice directors of the experiment stations. Should they settle down in the remote place? That is not what they expect when they get the job from the university. Or should they settle down in the capital of the province where the university is located, but most of their working time is not in the city. How could they manage long-distance relationship or marriage in such a situation? During my interviews, this anxiety among these young workers was brought up frequently. According to one of them [male or female?],

> "I am glad that our work has bianzhi, you know. It is steady and is very hard to get one nowadays. But the current working setting makes me feel this job not very enduring and it seems less attractive than from the beginning. I wish to start a family sometime soon since I am in the age for this kind of life arrangements. But we are now traveling back forth from the local county and the provincial capital. Where can we settle down? This remote rural place? We can work here for a while, but we do not want to stay here forever. That is not why I take the job in the university at first. You can ask others, and I think they would give you the same

> answer. The city? But most time I did not work in the city. That is why most of us are single now. Otherwise, you must keep long-distance relationships which is hard to manage nowadays. If you are married, things can be more complicated. Being single, we can keep this work routine and traveled a lot. But after married, we still stay outside home for most of the week, which woman could stand this kind of marriage life? So to be honest, I like this job for now, but I do have to think about the future for my personal life"(Interview #40 2019).

This tension between work and personal life has pressured empllyees to think about or even take action for their career development direction. During my visit, one of them had already sought ways to change his work from working as the vice director of the experimental station to working in another office which does not require a lot of travel.

What is revealed above is that in AAU's experiment stations, more than half the directors will likely be changed in the near future, and the working posts with bianzhi for the vice directors are not so steady as it looks since it creates some tension for personal life choice and plan.

SAU faced similar but also different personnel issues on these cooperative platforms they built. First, the directors of the cooperative platforms are mostly stable for the current term. However, due to the close leadership relationship between SAU New Institute and its cooperative platforms (see details below in Figure 2), there are uncertainties for the directors. First, since the director of the New Institute also serves as the director of Ya'an Main Station, the pending retirement of the director of the New Institute will push the university to find another person to take over the position of Ya'an Main station director. Second, the vice directors of the local branch are faced with the issue of discontinuity. As shown in Figure 1 below, for the other local branches the directors are taken by the vice director of the New Institute, and the vice director was assigned to another university person who is responsible for the daily communication and management (Interview #29(SAU) 2019). According to the vice director of one local branch, his working term

at the local branch is 2 years and at the time of the interview, it had expired one month before, and he has not gotten any news for the new person to take over his position. He said,

> "My service contract for our local branch is two years and it actually has already expired last month. I am still working on the post and would keep it going until someone takes over. But it is not clear yet about who would take over or what plan for the next step. It is not about my personal will, and I have to wait for the organizational arrangements from the university"(Interview #5(SAU) 2019).

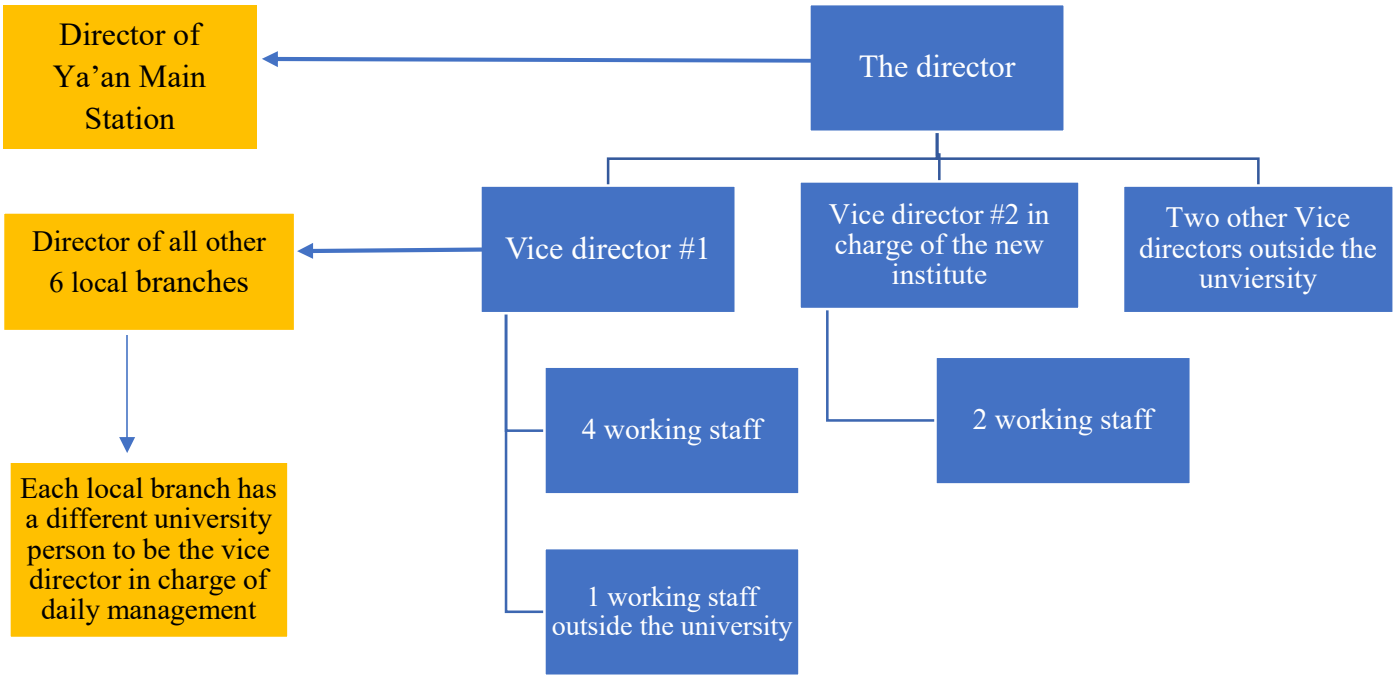


Figure 6-2 Leadership between the New Institute and SAU's cooperative platforms

In addition, on the cooperative platform SAU also has encountered the issue of finding the right people to do the work. As explained in Chapter 5, the primary successful working mechanism of Ya'an Main Station is the of designating the university professor with the local leadership in which the university takes the position as the Deputy County director. Combining the administrative power and technology authority in this position makes it very effective in

promoting some agricultural technology, therefore SAU vigorously promotes this working mechanism. But after several years, this model does not work well in other places. When reflecting on why it does not go well, SAU interviewees said they found it is not the working mechanism that has a problem, but rather who does the work matters. According to one New Institute staff member, at first, they designated a university professor as the Deputy County Director, but with more cooperation with local branches, they are short of professors who can leave the university and work in the local county. So, they choose some staff members who usually deal with university administrative tasks to take these positions. They think as university staff, they still can mobilize the university's research resources to help the local agricultural economy(Interview #9(SAU) 2019). However, it seems not as effective as they thought. A staff member at the New Institute explained,

> "Behind this ineffectiveness lies the fact that he/she ("Ta" in Chinese) [the person who takes the position as Deputy County Director] is not a technical expert. Without research background, they can 't solve technical problems themselves. That is understandable because they are administrative staff in the university. So, if he/she wants to solve any technological problems, he/she has to go back to university to find the relevant experts. This would prolong the process of integrating resources and weaken the advantages of our working mechanism with a combination of two kinds of authorities. So, this working mechanism does not work so effectively as before when we delegate the university professors in this position. That is why we say, people who do the work matters. "(Interview #10(SAU) 2019).

Moreover, besides the research background, other abilities are also important in taking in this position. According to one New Institute vice director, "To do good work, the person is critical. This role does not require only research and technology information. First, the person must be willing to do this work since this is not a very rewarding work, so it might need the spirit of utter devotion. Second, it needs communication skills with all different parts. It involves communication with local government, with the local people, and also with the university professors and working staff. They must have high Emotional Quotient ("Qing Shang" in

Chinese) which can better deal with such as complicated situation. This can be very challenging to some of our professors who mainly focus on research within the university"(Interview #13(SAU) 2019).

## 6.3 Issues with Agriculture Extension

Agricultural extension is a complex area which involve multiple actors with all kinds of resources, information and knowledge generating, transferring and communication. There are important issues in this area which greatly influence the process of institutionalization of the changes in university-based agricultural extension made by the two universities. Below I address these issues one by one.

### *6.3.1 Technology Promotion vs Market Promotion*

First, the market is a factor that cannot be ignored in agricultural extension. University-based agricultural extension can provide best technology for the local agribusiness, but they always face the problem of "Good harvest but not good profit." The reason lies in the market. University-based agriculture extension also focuses on technology transfer and promotion, but they currently cannot provide marketing information and skills. According to one professor expert working in the industry alliance on an AAU experiment station, "In the work of extension, we found technology is not enough for local agribusiness. We are powerless in the market side. We can help the local agribusiness produce the best products, but sometimes good products cannot be sold out or cannot be sold at a good price in the market. We cannot help to solve the issue of marketing" (Interview #28(AAU) 2019). On the contrary, "If local farmers can sell some products in the market, they are more willing to adopt the technology or breeds that is relevant"(Interview #25(AAU) 2019).

One must take the market into consideration when promoting a new agricultural product or technology, but the market factor has varying influences in promoting different agricultural crops. This can be seen from one example in which one SAU professor tried to promote Chinese herbal medicine in a place where the climate fit well for the growth of this herbal medicine and its soil condition is suitable for farming this crop, but she found it hard to do. When she reflected on her experiences, she said,

> The natural environment is no problem, and we also have mature technology of farming this herbal medicine. But it takes three years for these medicines to be ready for market and that seems too long for many farmers to wait. In addition, the problem is also related to the market. The local farmers never farmed this crop before and there is no market in the local place. The Chinese herbal medicine also takes the format of contract farming (which means the price would be determined by the year when the product is sold), it creates a lot of uncertainty and risks of sales price for the Chinese herbal medicine. So many local farmers choose to watch when we introduced this new crop. Comparatively, promotion about some other agricultural products where the local farmers is familiar with the market is much easier to promote, such as vegetables. Good or not, the market can reflect it very fast. The local farmers would be more willing to accept new breeds or new technology about it"(Interview #13(SAU) 2019).

Therefore, the market can be a very important indicator for whether effective extension work can be achieved, besides the relevant technology.

### *6.3.2 Participation in extension is difficult*

When university professors became involved in agricultural extension activities, they found another fact, that participation in extension is difficult.

#### *Limited participation of local farmers in research projects-AAU*

Many professors expressed in interviews the feeling that "extension is hard to do". At AAU, this is more obvious in projects in which they are cooperating with the farmers. The professors usually cooperate with the local farmers through a project contract. However, the local farmers have limited participation into the cooperative project. According to one professor, "When we do the project, the whole work of writing the grant, conducting, and summarizing for project closure

along the process is usually taken care of by us [the university professors] and the local farmers only watch by side or sign at the end. After all, we are more familiar with paper work and many farmers we work with never get in touch with such projects"(Interview #28(AAU) 2019). But some professors also see the learning curve in it. "After completing one cycle of such technology promotion project, the farmers would be more familiar with this process and can be more involved in this project"(Interview #29(AAU) 2019).

*Unrealistic expectations of local farmers-SAU*

This difficulty comes from the fact that local agribusiness not only needs technology but also funding. If the government provides some subsidy or funding for seeds or facilities, large-scale planters would be more willing to adopt new technology. However, many local agribusinesses have too high expectations of getting funding from cooperation with the university. According to one professor who works in one of the SAU local branches, "They [local agribusiness] want us [university professors] to get them funding. They thought we come together with the government, so we should be able to get money invested directly into their farming production. Tens of thousands of yuan or hundreds of thousands yuan, the more the better."(Interview #3(SAU) 2019). But the cooperative platform only has limited funding from he local government, therefore they cannot fulfil the expectations about funding of the local agribusiness.

