

**2017 CLIMATE and SOCIETY GRADUATE FELLOWS PROGRAM**

**The local development of collaborative governance under  
the Sloping Land Conversion Program in rural arid China.**

Final Report  
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## Executive Summary

Environmental policy and programs that require the direct involvement of private citizens increasingly face challenges to incentivize long-term sustainable participation from bottom up. In order to increase participation in conservation efforts from farmers whose activities directly impact land use and are conditioned by drought and climate change, payment of ecosystem services (PES) has become an important way of changing behaviors and achieving environmental goals by government. This PES approach increasingly demand mutual understanding from policy-maker and payment receiver, in order to achieve its environmental goals. In China, this approach has been extensively applied in the Sloping Land Conversion Program since 1999.

The purpose of the project is to document both top-down and bottom-up (and mixed) approaches towards climate and drought adaptation in rural China, and to investigate knowledge exchange mechanism between government, local communities and NGO in rural China through participants' understanding of their role in these activities. Based on a combination of interviews, participant observation and existing literature, the project trace the initial implementation and execution of the Sloping Land Conversion Program (SLCP) in Shilou County, Shanxi Province, China since 1999 (considered as top-down) and seeks to understand the role of NGO (considered as mixture of top-down and bottom-up) in natural resource governance in rural China.

The target participants are the NGO, local officials that implemented the SLCP, researchers, and the farming communities that are engaged with government-sponsored environmental projects. Outputs of the project is an interview summary of NGO staffs, researchers and local officials' perspectives on the role of SLCP in the rural development context, and in the administrative context.

Key findings from conducting use-inspired research include:

- Top-down approach to environmental governance decrease the level of knowledge exchange, the space for 'open' discussion between participants, and reduce opportunities for long-term capacity building for the most vulnerable participants – farmers.
- The turnover rate of charity funding from NGO had similar impact as top-down approach. It reduces the level of consultancy with involved farmers because project design is already in place with not much room for negotiation.
- Implementation of environmental policy and programs increasingly demand local officials of their ability to understand the scientific knowledge embedded in these programs. Local officials may or may not have sufficient scientific training to do so.

The next steps for this project are to document the knowledge and perspectives of the most vulnerable participant – farmers, which I was not able to finish during the fellowship year. With the perspectives from different participants, I could further evaluate how participants may benefit from knowledge exchange to lower the risk of conflict, and the participant boundary within the top-down-based collaborative governance in China. Finally, the result of this research project could improve our understanding of the barriers of climate change adaptation at the local level.

## **Introduction**

Bottom-up approaches to climate change adaptation and environmental protection often differ significantly from top-down approaches such as regulations and incentive programs. In the realm of environmental governance, government increasingly delegate responsibility or open up space for private efforts to participate in the initiation, development of policy, as well as delivery of various environmental services that are critical to the public. Top-down approaches that intend to change behaviors and in turn deliver environmental services may not be as effective as bottom-up approaches that fit within local development trajectory. However, bottom-up approach may found difficulties in sustaining change when facing the need of systematic change of the larger social institution. Moreover, top-down approach that involve farmers in environmental conservation programs has the potential to create unintended conflict consequences due to poor program design as well as poor implementation (Bennett 2011, He and Sikor 2015). Therefore, finding a common ground approach that complement both top-down and bottom-up approaches may benefit climate change adaptation and environmental protection significantly.