### *6.3.3 Constraints on agriculture are challenging*

Some difficulties experienced by the university professors comes from the fact that agriculture is increasingly challenging today. According to one AAU professor, the operating cost for modern agriculture is too high with the facilities in industrialized fish farming or industrialized nursery etc. Another challenge is that of "good quality but poor sales price." This interviewee reported that he has witnessed many people who have been successful investing in real estate, but failed

in agriculture after investing their money in this field(Interview #25(AAU) 2019; Interview #28(AAU) 2019).

One local expert working with SAU also doubted the legitimacy of industrializing food production since it has very low economic profit in it though it is important to national security. She compared agriculture to several other areas which she thinks should not industrialize such as education and medical industry. Industrialization might produce much profit, but would create more social unsafety around it(Interview #18(SAU) 2019).

### *6.3.4 the Marginalized status of social sciences in agriculture extension*

In both AAU and SAU cases, professors with backgrounds in social sciences have begun participating into building university-based agricultural extension, but according to interviews, the status of their involvement becomes marginalized with time goes on.

At AAU, a renowned professor who specializes in rural economy and regional development participated in the design of experiment stations at AAU. According to a staff member at AAU's New Institute, "Dr. Wang[13] is a good colleague and also a good friend to me. He was very helpful along the way when our experiment stations are built, and he offered a lot of great advice for us. For example, when we decided on the locations of our experiment stations, he reminded us of the current rapid process of industrialization happening in rural counties. Our experiment stations directors also valued his advice about how to plan for the future development. He is kind of our non-staff personnel[who does not work in a unit but like a working staff of the unit] to us[laugh]"(Interview #38(AAU) 2019).

[13] All the names in this dissertation are all pseudonyms.

But subsequently, Dr. Wang was gradually excluded from the development of the experiment stations and their social service functions which address about the overall development of rural community besides providing agricultural technology. He suggested that part of the experiment stations work is fading away, too. According to this social scientist faculty member,

> "At first, I was very passionate about the construction of our experiment stations and from my view, it was a good thing to happen. But after the experiment stations are built, I was not informed and invited when visitors came to our experiment stations, and I do not have the chance to participate in their discussion or relevant events. I feel pity, but it was the bureaucracy of the university. You know, colleges and the New Institute are separate sub-sectors within the university and so they have equal power and status in the university system. I mainly work in my department and once I helped complete the design for the experiment stations, people in the New Institute felt awkward in contacting me a lot. Working across two institutes could be an issue for both institutes. The college would oppose this because they would think you do the extra work for other sectors instead of the college. We [professors] can feel that pressure easily. The New institute also has their concern. When you are not one of their workers, they would feel not comfortable to assign work to you. So you see it has some fracture between people who have the position in the institute and people who really do the work"(Interview #26(AAU) 2019).

Since agricultural extension development in the university is a new thing and if they are to build a useful platform which can combine various resources from different groups of people, it needs some flexibility in the bureaucracy system to allow people not to be bound to the position they have and the real work done by people are valued in the whole system, not only by the separate subsectors.

SAU also has social sciences involved in their agricultural extension. One professor of rural economy was once Vice Director of one of SAU's local branches. She responded to many social problems within the system itself and promoted programs which could benefit the social aspect of community development in the local city and other parts of Sichuan province. She also provided much useful information to help me to see how the Institute was developed in Sichuan Province. But the current situation of university-based agricultural extension attempts is still

dominated by natural sciences. According to one professor who involved in the extension work via a local branch,

> "I have to say, the whole picture of agricultural extension at SAU, mainly follows a natural science logic. We can see that from the staff assignment in the Research Institute. All the directors are from natural sciences such as agriculture, crop or animal science. We do not have many professors coming from social science department. You know, Dr. Liu[another SAU professor whose expertise in rural economy], is an excellent researcher, had a great heart and good view about the work we have done, but her voice was marginalized and not heard by a lot of people" (Interview #3(SAU) 2019).

### 6.4 Conclusion

In this chapter, I mainly discussed the transformation and institutionalization of university-local government extension at AAU and SAU. First, I discussed how organizational changes introduced for university-based agricultural extension in the two universities have transformed previous agricultural extension activities from the perspective of university professors, the local experts, local farmers, and the students' education. Then I discussed the difficulties faced by the two universities in institutionalizing these organizational changes from the angles of management of cooperative platforms and personnel change in the relevant organizations. Lastly, other factors influencing the results of agricultural extension were explored. But how have decisions on these organizational changes been made in these two universities? Did they have different choices at the beginning and in the process of construction of these cooperative platforms and building the working mechanism for cooperation? Or did each university have the option of switching to another approach shown in another university? These critical questions all point us to the important question of contextual factors. All social organizations are embedded in certain sets of social, political, economic, and historical etc. conditions. In next chapter I will discuss contextual factors which have influenced how the two universities made choices along the way as they explored how to build university-based agricultural extension system withing a pre-existing government-led agricultural extension system.

# CHAPTER 7 : CONTEXTUAL FACTORS THAT INFLUENCE COLLABORATION FOR EXTENSION

The complexity of social phenomena determines that there are factors outside the subject we study which have a great influence on those phenomena. Although these two cases are in the similar larger social contexts, the cultural specificity and context dependence on the local background mean their new practices are influenced by different factors. Therefore, it would be fruitful to explain briefly how differing historical, local, social and economic conditions have shaped the launch of University-Local government collaboration for Extension at AAU and SAU. This chapter addresses the question of how a policy network approach may help explain a significant gap between high-level national policies and the local practice of policy implementation in the Chinese context? This gap is important to explore because failing to recognize key contextual factors might potentially lead to policy failure.

Some of these contextual factors at work in the AAU and SAU cases are common to both while others are more specific to local conditions in Anhui and Sichuan. In this chapter, I will address the contextual factor at work in both universities, that is, the institutional change happening in Ministry of Agriculture signified by the name change from “Ministry of Agriculture” to “Ministry of Agriculture and Rural Affairs” on the top government level. Then I will explain special contextual factors at work in each of the two cases. At AAU, two important aspects influence the university’s conduct of agriculture extension, including the historical shift focus from basing extension exclusive in local government and an implicit communication culture that has developed between the university and local government partners. At SAU, outstanding contextual factors including a well-established tradition of cooperation between the university

and local governments and an organization culture forming in the university around agriculture extension.

### 7.1 Institutional reform of Ministry of Agriculture: Establishment of the Ministry of Agriculture and Rural Affairs

Changes within changes: as the university made changes to participate into agriculture extension, the existing agricultural extension system also was experiencing important institutional changes on their end. These important changes were top-down and started from the institutional reform on the top level of governmental sector of agriculture. One significant sign is “the changing name of Ministry of Agriculture to Ministry of Agriculture and Rural Affairs” (Sohu.com 2018). This is true in many aspects since the new Ministry keep most of the functions of Ministry of Agriculture, but it cannot be simply understood as adding the two words of “Rural Affairs” in the name.

According to the State Council's Institutional Reform Plan (www.gov.cn 2018b), 1) the Ministry of Agriculture and Rural Affairs is formed as the constituent ministry of the State Council by integrating the responsibilities of the Ministry of Agriculture, as well as the responsibilities of the National Development and Reform Commission, the Ministry of Finance, the Ministry of Land and Resources, and the Ministry of Water Resources on the management of agricultural investment projects; 2) The responsibility for inspection and supervision of fishing vessels of the Ministry of Agriculture is assigned to the Ministry of Transport. 3) The Ministry of Agriculture is no longer retained. Based on another file on the detailed description of these institutional changes, this purpose of these changes are in order to adhere to the priority development of agricultural and rural areas, implement the strategy of rural revitalization, promote the overall upgrading of agriculture, comprehensive progress in rural areas, all-round development of

farmers, and accelerate the modernization of agricultural and rural areas(www.gov.cn 2018a). To better visualize these changes, we can look at the Table 1.

Table 7.1 Diagram For Institutional Reform on The Establishment of Ministry of Agriculture and Rural Affairs (Sohu.com 2018)

| | |
|---|---|
| Ministry of Agriculture (No longer Retained) | Ministry of Agriculture and Rural Affairs |
| The responsibility for inspection and supervision of fishing vessels of the Ministry of Agriculture is assigned to the Ministry of Transport. | |
| National Development and Reform Commission | |
| Agricultural investment projects | |
| Ministry of Finance | |
| Integrated agricultural development projects | |
| Ministry of Land and Resources | |
| Farmland rehabilitation projects | |
| Ministry of Water Resources | |
| Farmland water conservancy construction projects | |

Instead of Ministry of Agriculture, currently, the Ministry of Agriculture and Rural Affairs is a constituent department of the State Council at the ministerial level. With the office of the Central Leading Group for rural work, the Ministry of Agriculture and Rural Affairs implements the Party Central Committee's policy and decision-making on the work related to agriculture and rural affairs, and adheres to the party's centralized and unified leadership over the work in rural areas (Ministry of Agriculture and Rural Affairs of the People's Republic of China 2021). Compared to the previous Ministry of Agriculture, the new Ministry has consolidated more responsibilities from other ministries on the management of agricultural development and rural planning. Its main responsibilities are to carry out the strategy, planning and policy of the "three agriculture" work in an integrated manner, to supervise and manage the cultivation industry, animal husbandry, fisheries, agricultural reclamation, agricultural mechanization, quality and safety of agricultural products, and to be responsible for the management of agricultural investment (www.gov.cn 2018a).

These changes started from the top level, and it have taken some time to spread to the bottom. During my fieldwork, the actual institutional change on the local level had just occurred a year after the name change. The corresponding change is the establishment of the Bureau of Agriculture and Rural Affairs on the county and city level by combining Bureau of Agriculture and several other governmental bureaus related to agriculture such as Bureau of Water Conservancy Bureau etc. We can see these changes in more details from a news report about institutional reform on the city level. The change started with merging Bureau of Agriculture with Agricultural Machinery Bureau, Bureau of Agricultural Economic Management in 2018, then in 2019 it went on to incorporate the Bureau of Livestock and Bureau of Fisheries. Finally, with the management responsibilities of agricultural investment projects in the development and

reform sector, comprehensive agricultural development projects in the financial sector, farmland remediation projects in the land sector and farmland water conservancy construction projects in the water conservancy sector, the Bureau of Agriculture and Rural Affairs was formally established, which signifying the successful completement of institutional reform in the city (linxiang.gov.cn 2019). The counties I visited have experienced some similar institutional changing processes. Numerous extension workers spoke about these changes which they commented had created some messy situations, but mostly their work remained the same. According to one of the extension agents who worked in the Bureau of Livestock,

> "It is a big change considering the name change. But generally, our work did not change too much since we still do the work we usually do. There are some slightly difference of staff distribution in different areas and reassignment of the work. But basically, our work did not change too much. What is more significant in relation to changes in directorship and reallocation of the responsibilities within the new Bureau. You know, we have merged several bureaus together and each has leaders of its own, but now they have to arrange proper positions for these leaders"(Interview #16(AAU) 2019).

These are important contexts where the cooperation between the university and local government keeps going on. Changes in one system would influence the connection between the two systems. So how did these institutional changes influence the university-based agricultural extension? This is more obvious in the cooperation between the university and local governments.

These changes have varying influences on AAU and SAU. Though the government bureaucracy changes influenced both universities, their influence on AAU appeared to be less compared to SAU. At AAU, with the establishment of their eight experiment stations, work responsibilities and cooperation mechanisms remained bound within those physical spaces. Changes in local government partners do not greatly change or jeopardize the work happening on the experiment stations. According to one local county government expert, "Our title and the department we

belong to have changed, but the work has not change much. We are still responsible for those work we did before (Interview #15(AAU) 2019).” Moreover, these institutional changes in Anhui Province helped smooth the cooperation between the university and local county in agriculture extension. In one local county, the previous director of the Bureau of Agriculture was promoted to be the new director for the Department of Agriculture and Rural Affairs which now included Agriculture Bureau, Bureau of Animal Husbandry, Water Resources Bureau etc. According to interviews, this consolidation of these different departments in the local government made it easy for the director to mobilize resources to cater to the cooperation between the university and the local government. According to one professor at AAU, “[The Director] has more authority now and can better provide the administrative resources and power needed for the cooperation we have”(Interview #38(AAU) 2019).

By contrast, the influence of institutional changes happening in the government system has had greater impact in Sichuan on SAU’s experiences of agriculture extension. At SAU, there is one Branch in particular where work has been greatly impacted by this change in the political system. The local government’s Bureau of Agricultural (which had previously mainly conducted local agricultural extension) was consolidated into the new Bureau of Agriculture and Rural Affairs. Though the person who was responsible for being the liaison with SAU did not change, his position in the political system did. Prior to the consolidation and change, he served as the main Director of the Agricultural Committee, which meant he made decisions related to all local government extension cooperation with SAU. Following the changes, he has a direct supervisor above him in the new Bureau of Agriculture and Rural Affairs to whom he makes direct reports. Significantly the director now must bring all issues and decisions to this new supervisor to make decisions. This change may seem to have minor impact on the surface, but it can have potentially

significant impacts on agricultural extension work. According to the professor who deals with the cooperation with Suining City,

> "The difficulty of our work has been increased exponentially due to the changes in the system since it affects the delineation of the work responsibilities, the mode of how work is conducted, and the assignment of tasks, etc. For instance, as you know, the authority of decision-making ["pai ban quan" in Chinese] is very important in our governmental system. Before the reform, he himself can decide what to do on our cooperation, but now he has to report to this person above him. We cannot directly contact with that leader, but only make indirect communication via the previous contact who now is really a coordinator without any deciding power. It takes longer for us to finalize any cooperation plan than before"(Interview #30(SAU) 2019).

## 7.2 AAU experiences

In the case of AAU, two contextual factors stand out. One is related to the shift in the focus of local government work; another is related to the communication culture that has developed over recent years of collaboration between the university and the local government for extension.

### *7.2.1 The focus of local government work shifts due to other national policy*

As one important part of collaboration between the university and the local government, the local government's work focus has a significant influence on collaboration. Cooperation might not be set up so smoothly as AAU experienced in the beginning without the shift in local government work. In the past decades, local government's work focus has been dominated by other national policy, and it makes agricultural extension exist mostly in name in the actual work practice of the local government.

Before 2010, agriculture extension was largely ignored by county governmental leaders. According to one extension staff member working in the Agricultural Comprehensive Service Station (the lowest level of Chinese government-led agriculture extension),

> "Many people know we have a system of agricultural extension. But what they did not know is, in reality, the promotion chain of agriculture extension led by the government was broken. Why did I say so? Because the local level comprehensive agricultural extension station does

> not do the work of agriculture extension. Look at what we did every day. We are assigned to do this work, that work, but not the work we are supposed to do, agricultural extension."(Interview #45(AAU) 2019).

Given the division of labor in government, the county government takes over much of the concrete work of implementing policy or collecting the grounded data while many higher-level government units take on the role of managing data, summarizing numbers, making policies, and report to the government level above them etc. Government work is upward accountable which means the work of the lower level of government sectors is evaluated by the government units above them. In the past four decades, a unique evaluation standard of "One-vote Veto" was applied pervasively in evaluation. The "one vote veto" system was first implemented in the assessment of leading cadres in Changde city, Hunan Province in 1982 (Pan 2013). In that year, Changde city government took the lead in using the implementation of family planning policy as an important indicatorof their political performance. If evaluation of their implementation of family planning policy failed to meet the standard, their work in the entire year was judged as "Unqualified" and all the relevant promotion and work reward was not considered, no matter how they may have done in other areas. Because of this strict evaluation standard, some good results of policy implementation have been achieved. The "Changde experience" of cadre assessment was quickly promoted to the whole nation as a typical example. At the central level, from 1991 to 2012, the evaluation standard of "One-vote Veto " was successively applied on a series of national policies such as family planning, comprehensive management of social security, burden reduction of farmers, environmental protection, and food safety supervision(Pan 2013). Any failure in the implementation in any one of these policies would negate all the other work the local government has done. In recent years, the central government realized the abuse of this standard in many places have created unreasonable pressure on the local government, and

started to limit the policies which can use this evaluation standard (Xinhua Net 2019). According to one local governmental official in Anhui Province,

> "There were not many agricultural comprehensive service stations in townships at that time engaged in the work of agricultural extension. The family planning was still the main work in the township level around 2000. At that time, the county leaders and township leaders were all under the pressure of 'One-vote Veto'. What is 'One vote Veto'? There are many aspects of work in the township or county level. Like safe production, that is, we have to ensure there is no accident happening in the enterprises within my jurisdiction. This is called safe production. Like comprehensive management, it means the rural social security, we must make sure no theft or robbery occurring, especially murder. At that time, we are also responsible for collecting agricultural taxes, managing public grain and also implementing family planning. In our rural places, if the first child is a girl, then the couple is allowed to have a second child. If the second child is still a girl, they cannot have a third baby. But if the first child is a boy, they cannot have a second child. We have to ensure these regulations are executed. Among all these different aspects of work, the governmental leaders pay more attention to family planning because of the "One-vote Veto". If we did not do well in family planning, no matter how well you did in other work, it equals to zero" (Interview #12(AAU) 2019).

Of all these different policy implementation responsibilities on the local governmental level, "Family Planning" and "Collecting the agricultural tax" became the most important and therefore, agricultural extension was long marginalized and ignored with other governmental responsibilities which are not evaluated with "One-vote Veto" standard. It was common for many local government extension staff to be "borrowed" to do other work such as "Family Planning" or "collecting the agriculture Tax". Such work assignments for these extension agents on other work instead of agricultural extension has had two aspects of influences on the actual agricultural extension work. On one hand, these extension agents are occupied or busy with other work, so they do not have time to handle the needs of agricultural technological needs from the local farmers; on the other hand, their identity as an agricultural technician was weakened or even impaired by doing other work, which brings more difficulties in their extension work later. According to one extension worker in Anhui Province,

> “For a long time, we were just extension agents in the name, but what we actually did is not relevant to agricultural extension at all. We are ‘borrowed’ by other sectors to do more urgent work such as Family Planning. The top leader [of the local government] pay more attention on this policy, and they think the work of agricultural extension can be put aside for a while. So, for a very long time, we did not do what we are supposed to do. Personally speaking, it is okay for me to do other work since I was paid to do what they told me to do. But doing other work actually affected our extension work. That is what I found out later. After we went to help for the promoting the family planning policy, we found that the local farmers intentionally kept a distance from us and would not ask any questions about planting techniques even when they encountered some issues with their crops. I felt weird at first, but then I realized the local farmers could not categorize the inner division of labor of the local government and they would categorize all the local government staff as ‘the public person’ who would come to visit only for collecting money for ‘Family Planning’ or ‘Tax for Agriculture’. We going out to help for such work strengthened that stereotyped impression and makes it harder to correct that confusion. This really undermined the effectiveness of the agricultural extension work in our sector. I felt very sad about this”(Interview #11(AAU) 2019).

This situation lasted for a while and then there gradually occurred a shift in work focus on the level of villages and towns with changes in the two important national policies which have been the work foci of the local governments for several decades. One is about the abolition of Tax on Agriculture and the other is the gradually loosened Family Planning policy.

To ease the burden on farmers, Premier Wen Jiabao announced in March 2004 that China would abolish the agricultural tax within five years. By the end of 2005, 28 provinces, autonomous regions and municipalities had all been exempted from agricultural tax, achieving a ' zero tax rate ' for agriculture ahead of schedule, and nearly 800 million farmers benefited directly(Xiao 2006). Furthermore, on December 29, 2005, on the Nineteenth Meeting of the Standing Committee of the Tenth National People 's Congress, the ' agricultural tax regulations ' adopted on June 3, 1958 were voted to be repealed from January 1, 2006(Xinhua Net 2006). Some scholars pointed out this means that from the first day of 2006, 900 million Chinese farmers will legally and completely bid farewell to the 2600-year-old tradition of " royal grain tax " - the agricultural tax(Xiao 2006).

There is also other great social significance in the abolition of these two main national policies, but I would not go too far in those directions since the point here is more about how these changes influence the work of the local government. The direct influence of these central policy changes is that local governments were no longer responsible for collecting the agricultural taxes or devoted many efforts to implement the Family Planning Policy. This directly frees extension agents from the previous administrative work related to the two national policies and have more time to focus on their duty work around agricultural extension. On the other hand, more importantly, cancellation of the agricultural tax pressures the local governments to find new sources for financial revenue and the economic development more naturally become the main work focus of the local government after the childbirth control policy became more eased. Thinking of economic development, they turn to agriculture since this is the main economic activities in the local place.

To promote the development of the local agriculture, technological support from the agricultural extension sector is necessary. According to the local agricultural extension agents, this shift of work focus did increase the importance of promotion of agriculture technology at the local government level and extension technician also have received more attention from the governmental leaders. One of them explained,

> "I have been working on our department [Agricultural Comprehensive Service Station] around 1999 after I graduated. Much of our work is not related to the agricultural extension. This situation did not change until around 2010. The time may not be so exact, but definitely after 2014 when the family planning policy was not that strict, and the work focus of our local government went back to economic development. What we felt obviously is that the top leader of our local government paid more attention to the development of local agriculture and then, the agriculture extension work is back in our daily work and increase very quickly in the local agriculture comprehensive extension stations. Look at us now, what we do are all the extension work[with a satisfying smile]"(Interview #13(AAU) 2019).

Catering to the work focus shift, local governments have ushered in the agricultural extension departments to make different attempts to increase the income level of the local farmers. First, local agricultural extension departments try to promote new crops with greater economic benefits such as watermelon, ginger, vegetables etc. instead of traditional crops such as wheat and corn. Agriculture production in Anhui Province before 1999 was low technology as farmers employed the traditional planting and processing techniques for traditional crops. According to one local farmer at Anhui Province,

> "Before 1999, the main agricultural crops were wheat, maize and sweet potato etc. They cannot be sold at a very high price compared to other crops such as beans, ginger or other fresh vegetables. Moreover, we cannot put much added value in the processed product made from them. The most popular processed food in our place is to make sweet potato into "**Fěn Sī**" (a kind of glass noodle, very common home food in northern rural China). It is easy to make, but we cannot get much profit from making it"(Interview #1(AAU) 2019).

Second, they try to promote some new farming techniques. For example, one extension agent introduced their experiences of promoting a new planting method of cultivating watermelon and cotton together.

> "To help the local farmers increase their economic profits, there are a lot of agricultural technology discussion within our department. You might hear it often now, like the interplanting technique of watermelon and cotton. Instead of planting one crop each time, we taught the local farmers to plant watermelon and cotton together. We instructed the local farmers to widen the line spacing between the watermelon and use that space to plant cotton seeds. After the farmers harvested the watermelon, cotton would continue to grow on that farmland. In this way, the local farmers can have harvest of both watermelon and cotton. We have promoted this technique for a while and the results turned out to be good"(Interview #18(AAU) 2019).