Within China since the top-down implementation of the Sloping Land Conversion Program (SLCP) in 1999, natural resource governance has been significantly transformed. As the largest payments for environmental services program in the developing world, SLCP has been applied to 27 provinces in China, retired and afforested over 24 million ha involving 32 million rural households, and has stimulated various degrees of local and international dialogue that would not have otherwise taken place (Bennett 2008; Guo 2014). Against the backdrop of significant local variation in program implementation, different arrangements (contract, state-corporate partnership and private participation) at the local and regional levels have emerged in order to meet the substantive requirements of SLCP (e.g. poverty alleviation, reforestation, conservation agriculture practices, extensive monitoring). Program subsidies are paid for 8 years if households plant “ecological forests” (timber crops), for 5 years for “economic forests” (orchard crops or trees with medicinal value) and for 2 years if grasses are planted. Between 1999–2007, the government stipulated annual subsidies of cash (RMB 300/ha, or ~US\$45), grain (2250 kg/ha in the Yangtze River Basin and 1500 kg/ha in the Yellow River Basin) and a one-time seedling/sapling subsidy (RMB 750/ha, either cash or in-kind) for planting and maintaining trees and grasses on their retired land (Bennett 2011).

Similar to the implementation of many national policies, including Climate Change Adaptation, the top-down approach to natural resource governance in China begin with a general policy framework and a few chosen provinces to bear the burden of ‘testing’ them and share their learning by doing experience before a full scale implementation. The implementation of SLCP follow this pattern. At the local (County, township, village) level, Provincial government often rely heavily on local county governments’ knowledge and resource regarding local development context such as economic profile of local citizens, forestry-related technical capacity, land tenure, social milieu for government program implementation...etc. (Liao et al. 2014). Juggling among various interests and priorities, local governments may advocate certain aspects of SLCP favorable to their positions and intentionally or unintentionally compromise the program goal of delivery of environmental services and poverty alleviation. Local forestry bureau whose expert knowledge and technical resource are critical in the implementation process of SLCP may not be

fully utilized due to lack of knowledge of the local farming communities. Without these sometimes very personal local knowledge, local government and forestry bureau could face non-compliance by the farmers.

## **Project Design and Methods**

The proposed project planned to document existing adaptation strategies practiced by smallholders in Shanxi and Gansu Provinces, China and produce an adaptation profile differentiated by climate, collaboration and access to socioeconomic resources for the region. This assumption that the two provinces differ in ecological and socio-economical context is based on my previous experience working with a Hong-Kong based Reforestation Non-Profit-Organization (NGO), Green Action Charity Foundation, in rural Shanxi Province and research scoping trips in 2013 and 2014. During these occasions, I witnessed communication and knowledge gap between local official, farmers, and NGO staffs and understand the urgent need to address these potential conflict-inducing issues.

The objective of this project is to collect literature, official statistics data regarding SLCP and document participants' perspectives regarding the implementation of SLCP through interviews, and then share these perspectives among participants in a constructive way that improve collaborative decision making. Principally, I utilized the Collaborative Governance Framework (Emerson et al. 2012) as a guide to conceptualize the collaborative decision-making process that occurred during the implementation of SLCP. The Framework is also used as a communication tool with farmers, officials, NGO staff and researchers during interviews to help draw a blue print of how they themselves conceptualize collaborative decision-making process.

The original project planned to compare and contrast the empirical development of SLCP in the arid region by looking into two Chinese provinces on the Loess Plateau, Shanxi and Gansu. The new understanding of adaptation strategies is then discussed with participants in light of critical and qualitative analysis of risk management strategies and capabilities of smallholders, to help complement top-down reforestation planning, reduce conflict, and advance collaborative decision making.

During the 2016 Fellowship year, the project design was altered according to time and resource constraints, and most of its significant contents was still retained for my dissertation work in the future. Conducting research in rural China is itself a tremendous task due to accessibility and uncertainty of local participants' availability. In 2016 and early 2017, I collected official literature and data from Shanxi Province, and conducted seven unofficial interviews with researchers of SLCP in Beijing, China, and the staff from Shi-lou County Forestry Bureau in Shanxi Province. Setting up contacts with the Shi-lou County Forestry Bureau was an important step before reaching out to local farmers in the future. Gansu Province was not included in my research fieldtrip to China during this period. Based on discussions and unofficial interviews with local officials in Shanxi Province, NGO staff and researchers, I obtain information and participants' perspectives on the development and implementation logistics of SLCP and their current and future goals. However, I did not obtain enough time to document other local climate change adaptation strategies employed by farmers.