However, the extension technicians in local governmental agricultural extension department are happy to do the extension job they were supposed to do for a long time. According to interviews, they have discovered that their current knowledge and information are not adequate to support the local farmers. According to one local extension agent in Anhui Province,

> "My experience is similar to other agricultural technology extension workers. The knowledge or technologies we mastered are too old to meet the local farmers' needs. Why? First, although I have been working in the township comprehensive extension station for many years, the opportunity to engage in this professional extension work is relatively few. Therefore, much of what we have learned in the Agricultural schools have been forgotten without use in our work. Second, the education or training we got before are mostly about the conventional crop cultivation, which cannot catch up with the current needs of the local farmers. You know, as the economic situation changes so quickly in recent years, our farmers also engage with facility agriculture, farming with fruit trees or use some biotechnology etc. Those things are new to us, too. To be honest, what we know about those new varieties or technologies cannot even compare to our farmers. Since it is what they do every day and they spend a lot of time to study how these technologies work on their land, it is no doubt they know much more new information than us"(Interview #11(AAU) 2019).

This situation also is verified by the experiences of the local farmers. According to one local vegetable farmer,

> "I only go to the local extension station [the governmental extension system on the township or county] for the general issues such as when to water the plants or when to do the common pest control. But for the more complicated issues about vegetables, they cannot help. Take the ginger as an example. There is a disease for the gingers to get infected very easily, called ginger blast. It is very serious and get spread among the plants very quickly with waterflow. If we do not deal with the disease, it can greatly reduce or even fail our harvest of that year. So I went out and learned by myself. I would seek help from anyone who might know this issue, like other farmers, university professors, or some paid professional technicians. Now I know it is caused by some bacteria and I also know when and how to prevent it. As a farmer, you need to be a technician by yourself. Otherwise, you cannot survive in this business of farming(Interview #5(AAU) 2019).

Given this situation that the governmental extension sectors cannot meet the needs of the agricultural technology of the local farmers, the local governments are eager to look for support outside the government system and they turn to the agricultural universities within their province.

One local governmental official said, "To us [the local government], university are the technological heights. The professors are experts in many areas in agricultural technology and could meet up the needs of our farmers."(Interview #12(AAU) 2019). Local government officials began inviting professors and experts within the agricultural university to offer some training for

the local farmers or to provide direct guidance for their farming practices. Therefore, AAU university professors are so welcomed at the local level by governmental officials, local farmers, agricultural business and extension agents.

My knowledge of this situation emerged from the two AAU experiment stations I visited during my field work. But based on my general understandings from my fieldwork in Anhui Province, the general work focus shift and increasing needs for more agricultural technologies apply for the other counties in the province. According to interviews, the timely and close match between the local needs and the national policy made the establishment of AAU comprehensive experimental stations a relatively smooth process. Indeed, local governments are competing somewhat at the beginning of when the AAU decide which local county they would put the comprehensive experiment stations in. As one AAU professor who was involved in the process of establishing the experiment stations commented,

> "When the cooperation proposal of experiment stations was first brought up, several county governments contacted us, and they all wanted our experiment stations to be built in their county. I heard some competition among these counties, especially for those counties which are geographically adjacent. You see, we cannot place two experiment stations too close. So, there is a lot of negotiation between our university leaders and their governmental officials. After the building sites [for the experiment stations] are decided, we offer some other cooperation opportunities for those counties who are not selected. Kind of compensation for them"(Interview #37(AAU) 2019).

Based on this context, we can see, AAU's comprehensive experiment stations are effective organizational platforms which reflect a helpful combination of needs and supply related to agricultural technology. Or we can say it is not only a product of top-down policy initiative, but also a product of conforming to the scientific and technological needs of the local farmers.

### *7.2.2 Conversation with equal ranking: an implicit organizational communication culture between university and local governments*

Another important contextual factor in the case of AAU university-based extension is related to an organizational communication culture in which interaction between two people is greatly influenced by their respective ranks in their working system. We can see this from how one university staff member in one of the experiment stations described his working experiences:

> "When we go out and try to communicate with the local government, we find it is not as what we think at the beginning. They are talking to you as a person but talking to your rank in the university. If you are a professor, especially a full professor in the university, for example, the county director will talk directly with you and your advice would probably be listened to. But if you are an employee in the university or an administrative staff without professor ranking, you would not be regarded as the same level as the county leader. The local government will assign someone else who has a similar rank in the government system to yours in the university to communicate with you. Maybe an office clerk, in my case."(Interview #32(AAU) 2019).

When doing interviews, this communication culture was mentioned frequently not only by the people who work in the experiment stations, but also the professors who involved in doing agricultural extension in the agricultural alliance. One of the directors of the experiment stations commented,

> "It seems we [the university] have the freedom to choose the candidate for the experiment stations. But the truth is that we have to choose at least the associate professor to take the role of the director of the experiment stations. This is because the rank of associate professor has a corresponding position of 'Fuchu Ji' (means 'Deputy Division Head') as the local governmental official. Lower than that rank would make it hard to communicate with the local government and get the work done"(Interview #43(AAU) 2019).

To understand this culture, we need to talk a little about the different classification ranks in the two different systems of government organs and public institutions such as universities.

According to the governmental document of Civil Service Position, Grade and Level Management (Communist Party of China Central Committee, Organization Department 2020), Article 4 The ranks of civil servants are twenty-seven to one from low to high. The

corresponding relationship between the level and level of civil servant leadership can be seen in Table 7.2. Since AAU have built the experiment stations in the county level, and whom they communicate most with are from the county officials.

Table 7.2 Relationship Between Level and Leadership For Chinese Civil Servants

| Title for posts | Level |
|---|---|
| National principal | 1 |
| National Deputy Principal | 2-4 |
| Provincial(ministerial) Director | 4-8 |
| Deputy Provincial (Ministerial) Director | 6-10 |
| Bureau-Director | 8-13 |
| Deputy Bureau-Director | 10-15 |
| County Division Head | 12-18 |
| County Deputy Division Head | 14-20 |
| Township Section Head | 16-22 |
| Township Deputy Section Head | 17-24 |

In terms of university working posts, I have to introduce a little more background information to understand its complicated systems. If we look at Chinese universities, there are mainly two kinds of classification management methods for faculty members. One is called “horizontal classification”, mainly drawing on the management concepts and models of western universities(Kou 2020). It divides faculty members into different categories of researcher, instructor, and researcher and instructor based on their different work task orientations. The other method is called “vertical classification” starting from 2008. In this method, there are different levels for different working posts within the university. Specifically, this classification is referred to as “professional and technical posts” which means they are engaged in professional technical work. The four levels for those posts from high to low include full professor, associate professor, Junior level, and Entry level. Faculty members mainly take most of these posts and are classified into 13 levels based on their contribution(Ministry of Personnel of the People’s Republic of

China 2007). The details can be referred to in the Table 7.3. This classification is well-known and mostly used inside and outside the universities.

Table 7.3 Level of Professional and Technical Posts in Chinese Universities

| Title | Level |
|---|---|
| **Full Professor** | 1 |
| | 2 |
| | 3 |
| | 4 |
| **Associate Professor** | 5 |
| | 6 |
| | 7 |
| **Junior level** | 8 |
| | 9 |
| | 10 |
| **Entry level** | 11 |
| | 12 |
| | 13 |

What is seldom talked about is the vertical classification levels is also related to a post allowance system for faculty members working in colleges or universities which started around 2000 (Gao 2008). This post allowance is a major reform of the personnel system in higher education institutions to break the previous outdated egalitarianism in the reward systems for university people, and to create an institutional environment that is conducive to the full use of outstanding

university talents. Though varying in different universities, generally speaking, the salary of faculty members is determined based on their work position, and each post level is clearly defined for the corresponding teaching and scientific research workload (Sun 2008). A considerable number of colleges and universities also give a certain amount of rewards to teachers who overfulfill their job tasks (Chen 2013). However, with time going on, some unwritten rules of assigning post allowances to different levels of professors have developed in the current university practices. Some professors (Chen 2007) observed that it is "an incredible formula" in which the post allowance for "Full Professor" is equivalent to the "Division Head" (same as "County Division Head" for civil servants). The rest may be deduced by analogy. The post allowance of associate professors is equivalent to that of "Deputy Division Head" (same as "County Deputy Division Head" or "Fu Chu Ji" for civil servants). Though this comparison got some critiques for being bureaucratic prioritization, this is not the point here. What I try to lay out here is that there are some symbolic meanings of being an "Associate professor" and "Full professor" with a corresponding rank equivalent to the civil servants working in the governmental sectors, and this is recognized outside the universities.

Besides this post allowance system, another classification for faculty members who take the management posts in Chinese universities also make the work titles of "Professors" comparable to the rank system of civil servants. Management posts refer to positions with leadership or management tasks, there are 9 levels determined in accordance with the relevant provisions and authority of personnel management of cadres(Ministry of Personnel of the People's Republic of China 2007). See more details in Table 7.4.

Table 7.4 Levels of Management Posts in Chinese Universities[14]

| Management Post Title | Level |
|---|---|
| **Deputy Provincial (Ministerial) Director** | 1 |
| **Bureau-Director** | 2 |
| **Deputy Bureau-Director** | 3 |
| **Division Head** | 4 |
| **Deputy Division Head** | 5 |
| **Section Head** | 6 |
| **Deputy Section Head** | 7 |
| **Staff Member** | 8 |
| **Clerk** | 9 |

Compared to Table 7.2, we can see that the ranks of those management posts are similar to the ranks of civil servants working the government sectors except they do not have the two titles of "National Principal" and "National Deputy Principal". Therefore, for those faculty members who take the management roles might have an equivalent work rank similar to some civil servants with the same work titles. For example, one professor is also a college dean at the university, so his or her rank generally would be Division Head level which is the same as the county director in the governmental system. What is to be noted, these working posts with levels similar to

[14] There are not official and consistent English translations for these Chinese working titles. These translations are made and revised mainly based on the "General Guidelines for the Use of English for Institutional Names and Professional Titles" published by Beijing Municipal Administration of Market Supervision in 2020 December.

governmental officials are seldom used in university background and technical working titles are preferred to use.

Back to our AAU case, from Table 7.4, we can see the highest level for county director is Division Head, which means “Chu ji”, and the other officials would be most “Fu Chu ji” (means Deputy Division Head) and lower. With the background of communication with equal rank, that is why AAU people found that they have to appoint a full professor or at least an associate professor as the director of the experiment station who is the representation of the university in the experiment station.

Now we can ask the important question of how this communication culture influences the cooperation between the university and the local governments. In one way, it has smoothed the interaction between the university professors and local governmental officials, but in other ways created difficulties for young university staff to work with local government. As one full professor from AAU who worked in one of the experiment stations explained,

> “For governmental sectors, the rank of your work posts matters. But as professors, our ranks are not lower than their county director either in terms of salary-wise or title-wise. We also have expertise which are needed by them. So, we get respect from the local governmental officials when we communicate, and our interaction seems pleasant in most times. However, I know this is not the case for our young working staff. Sometimes we, as professors, have to talk for them in front of the local governmental officials to make their work easier to carry on”(Interview #26(AAU) 2019).

The interactions on the experiment stations built by AAU are embedded in two hierarchical bureaucratic systems. The communication culture with equal ranking to some degree shapes the communication pattern between the university and local governments centering around the experiment stations. To make the clearer, I have made a diagram for it out of my field observations and interview data. In Figure 7-1, the experiment stations are located in the bottom of the organizational pyramids of the two systems. They report their work to the upper level on both sides and accept work orders or instructions from the top levels of both systems. As we have discussed in Chapter 6, there are two sets of employees working in the experiment stations who are come separately from the local government and the university. They are the main actors

who are directly involved in the interactions happening on the experiment stations, and the performance they achieve or the issues they face in their interactions will be discussed on the top level through the reporting channel from bottom to top. After negotiation on the top level, some decisions are made and detailed instructions would be delivered from top to down. Under such communication framework, such implicit rather than explicit conventional communication patterns can pose challenges to cooperation between the two university and local government systems.

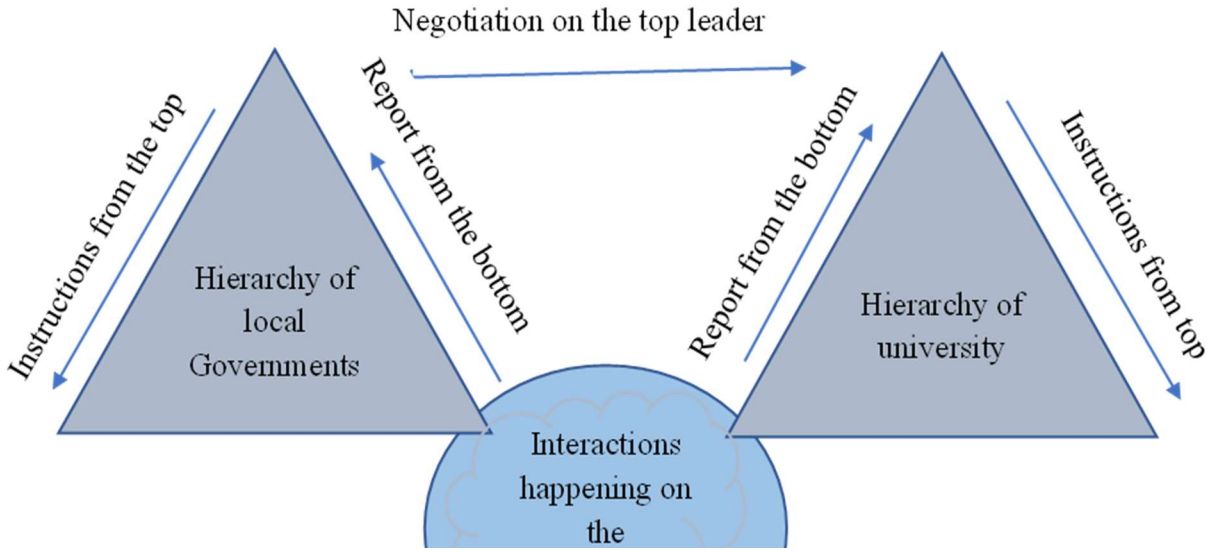


Figure 7-1 Diagram for Communication Between The Two Hierarchical Systems of University and Local Governments

Some lower-level communication issue cannot be resolved or work accomplished communication on the upper level. People who do the daily work must often wait for instructions from their supervisor or elsewhere in their own system. Colleagues from the other system cannot influence the organizational dynamics of the other system. So, it common to see in the field people from the two sides know what the other side wants, but they would not carry out any action until their director tells them to. One local governmental employee who works in one of the experiment stations shared his concern of the travel expense:

> "Previously I worked in our county which is very close to my home. But now I have to drive more than half an hour to get here [the experiment station]. It cost me 300 yuan every month, not a small amount to me. I think it is reasonable to get reimbursement for it since it is work travel. But our financial sector checked my record and refused my request because my working post is still in county government and there is no such reimbursement item for workers who work in the county government. I reported this issue to my supervisor, but there is no response yet. All I have to do is to wait for the order from the top. I am not sure how long it would take to solve this issue"(Interview #11(AAU) 2019).

One of AAU working staff who also works on the experiment stations shared his opinions about this issue,

> "I know the issue he mentioned, and I personally think it is a reasonable request. But there is nothing much we can do. I cannot help, either. It depends on their top leaders to realize this issue and make changes. I know it is hard and takes some time. Even I can talk to my supervisor, my supervisor has to report to our university top leaders. This issue might be possibly solved when the top leaders on both sides meet and agree it is important to make that change. But such issue generally is not viewed as significant or urgent from the perspective of the top leaders"(Interview #35(AAU) 2019).

Second, upper-level communication is relatively less frequent than lower-level communication. Because upper-level people are seen more important, they have more tasks to pay attention to. For example, the university president or vice president may have to take care of the teaching or researching tasks for the university while the local county government leader may have other administrative tasks such as poverty alleviation program which is the most important task I heard for the local government nationwide when I was in the field. This could distract attention of the higher-level leaders from the collaborative extension efforts. According to the working staff in the New Institute at AAU,

> "You know, our university leaders are very busy. They have other work tasks other than agricultural extension. You cannot require them to focus on us all the time. So it would take some time for us to report the issues we have and wait for the solutions from the top"(Interview #36(AAU) 2019).

Also, there are time and cost consideration. It would not be realistic to hold such a high-level conference or committee meeting every week or even every month. The two mentioned issues

would require a good feedback mechanism from bottom to up. However, this is also hard to achieve which leading to the third issue.

Third, communication from bottom to up is challenging. In the New Institute in both the AAU and SAU cases according to interviewees, directors are very attentive to collect advice or feedback from people who did the real groundwork. However, the result may be good as they expect. An important reason is related to the status or position of the Institute within the university. The Institute itself is a middle-level institute in the university system and they must report to the university vice president if they request structural changes. The amount of power involved would caution the directors of the institute to use for this kind of change. They would make sure it would take effect before they make their proposals for the upper level. Another reason for this is the cooperation mechanism is new and even the directors would not know where to go. This uncertainty would leave the feedback or comments from the bottom somewhere not seen or heard. As one of the working staff in the experiment stations explained,

> "We understand it is hard to make changes to solve our problems, and our director of the New institute has already tried his best to take our advice. But there is a procedure to do things in the university and you have to follow that. Our New Institute is just one part of the university, and we are very new. We have to caution for the requests we made because we do not want to risk our chances of success. Better to make sure something working before make it known to the top"(Interview #39(AAU) 2019).

**7.3 SAU experiences:**

For SAU, there are two interrelated contextual factors which cannot be ignored. The first outstanding contextual factor is a historical one about relocation and the second one is the university spirit developed with that historical change.

### *7.3.1 Long Tradition of cooperation with local government*

SAU has a long history of cooperation with Sichuan Province's local counties. One of their earliest cooperation contracts can be traced back to the contract with Da Yi County in 1983

(Dayi County Science and Technology Bureau 2013), almost thirty years before than the establishment of the New Institute. After that, SAU has more and more cooperation with the local governments in all kinds of agricultural technology. Based on the official record (SAU 2018) on the cooperation contracts signed between SAU and local governments or some certain bureau in the local places have accumulated to 182 till 2019. We can see details in Figure 7-2. The number of cooperation contracts signed by the university and the local governments start from one cooperation contract in 1991, have a slight increase after 2003, and continue to increase around 2007, and reaches a new high point near 2012.

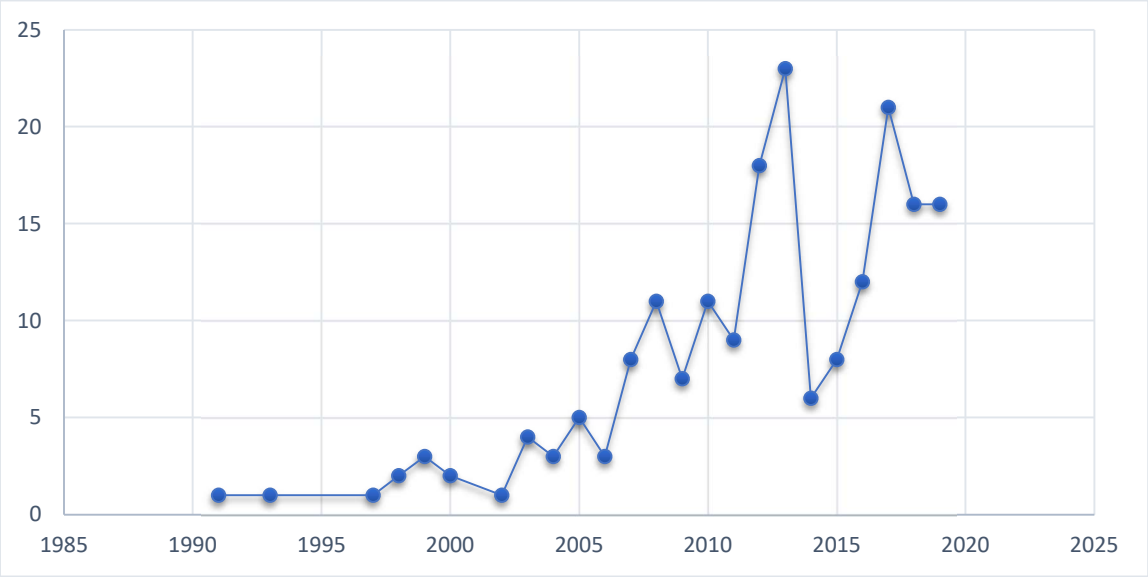


Figure 7-2 Numbers of Cooperation Contracts Signed Between SAU and The Local Governments (compiled from the university records)

This long tradition of cooperation between SAU and the local governments has created a strong foundation for continuing this kind of collaborative extension work in the newly built university-based agricultural extension. According to one working staff in the New Institute at SAU,

> "The tradition for our university to cooperate with the local government started very early. Our first cooperation agreement with Dayi County was signed in 1983, which we can say very

> early in the whole province and even in China. So, it is not a new thing for us to cooperate with the local counties. Many professors in our university have projects or research conducting in the local counties, and they have a lot of experiences of working with local farmers or local governments. Their solid work has built a great reputation for our university outside, and when we introduced, 'we were from XXX University', we got warm welcome from the local farmers and local governments. That really smoothen the communication process and save a lot of energy for us to make explanations in many cases. For so many years, they all know how our university professors can help for their farming or local economic development"(Interview #9(SAU) 2019).

Meanwhile in the field, I also found that top leaders of SAU pay great attention to social services and encourage the university professors promoting the economic development of the local agriculture with their expertise in agricultural technology. The director of the New Institute at SAU explained,

> "What advantage we had is that our university presidents take our work very seriously and viewed agricultural extension as an important task for our university. So we got a lot of support from the top leaders. This is benefited from the long history of our cooperation of the local governments, so whoever take the role of top leader would put a lot of emphasis on it."(Interview #8(SAU) 2019).

We can see the long history of cooperation between SAU and the local governments has stimulated the work of SAU university-based agricultural extension. But how did this happen? Why did SAU have a long tradition of cooperation with the local governments long before the central policy made in 2012? To answer this question, we need to look back the university history of SAU.

### *History of SAU: Relocation to Ya'an*

SAU is formally known as Sichuan Agriculture University and located in Chengdu City, Sichuan Province. According to my interviews, the university's heritage of cooperation with local governments cannot be separated from an important location change in the university development history (Interview #6(SAU) 2019; Interview #8(SAU) 2019; Interview #10(SAU)

2019; Interview #29(SAU) 2019). Sichuan Agricultural College (the official name of SAU at that time) was moved from Chengdu to Ya'an City in 1956, and it was renamed as the current name of SAU in 1985 (Sichuan Agriculture University 2020a). This seems a simple change of place, but it did bring great challenges for the development of the university. First, it is the economic differences between the previous location and the current campus site. By contrast with Chengdu, Ya'an city is an economically poor city remote from the economic center. With this relocation, university professors faced a huge psychological gap and also poor financial situations with relatively low social status. One of SAU professor shared the memories of one of his elder colleagues who experienced the relocation, he said,

> "I did not have much direct personal experiences about it, but my colleague' story is illustrative. He [His elder colleague] told me this after we became friends: 'After the campus was moved, we felt a huge step down. We came to this remote city and our salary were so low that even the local peasants despised us. I would tell you a personal story, so that you know how hard we were at that time. Several other young faculty members and I was just at the age of marriage, and someone with good heart attempted to connect us to some female workers from the nearby shoe factory. But we get a direct response that these female workers did not want to marry us. They knew we were poor, and they did not care our agricultural university.' This is just personal experiences, but this upside down of financial and social statuses he experienced reflected the situation of our university faced after the relocation, that is, not being well-recognized by the local people"(Interview #3(SAU) 2019).