## **Target Audience and Participants**

Collaborative governance in this project requires the continue participation of government officials, environmental scientists, social scientists, farmers, and NGO. This project was designed to inform the NGO staff and local officials in rural China regarding collaborative ways of decision-making and to receive feedback from them to broaden our understanding of how collaborative governance work in the ground.

In a top-down governance context, local officials' understanding of how policy is implemented is crucial for identifying their capacity for collaborative decision-making. Secondly, the NGO's understanding of their role in reforestation and their level of participation in decision making and in what aspects was investigated. Thirdly, local researchers' understanding of the challenges of SLCP provided a broad range of perspectives regarding its overall effectiveness and its standing among other environmental policies. Seven researchers and one graduate students from different disciplines was interviewed during field trip (Appendix A). Lastly, the project intended to share the results with the broader scientific communities here in the U.S. and the general public.

As noted above, I was not able to conduct interviews with farmers in rural China during this period. However, discussions with researchers and local officials was a valuable step towards my future collaboration with them. I would not be able to obtain assurance of my position as a student-researcher in their local community without this fieldtrip.

## **Outputs**

Outputs of the project is an interview summary of NGO staff, seven researchers and two local officials' understanding of the role of SLCP in the rural development context, and in the administrative context.

Interview summary:

- (1) The NGO (Green Action Charity Foundation from Hong Kong) funded their own reforestation work because it is an experimental project that they want to be able to control the quality of their input, and also they were trying to avoid interference from government bureaucracy. As the collaboration goes on among government, NGO and local farmers, however, the NGO found the Shanxi government is doing its administrative supportive role very well all along. The NGO is expanding the reforestation area to another 100 acres of bare land in 2016, which will provide more opportunities for collaborative decision-making. Finally, the NGO is in collaboration with Beijing National Academy of Science's researchers to conduct soil and plant research in the plantation.
- (2) Three social scientists (two from Beijing, one from U.S.) and four physical scientists (all from Beijing) were interviewed regarding the implementation of SLCP. The overall conclusion was that there was significant 'learning by doing' during the initial implementation (1999-2002), and local variation depended heavily on local governments' ability to secure financial and technical resources. A more insightful

perspective came from the social scientists, whom pointed out the nature of the policy as ‘project-oriented’. In other words, SLCP was politically and financially incentivized, and local governments who were in pursuit of performance would usually invest its own resource to achieve the targets set by the central government. This insight reveals the nature of the governance as hierarchical and the formation of social institution surrounded the implementation of SLCP.

- (3) Local officials provided the narrative that Shi-lou county was able to achieve successful outcomes (i.e. survival rates above average across reforestation sites) due to the “honest and down-to-earth” (shi-zai 實在) culture of the local community, especially when compared to other neighboring counties. They also provided me report on the strategies and innovations they used to promote and sustain the implementation of SLCP, and statistical data regarding the target in 2017. The strategies are mostly related to the integration of SLCP with local economic development needs. Their response echoes with previous accounts from social scientists that SLCP is ‘project-oriented’. However, local officials I interviewed demonstrated understanding of the larger economic vulnerability of the local community and has always been mindful of farmers’ needs.

### **Main Outcomes**

The collaborative nature and use-inspired orientation of the project provide a momentum for reaching out to participants in a meaningful way that would not have been there without it.

The primary outcomes to be shared and discussed with participants include:

- (1) Broaden understanding of collaborative governance from both Chinese and U.S. context by discussions with scholars from both contexts. Top-down approach to environmental governance decrease the level of knowledge exchange, the space for ‘open’ discussion between participants, and reduce opportunities for long-term capacity building for the most vulnerable participants – farmers.
- (2) The turnover rate of charity funding from NGO had similar impact as top-down approach. It reduces the level of consultancy with involved farmers because project design is already in place with not much room for negotiation.
- (3) Implementation of environmental policy and programs increasingly demand local officials of their ability to understand the scientific knowledge embedded in these programs. Local officials may or may not have sufficient scientific training to do so.