Second, this awkward developmental situation of SAU resulted from the relocation of the university became more complex with the common challenges faced by most agriculture universities at that time in China. Many parents, especially from the rural areas, hoped their children can change their life course by going to the college. Therefore, many parents did not like the agricultural universities and resisted sending their children to an agricultural college since it means their children would remain in agriculture. One young SAU professor commented,

> "You cannot blame them. It is understandable that they did not want their children to enter the agricultural university. At that time, for most rural parents who have been working in the field for decades or even generations, their only hope for their children going to college is to get

> away from farming. But if they go to agricultural university, their hope is gone. So It can be imagined how unacceptable our agricultural universities were under that kind of social environment" (Interview #29(SAU) 2019).

This parental concern supported larger concerns about how to move the university specialized in agriculture into a comprehensive university.

Under such situation, the university cannot get the "care" from "the top" which means they disconnect with the central government including their needs and support; therefore, they need to explore their own approach of development. What they can get in touch with are the local "tu" staff (refers to something that originated from the local context in China), which is comparative to "yang" (refers to those imported or learned from western culture). This shift of focus from top-oriented to local-oriented on the university level brought by this relocation turned out to be a critical turning point for the later development of SAU. According to one of the SAU professors who has witnessed the focus shift of the university,

> "Prior to moving the campus to here [Ya'an City], our university like many other universities has stayed in the 'ivory tower' and held our privileged position with knowledge. We are used to getting funding from the central government to do research on some advanced agricultural technology in our labs or experiment fields in the university. However, after this relocation from the capital of our province to a more remote city, we found we are in a hard situation where we cannot get a lot of resources from the top government or support to continue our research around high-end technology. So we have to find another way for us and also our university to develop. The solution we found is that we can provide social services for the local farmers with some grounded agricultural technology which can be easily applied into the actual farming practices of the local farmers. The local farmers are happy to see their crops are growing better and they could earn more money. The local governments also find us very useful in helping the local agricultural development. Therefore, through doing these social services, our university finally find a new position and we find new value of our work as researchers"(Interview #1(SAU) 2019).

Another professor even summarized this university focus shift towards providing social services with agricultural technology needed by the local farmers as "the road to a better and stronger university" (Interview #3(SAU) 2019) to show how important this focus shift to the later quick development of SAU.

Later, many solid results brought by this development orientation change were appreciated by the top national leader, and was even praised by top governmental officials, strengthening this orientation toward the local agricultural economy development. This focus on the local attenuated to some degree when SAU became one the first group universities in the “211 Project” in 1996 which means they are one of the important universities supported by the nation (Sichuan Agriculture University 1999). But this focus on the local still shapes the work of university professors and is now written in the university philosophies, “Social services are the strategy for the university to rejuvenate and develop.” (Sichuan Agriculture University 2020b). As one of the SAU professors commented, “I believe this philosophy would still influence how we do the work as one member of our university. We would continue this tradition of connecting our research with the local needs”(Interview #2 (SAU) 2019).

### *7.3.2 SAU university spirit*

Another important factor shaping SAU’s extension collaboration is the work ethic of SAU professors developed in the process of offering agricultural technology to the local farmers. Due to the outstanding achievements and contributions SAU made for the local economic development, in July 2000, the Organization Department of the Sichuan Provincial Party Committee, the Propaganda Department of the Provincial Party Committee, and the Party Group of the Provincial Department of Education made a decision to officially named this work ethic as "SAU University Spirit"(SAU Press Department 2010). Afterwards, this spirit was reported in many famous social media and was even appreciated by the national leaders for the work SAU has done for the local agricultural business. During my interviews, it was mentioned many times and we can see SAU employees are proud of the university spirit.

If we look for its origin, this spirit is born in the university's long tradition of cooperation with local government and local farmers under the historical background of campus relocation and university focus shifting towards the local agricultural technological needs. Now this "university spirit" of "Love for the country and devotion to the work; Painstaking efforts in hardships; Unite and Strive; Be realistic and innovative" [15] has been written in the University Charter (Sichuan Agriculture University 2020c).

It is common to see in many scenarios that spirit exists only the slogan, but this is not the case for SAU University spirit. They are not only words written in the document, but we can see it from the working styles of many SAU professors. As one staff member at the New Institute at SAU described,

> "Our professors are very pragmatic. They always leave as early as possible when they got the phone call where the technology is needed, and they would directly go to the place to offer advice and suggestions. After their work is completed, they would leave after proper rest or eating. They will not contact the local government before they go or sit at the table to communicate their work to the local officials after. I know there are a lot of other people who like their work to be known by others, especially the local governmental officials. But our professors are not among them. They only do the concrete things and do not care their own benefits. I personally am greatly moved by our professors. But it also creates a fact that much work already done by the university professors are unknown to the local officials. After we have established the local Branch, there was more communication between the university and the local government. When the New Institute submits the work report to them, it surprised the local government that so much work has already been done in their area"(Interview #9(SAU) 2019).

This is verified by interviews with SAU professors. When asked how they think when they do agricultural extension work, one of the professors said,

> "All I need to do is to do my job providing the services the local people need, and there is no need to report to the university about where I go, how many people I trained, and what problem I have solved etc. I also did not see why I have to contact the local government since

[15] "Ai guo jing ye, jian ku fen dou, tuan jie pin bo, qiu shi chuang xin" in Chinese.

> it is enough for me to see the problems of the local farmers solved and they get what they need"(Interview #1(SAU) 2019).

Due to the practical university spirit, a large amount of work done by SAU professors is not recognized both by the local governments and he university. According to the staff interviewed in SAU's New Institute, most of the service work done by the university professors is not inscribed in their records. One staff member illustrated this with an example of beef cattle:

> "We [the university] cannot say we know all the work related to agricultural technology done by our professors. It is common here that the work of our professors is too wonderful to be hidden and we know it from the local government several years later. For example, a professor with expertise in animal sciences at SAU helped one county develop their industry of beef cattle. Starting from designing, and decision making, technology provision, entrepreneur establishment, the extension of production chain, etc., this professor and his colleagues offer huge help to develop the local industry of beef cattle. With the sparkling economic performance, they got appreciation from the local government and the professors are appointed as their long-term consultant. Due to this pleasant cooperation experiences, the local government seeks more cooperation with our university later and it is then when we know it. But all the work has already been done."(Interview #29(SAU) 2019).

Other similar cases are known from the media report or the university newspaper, but these reported cases are only a small portion of the extension work done by SAU professors. One of the directors of the New Institute at SAU said,

> "Sometimes we know our professors' achievements indirectly from the media. But what has been reported in the media is not more than 20% since most the professors have to go back to their teaching and researching after the social services. They do not have time to write the press release"(Interview #13(SAU) 2019).

The establishment of New Institute and local branches in several counties, to some degree, helps to summarize these services professors provide each year. But this work also turns out to be difficult. There are more than 2000 professors and working staff in the university. Several hundreds of experts are very active every year. Another staff member in the New Institute estimated there are over 1000 individuals from SAU going out to provide technology services each year (Interview #10(SAU) 2019). Therefore, it would be hard for the New Institute to

monitor every activity these professors have conducted. What they can grasp are those activities of large size, or what was reported in the media press.

With this kind of university spirit, university-based agricultural extension at SAU is actually happening every day. While the establishment of the New Institute and local branches at SAU would further strengthen the management of these extension activities, these concrete agricultural extension activities indeed constitute a solid foundation for the university agricultural extension at SAU.

### 7.4 Conclusion

Recent several publications suggest a gap exists between ambitious policy goals and the emerging realities of the newly built environment(de Jong et al. 2016). My discussion of AAU and SAU's collaboration with local government for agricultural extension has shown that the gap can not only result from the direct implementation of the policy, but also some contextual factors in the local background.

Above, I discussed a common background change which both cases were experiencing during my field visits. In the Chinese central government, the previously named Ministry of Agriculture became the Ministry of Agriculture and Rural Affairs. Though there were many reasons for this change of names, principle among them was a shift reflecting the central government's attention to expanding beyond the economic aspects of agricultural development to include the whole arena of rural development. With the national level changes, local agricultural bureaus also changed their names to the Bureau of Agriculture and Rural Affairs. This change is more significant than a name changes as it implies the restructuring of the content of their work. These changes originated at the top level of China's political system, but they had many different

effects on the local agricultural extension system, especially with respect to collaboration with those universities which had just recently become involved in agricultural extension.

Second, I discussed important contextual factors that matter for each case. AAU's experiences have shown us how the transition in local governments' work focus influences the new practice of agriculture extension conducted by AAU and how communication culture influences cooperation between the local governments and the university. SAU's experiences display other important contextual factors such as the university's long tradition of cooperation with local governments and the work ethic or university spirit formed in the long tradition of cooperation with local governments and farmers. This is inseparable from the historical event of campus relocation. It is this relocation to Ya'an City that made this prestigious agricultural university change its philosophy from focusing on high-end and advanced research and technology towards a strong preference of providing social services with down-to-earth applied technology.

According to Hunter (2002, p.6), "Policy failure or an implementation gap can occur when policy is imposed from the center with no thought given to how it might be perceived or received at local level." Since the new practice of collaborative extension is still ongoing, recognizing the influence of these contextual factors would help the university better to incorporate this new practice and implement this policy initiative. Meanwhile, recognizing those contextual factors which matter in the involving process of the two universities into agricultural extension is of great significance to deeply understand their organization settings, building approaches, participating methods, and future development directions etc.

# CHAPTER 8 : DISCUSSION AND CONCLUSION

In this final chapter, I will summarize the main findings of my study and address the important questions proposed at the beginning of my research. Then I will discuss additional questions and implications that follow from my research findings. Some practical advice of building university-based agricultural extension would be provided, and limitation of my study would be discussed. Lastly, I would provide my conclusion for my dissertation research as a whole.

## 8.1 Summary

The main story from my research is about how Chinese universities build university-based agricultural extension in the background with a pre-existing government-led agricultural extension system. These practices are complicated with several layers. First, the two universities both started from organizational construction and what is outstanding is the cooperation platforms they have built. Briefly speaking, one is physical-oriented based on establishment of eight Experiment Stations (AAU) and the other is project-oriented based on cooperation around collaborative projects among faculty and local farmers (SAU). With strong support from local government and emphasis from university top leaders, AAU choose to build eight comprehensive experiment stations with physical land, building, and facilities all at once, while SAU has attempted to build local branches with many cooperative projects going on one after another based on the successful collaboration experiences in Ya'an Main Station.

Second, one important finding is the type of institutional platforms the two universities established have greatly shaped the agricultural extension activities conducted by the university professors. For AAU, many extension-relevant work are done on the land of the experiment stations or through the experiment stations, which we can see from the primary working

mechanism of agricultural industry alliance. For SAU, a large number of extension conducts are not visible in the local branches, but in the field of local farmers or local agribusiness. This can be reflected from their primary working mechanism of university professor taking the role of county official.