The qualitative nature of this project requires a longer period to evaluate its outcomes and documentation of how participants agree with the evaluation of their performance by other participants the circle of collaborative decision-making. A survey regarding the statements made by different participants in the near future would help improve our understanding of the level of collaborative decision-making in this project.

On a personal level, I have gained a much more solid foundation and confidence in pursuing a career in working in the boundary between science, government and policy. The discussions with researchers and local officials was a valuable step towards my future

collaboration with them, and understanding of the knowledge gap among them. And I would not be able to obtain assurance of my position as a student-researcher in their local community without this fieldtrip. The CLIMAS fellowship significantly strengthen my role as a ‘boundary worker’.

### **Lessons from Use-inspired Research**

Throughout the fellowship period, I had trouble defining ‘who’ would be the ultimate user of the result of my research project, and who would benefit from this research. There are so many different users and participants with different background and significantly different needs in terms of knowledge. And conflict is one of the unintended consequences between the ‘public’ user and the ‘individual’ user that often occur in the context of environmental governance.

‘Science for the sake of science’ is good enough was a recent (Woodruff, 2016) debate in the media when Duke University Biologist Dr. Sheila Patek faced criticism from lawmakers over her research into mantis shrimp and trap-jaw ants. Some said that her government-funded studies are a waste of taxpayer money. I myself have heard this narrative several times from interactions with the general public in the U.S. and my home-country, and sometimes from discussion with research colleagues. This debate pushes me to contemplate on the value and meaning of use-inspired research. Throughout the research process, I found that meaningful and constructive outreach to non-scientific community such as those from the government sector and NGO goes a long way toward mutual acceptance and utilization of the advantages from each other. Scientific research and findings are a valuable and legitimate ‘tool’ for the government and the NGO to ascertain their own concerns.

However, science translation is much more crucial in use-inspired research compare to others. For example, for officials who lack the resource to understand science that make sense to them in a meaningful way, use-inspired research demand a translation process that requires a certain level of communication skills. Use-inspired research has the opportunity to be utilized and contribute to the ‘users’ that non-use-inspired research has less chance to. The value of use-inspired research lies not in achieving research objectives or the level of method sophistication, but more on how much the knowledge production process itself was being revealed to participants, other than the principal researcher herself. In other words, the revealing of research process, which would undoubtedly take much more time, is a social learning process that enable user of the knowledge and research appreciate the outcome of the research and become more valuable to the users.

### **Next steps**

The next steps for this project are to document and incorporate the knowledge and environmental perspectives of the most vulnerable participant – farmers at the study site, which I was not able to finish during the fellowship year. With the perspectives from different participants, I could further evaluate how participants may benefit from knowledge exchange process to lower the risk of conflict within the top-down-based collaborative governance in China. Finally, as my dissertation work continues, I will integrate a process for participants of this research to provide feedback to the result of this research project, and improve the utilization

of two-way understanding of the challenges of collaborative governance and climate change adaptation from diverse perspectives.

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## **Appendix A: Key researchers interviewed during the development of this project.**

- Baoquan Jia. Urban Forestry Research Center of the State Forestry Administration, Research Institute of Forestry, Chinese Academy of Forestry.
- Jianmin Chu. Division of Research Management Research Institute of Forestry. Chinese Academy of Forestry.
- Jintao Xu. Professor of Economics. Associate Dean. National School of Development, Peking University.
- Lihua Yang. School of Public Administration and Workshop for Environmental Governance and Sustainability Science, Beihang University, Beijing, China
- Kuoray Mao. Assistant Professor of Sociology at Colorado State University.
- Chiang-Guo Tsai. Chinese Academy of Sciences Geography Science and Resource Institute.
- Cheng Lin. Professor and Vice Dean. School of Humanities and Social Sciences. Beijing Forestry University.