Thirdly, those institutional platforms, though different, built in the two universities both indeed have upgraded the previous sporadic, scattered, individual actions of agricultural extension into a more systematic one. However, the types of institutional platforms also have shown a great impact on the important future issue for university-based agricultural extension, that is, institutionalization. Besides dealing with the border or land issues of the experiment stations, AAU has experienced differentiation of eight experiment stations they built at once and has to consider the issue of sustaining funding for running these experiment stations, which might involve some management challenges with people coming from both sides of university and local governments. Comparatively, SAU does not have to deal with the tension related to physical land and facilities but has to face the problem of lacking a stable safeguard mechanism for their cooperation with different local governments since they are building the local branches one by one. Meanwhile, the two universities have to handle the uncertainty issue brought by personnel change on three levels: in the top university leadership, in the key positions in the New Institute, and on the cooperative platforms. Moreover, the institutionalization of these institutional platforms in the two universities also have to confront the challenges from outside, a fact that agricultural extension is hard. Specifically in my cases, there are issues about technology promotion versus market promotion, doing extension is hard, doing agriculture is difficult, and marginalized status of social sciences in agricultural extension.

Lastly, what I also find is that these practices of the two universities are not coming from nowhere and contextual factors matter in the decision making and development process for both universities. On one hand, the common change in the background world, the institutional reform from Ministry of Agriculture, have slightly different effects on the practices of university-based agricultural extension for the two universities. On the other hand, different historical contexts and social political background can explain partially why the two universities under examination chose different approaches to build distinct cooperative platforms. At AAU, the important factors are the shifting work focus of the local governments in recent years and the implicit organizational communication culture, that is, conversation with equal ranking. For SAU, its university history with a long tradition of cooperation with local governments and a kind of university spirit formed in the above process play an important role in shaping the choices they have and the development of their practices.

## 8.2 Discussion

Based on my findings, several important questions related to the development of university-based extension deserve further examination.

### *8.2.1 Which mode is better?*

The two cases of collaborative university and government extension at AAU and SUA showed us many differences in organization changes related to university-based extension, including the types of organizational platform for collaboration, varying approaches to building those platforms, the influence of the New Institute initiatives on agricultural extension practice in these two cases and the influence of larger contextual conditions. This would incur the first question: which of the two modes is better?

I do not think there is a better or best mode for agricultural university participation into the extension work. But they do have differences and similarities. What is good for SAU actually would be hard for AAU to achieve. The external support AAU received was admired by SAU but may not be achieved by SAU. For example, the historical foundation of projects already achieved by SAU actually would be difficult for AAU to pursue in a short time. Comparatively, what AAU has gained from support from the provincial government and local governments can be envied by SAU and might not come to the latter in the foreseeable future. Indeed, is obtaining more resources and support from the local counties necessarily a really good thing for university-based agricultural extension? Such external resources may cause more tension between different sectors, which we saw from the AAU case. Both cases have their effectiveness, strengths and weaknesses.

In other words, the purpose of the study is not to rank which is better or which is not. In China's rural counties it actually is common to see different modes appear. The mode that emerged from the US did so under unique conditions. Indeed, the strong bottom-up feature promoted by university-based extension requires that each county or local county develop different appropriate schemes of cooperation between universities and local governments in the area of agricultural extension, based on their local economic, political, environmental, cultural and other conditions.

The AAU and SAW case studies show the process by which bottom-up modes of agricultural extension were applied in a centralized political background. Of course, in China, the top level of government or political changes exerts a big influence on how the daily practice of agricultural extension looks and we can say that these new modes are initiated from the top level. But the details about how to actually build these New Institutes for collaborative agricultural extension

depend on the local conditions and the capacities of universities. We can see the footprints of larger structural forces on local practices, but when we look closer, there are many other local factors such as power, local culture in play around the field of university-based agricultural extension.

### *8.2.2 Government-led extension VS University-based extension*

Besides those differences, there are also similarities shared by the two cases foremost of which is the common issue of institutionalization and sustainability in the future. This leads to another critical question: will university-based extension be a replacement for the state-led agricultural extension system? The answer is no. We can clearly see from the experiences of SAU in which the local government officials want to replace the old traditional approach and they found they could not.

For Chinese universities to participate in agricultural extension they must be connected with local governments, for two reasons. First, agriculture extension is a context-based activity, and it requires social networks and connections to conduct effective technology transfer and promotion. Universities need to rely on the network formed with the governmental bureaucracy in agricultural extension, especially when entering the field of extension at the beginning. The two universities in the two cases both showed the importance of support and cooperation from the local governments and local officials which can provide important information about rural economy and local farmers. Second, administrative power can still play an important role in promoting some technology. It is not hard for the university experts to make standard planting techniques or processes to help improve the quality of the agricultural products. The challenge is to make sure the local farmers follow these guidelines. At such times, it is the administrative power that moves the information flow in the local places.

So how should we position university-based extension system in a context with a dominant state-led agricultural extension system? Within current Chinese reform initiatives related to agricultural extension, multiple actors within public and private sectors are supposed to participate, including the government and the market. Both SAU and AAU universities think they are complementary for the public extension systems. They play a positive role in bringing new technology and knowledge to local places, placing research faculty in real life production sites, renewing knowledge from the faculty research, connecting the resources more directly to the farmers. However, they cannot avoid the challenges faced with the public extension sector. One of the main challenges is funding. Since extension is a public affair, research faculty cannot profit from these activities as private entrepreneur, therefore, extension needs funding from the government. Since universities are public institutions, they are not the same as governments, so they still need to obtain funding from government. However, funding from the central government is one-time and funding from the local governments is not fully guaranteed. Meanwhile, the support from local governments depends on their various attitudes and awareness of this new mode of agricultural extension. Some local governments would like to see good performance from the university-based agricultural extension before they continue to invest money into it. Some local governments did not realize how important impetus can bring by university-based extension. This leads to one important issue of institutionalization of these new organizational changes made for this new function for universities, how to develop a stable way to sustain these organizational innovations and make them develop in the long run to fulfill a role in agricultural extension? This dilemma makes the issue of institutionalization urgent in the development of these two universities.

In addition, what stands at the core of agriculture extension are the needs of the local farmers for the agricultural technology. Without these needs, aggressive extension with strong administrative power would not produce good results. However, it is often hard to recognize the true needs of the local farmers. In China, the reality, or the fact of the large number of small household farmers spreading out in the different areas with distinct political economic and cultural conditions makes it challenging to know the real needs of local farmers. Exploratory university-based extension here can help solve some issues mentioned above. But we cannot merely copy university-based agriculture extension in US into the Chinese setting. This new mode of agricultural extension cannot replace preexisting government-led agricultural extension system, either. But the experiences of AAU and SAU showed that these collaborative initiatives did put pressure the prior system to change to better fit the current context of Chinese rural development.

### *8.2.3 Narrowing the distance between two cycles: research and production*

The exploratory practices of university-based extension also can be seen as an attempt to solve the long-standing disconnection between agricultural research and real needs of farmers. The former is characterized as “floating in the air”, and the latter is described as “grounded in the soil”. They appear in different areas and develop in two different cycles. As described by a working staff working at the New Institute at SAU, “research is viewed as complete when they submit the final report or publish the article.  The extension of the research results are never the goal for research” (Interview #10(SAU) 2019) . Similarly, the goal for agriculture is production and more specifically, the goal for agricultural production is to be sold on the market. Farmers or owners of agribusiness care more about market and whether this new technology can help them improve product quality, or reduce the production cost, and earn more money. Technology cannot be seen separately from this perspective. According to one local farmer who received service from AAU, “As the owner of agribusiness, you yourself have to know the technology

and also the market. I do not prefer to one variety or one technology. I would accept the new seeds or breeds as long as they sell well on the market" (Interview #4(AAU) 2019). In the previous extension mode, there is a mediating group, that is agricultural extension team or agents. Under this kind structure of extension mode, the advanced agricultural technology researched by researchers would be brought to agricultural extension agents first, then the extension agents would deliver them to the local farmers. This leads to a result that there exists a long distance from the academic research and real production.

I am not trying to argue we should make the two become one, but university-based extension indeed can shorten the distance between research and technology in the farmer's field, and then to market, making the two cycles get in touch in the area of agricultural extension. This can be beneficial for both sides. According to local government officials both from Anhui Province and Sichuan Province, university-based extension pushes the change of education into a more grounded one since current university research and education are "floating in the air", not connected to the reality in the agricultural production. What they taught in the university is often not directly useful and students have to learn new things after they graduate. With these local cooperative platforms, the university faculty have the chance to get to know the real world and push them to do new research or update their knowledge system, and then they can pass one very new knowledge to their students. (Interview #11(SAU） 2019; Interview #15(AAU) 2019) For the farmers, with those platforms and then getting contact with university researchers, they have more opportunities to know the most advanced technology that might be useful in their daily production. One university professor at AAU mentioned the example of watermelon farmers in her service area, "There are famous watermelon farmers here, we call them 'The Three Musketeers'. We introduce them to the conference and demonstration of watermelon planting

techniques, and they learn a lot from these resources and develop their own brand with specific grafting techniques. They know most of the advanced technology in watermelon and they are experts to know which technology are needed and which varieties can be sold well on a market." (Interview #27(AAU) 2019)

Therefore, with the newly built university-based extension system, this gap between the agricultural research and the real needs of farmers is likely to be reduced in both cases.

### *8.2.4 The necessity of university participation in the agricultural extension*

Though the national policy is being implemented in Anhui and Sichuan provinces, we can still ask: is it necessary for universities to participate into agricultural extension? Is there any alternative for this role? What about the new research institutes?

If we admit that university needs to participate in agricultural extension, the question is: does the university have the extra energy and money to do such things? The AAU and SAU case studies in my research show that university already have several roles to fulfill, and it is burdensome for the professors in the university to take care of the agricultural extension work while shouldering teaching and researching at the same time. Reaching the goal of university-based extension pressures universities as organizations to differentiate professors into different career paths which can focus on agricultural extension. Otherwise, universities will struggle with the goal set up with the policy making. Professors will also struggle with this. Therefore, this policy does not only mean the promotion of agricultural extension or development of rural areas, it also pressures the universities to change their roles, assignment of time and money, assignment of professors, and also to renew their evaluation system for their working staff.

The following questions we can ask: Even if this happens, is it necessary for the universities to make such changes to adjust to this new role?

Currently, the needs and offerings of agricultural extension have experienced great changes. On the one hand, the agricultural extension needs have changed. In the previous age, there are mainly household farmers, no agribusiness, no co-ops, but recent years, there many different entities participate in agricultural production. Therefore, their needs come differently. On the other hand, the entities offering the services have changed, too. Previously, there is only governmental entities such as Bureau of Agriculture or Commission of Rural Affairs, which provide the agricultural extension services. But now there are multiple entities which can provide these services. In the past decade, the governmental system has many issues, but it takes on more roles in recent years. Besides the governmental system, now some research institutes such as the Chinese Academy of Sciences also provide such services. But universities are different from research institute which only focus on research as can they provide services over long periods. But universities have other tasks of teaching, researching etc. In most cases, the social service of extension is only a side task for the universities and hence there will be resources competing within the university. Successful university-based extension might start well at first with the support from the top leaders of university. However, it would be uncertain if this could continue in the future. In addition, there are many private companies that can provide agricultural extension services, too. This type of service also turns out to be efficient and simple in many ways. With clear contracts in markets, the farmers or agribusiness pay for the service they need. There are more and more such companies like providing seeds, mechanic production etc. Comparatively, university providing services also are public affairs which lack clear and strict regulations or contract in providing their services. In this situation, service needs from university

might actually decrease with such changes in the agricultural extension area. The technology and talents from university are needed. But they cannot fill all the needs for agricultural extension. University are not the only source of technology or talents the farmers need. So how to deal with the public service is a critical issue for universities to solve.

### *8.2.5 Practical Recommendations*

Besides the theoretical implications, there are some practical recommendations that can develop from my study. Undoubtedly, Universities have advantages in advanced research and development of new technology in agriculture. But how to make proper institutional arrangements for them to have impact is important. This research hopes to suggest some answers by revealing ways the Chinese universities are exploring in their specific context and this experience can be useful for other universities who would like or have the opportunity to participate into agricultural extension in the future. The following suggestions could be used for the universities or the local governments to help incorporate universities in the pre-existing agricultural extension system:

1. All the sectors involved in this process should remain as open-minded as possible for new alternatives or possible cooperation. It is necessary for them to have a cooperative spirit.
2. All leaders in the sectors need to have high awareness of the importance of cooperation.
3. Universities need to modify their evaluation standards to motivate university staff or professors to involve with the local agricultural economies
4. From the local government, it is important for them to have financial support for the university-oriented experimental stations. Better to create a more sustaining strategies for the New Institute to develop.

More specifically, the university needs to realize the following social realities on their way to building effective the university-based extension system.

First, help surmount the disconnection between the central government and local government. One big difficulty for the university to implement the national policy comes from the disconnection inside the political regime between the central government and the local government. Though this policy is national made by the important ministries inside the central government, the implementation of the policy needs strong administrative political power to make it happen. How cooperation finally turned out in AAU and SAU provinces depended on the awareness of the local governments. Support from the local government is critical for local places to accept the university into the local economy. This needs some efforts from the university to find out to what degree of how local governments could be supportive.

Second, University as an "arm of the state". This study shows that even though universities are public institutions and "an arm of the state", their working cultures and ethics are different from those of the governmental sectors. Compared to the bureaucratic culture of the governmental sector, they have somewhat shadow of strict political power, but also the footprint of top-down control is less than those in the government. However, understanding the working culture of the governmental sector and knowing the strategies of how to deal with them are important for the universities to participate into the area of agriculture extension.

The University also has a bureaucracy, and the state can implement the state power through this bureaucratic system. It does not have strict working codes like the civil servants, but they also have power hierarchies. This can be seen more clearly in AAU case where the two kinds of power come together and have a collision about who has more power.

### *8.2.6 Limitation of my study:*

There are some limitations in my study. First, my main focus and perspective is on the side of universities since they have become the main policy implementor for this new extension policy. This is beneficial since I can have a consistent analysis probe and unit of analysis all through my study. This makes sense also because the universities are my main access point during my data collection stage, and this means I can get more enriched and detailed data around the universities. However, I also realize the importance of other perspectives, especially of the local governments and local farmers. Although I have collected some interview data and field notes taking around the local government and the local agribusiness, it would be useful to a deeper and more systematic examination of the two parties. Due to the limit of time and resources, my study could not avoid this limitation, but this would help point out the future research direction.

Second, due to the turnovers of the working staff, some information about how the research institute was first built could not be adequately collected. It would be better if I could stay longer and have more contact within the experiment stations or local branches which can provide more details or stories of what happened in the process of establishing those platforms. However, with more than 60 interviews collected, my research data collection indeed has reached the saturation point where not much more new information about the two different approaches of building platform between the universities and the local governments when the interviews are added at the last stage of my field visit.

## 8.3 Conclusion Remarks: Organizational change as a kind of social change

The organizational changes happening in the institutional system of agricultural extension in China may lead to greater social change if they can survive and become sustained in the next decades. If universities can participate effectively in the agricultural extension system, local

farmers, local agricultural economies and the overall rural development in these two provinces would benefit from the strong research resources, technology information, talented manpower from the prestigious agricultural universities. As stated above, university-based extension newly built in a country is still facing many challenges from many aspects such as organizational, cultural, economic, and political etc. before it can fully play its effect as the government intended or planned.

This sociological study aims to bridge an important gap in relevant scholarly literature by describing how collaboration platform for these two university-based agricultural extension initiatives were created from an organizational perspective and comparing the two different approaches to creating these platforms. This process also shows how a national policy can be customized under the same national guidelines based on local conditions.

This study has important implications for scholarship, policy and practice about extension system, state role and rural development. It can provide new ideas about traditional Chinese agricultural extension systems but also can help better understand the shift toward incorporating university-based extension. Though it promises significant benefits and greater capacities for agricultural development, university-based extension is not perfect either. For example, the university-based extension system in the U.S. is one important part of land grant universities' mission of bringing scientific knowledge to solve social problems. In its history, the U.S. cooperative extension system has aimed to be fundamentally evidence-based and value free. But many of the problems US Extension deals with are influenced by local economic and political realities. For example, in the U.S., many extension agents find challenging the promotion of knowledge about climate change since local farmers have fragmented opinions about this issue and their perspectives are also influenced by local environments(Morris et al. 2014; Safdar et al.

2014; Tripathi and Mishra 2017). Another issue faced by the U.S. university-based extension system is related to how to fulfill the proactive role of extension system in social change. Being proactive means that extension agents view themselves as educators and help people use knowledge and skills to control their lives and solve the problems they may encounter in the future (Decker and Carol 1989). However, in practice, it would be unrealistic to view the role of extension system as proactive in all cases. The difficulty in promoting climate change demonstrates this point (James, Estwick, and Bryant 2014). Therefore, it is very valuable to look at Chinese experiences to show how the state explores new approaches to addressing the rural development issues by incorporating universities into the agricultural extension system.

As a nation with a large expanse of land, Chinese government developed an effective policy implementation procedure and strategy, policy piloting, introducing a new policy into some places to see how it works. If it works well in many places, then the government will launch this policy nationwide. We can see university-based extension also is in the piloting stage. Though there have been two waves and 39 universities getting involved, the real effectiveness of this collaboration between universities and local governments for agricultural extension still remains to be examined. Again, this study is not an evaluation study of this policy implementation since it takes time for a national policy to take effect. What it matters to us is learning how these new practices operate in those universities to gain important supporting evidence for the future of this national policy of university-based extension. If we look outside a nation's limit, this can also provide important experiences for other developing countries who also seek to reform their government-led agricultural extension system by incorporating elements of university-based agricultural extension. Chinese universities' experiences represent significant lessons for other countries that also have centralized state-led agricultural extension systems and that might

consider incorporating their agricultural universities into this system. The benefits and challenges I have talked about in my two cases might display similarly or dissimilarly in those countries with different conditions. This can offer us possible directions of future research on university-based extension or reforms on agricultural extension systems.

In addition, my research can also be beneficial to US or other Western countries even though they have totally different agricultural extension landscapes. Despite varying conditions, cultures and social structures, the common challenges in agricultural extension faced by all countries are how to create effective extension activities that benefit local farmers. The common goal is to encourage social change via rural development. With the mode of university-based agricultural extension, we are all struggling to develop collaboration between universities and rural communities with differences. My comparative case study has shown the efforts made through university-based agricultural extension to coordinate different interests among local farmers, university professors, and local officials, which might also provide useful lessons for the US extension system. My research can also help US extension policy makers to see the challenges of internationalizing the US model of agricultural extension in other countries. This two-way dialogue around agricultural extension shared between US and China can be beneficial for both sides.

One may wonder what the implications of my research are for innovation. Will my research findings encourage innovation or not? These changes represent important innovations in university-based agricultural extension. It is out of my grasp and not my intentions to judge whether these efforts are successful or not, but I do hope that detailed sociological analysis of these changes can illuminate how these innovations happen in the context of interactions among

multiple organizational sectors under specific conditions. From a sociological perspective, innovation is hard especially on the organizational level, but is needed for social change.

This study cannot only be a piece of standalone research, but also as a precursor of possible future development of agricultural extension. Overall, the aim of my research will be to provide support for the development of the most effective possible University- Government partnerships in support of agricultural and rural development in China.

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APPENDIX A

**Interview Guide**
**University Professionals/Government Officials**

Date: _____ Location: _____
Thank you for meeting with us today. My name is [XX] and this is [XX]. I am doing my dissertation research supported by Anhui/Sichuan Agricultural University to better understand university-based agricultural extension.

As part of this project, I am traveling to 2 cities to learn about programs and activities that provide agricultural extension services to farmers. I will use this information to finish my dissertation and hope this would improve policy makers' understanding about agricultural extension, benefiting professionals like you in the long run.

I have a series of questions that I would like to ask you. The interview should take about 1 hour [1.5 hours with translation] to complete. Is it okay if I record it, so I can focus on you rather than trying to take extensive notes? The recording will not be shared with anyone outside of our research team.

Do you have any questions about the interview or the project before we begin?
[Note: give interviewee your business card when you first meet]

**Demographic Information**
- Name
- Age
- Occupation
- Organizational Affiliation

**The Agricultural Extension Work Experience**
- How long have you been working in research center for agricultural extension?
- What was your role in this research center?
- When did you become involved in this research center?
- What were your specific responsibilities?

**University-based Agricultural Extension**
- What benefits do you expect to come out of a new emphasis on involving Universities in extending knowledge and technologies into communities to help revitalize rural communities?
- What do you think will be the biggest challenges of implementing this new policy approach?
- How will you expect China's rural communities to be different years from now after implementation of this new approach to extension?

**Challenges met in the work**

- Is there any problem you met when you do your work about agricultural extension?
- How do your organization work with other parts of agricultural extension such as the university research center/local government?
- How do you feel about your partnership with other parts?
- In your opinion, is there anything that could have been handled more effectively in this process?

**Is there anything you would like to add about your personal experiences working with agricultural extension?**

**Is there anything that you would like to add that you think is important in understanding university-based agricultural extension?**

**Anyone else you could recommend that I interview?**

This has been exceptionally helpful, and I am so grateful for your time. [turn off the recorder]

APPENDIX B

**Interview Guide**
**Farmers**

Date: _____ Location: _____
Thank you for meeting with us today. My name is [XX] and this is [XX]. I am doing my dissertation research supported by Anhui/Sichuan Agricultural University to better understand university-based agricultural extension.

As part of this project, I am traveling to 2 cities to learn about programs and activities that provide agricultural extension services to farmers. I will use this information to finish my dissertation and hope this would improve policy makers' understanding about agricultural extension, benefiting more farmers like you in the long run.

I have a series of questions that I would like to ask you. The interview should take about 1 hour [1.5 hours with translation] to complete. Is it okay if I record it, so I can focus on you rather than trying to take extensive notes? The recording will not be shared with anyone outside of our research team.

Do you have any questions about the interview or the project before we begin?
[Note: give interviewee your business card when you first meet]

**Demographic Information**
- Name
- Age
- Size of farmland
- Organizational Affiliation

**The Agricultural Extension Services Receiving Experience**
- Have you received any agricultural extension services from the local government?
- What kind of agricultural extension services have you been received?
- Have you received any agricultural extension services from the university?
- What kind of agricultural extension services have you been received?

**Challenges met in services receiving**
- Is there any problem you met when you receive traditional agricultural extension services?
- Is there any needs you think the agricultural extension system should cover but did not?
- How do you feel about the agricultural extension services you have received?
- How do you feel about university in doing agricultural extension?
- In your opinion, is there anything that could have been handled more effectively in this process?

**Is there anything you would like to add about your personal experiences about agricultural extension?**

**Is there anything that you would like to add that you think is important in understanding university-based agricultural extension?**

**Anyone else you could recommend that I interview?**

This has been exceptionally helpful, and I am so grateful for your time. [turn off the recorder]