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EMPOWERMENT OF FARMERS AT THE CENTER OF AGRICULTURAL DEVELOPMENT

ASSESSING HOW TECHNOLOGY CHOICE AND MARKET ACCESS IN AGRICULTURAL EXTENSION CONTRIBUTE TO THE EMPOWERMENT OF FARMERS

A CASE STUDY OF WESTERN NEPAL AND EASTERN USA

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Abstract

This multiple case study investigates how technology choice and market access, as components of agricultural extension services, contribute to the empowerment of farmers in the Banke District of Nepal and in the state of Virginia in the United States. My 'empowerment' analytical framework is inspired by Amartya Sen's Development as Freedom concept. The research methodology is rooted in qualitative inquiry and review of secondary literature. The fieldwork included semi-structured interviews and focus group discussions with farmers, a questionnaire with NGO community extension agents in Nepal, as well as semi-structured interviews with state extension agents in the United States.

In Nepal, agricultural extension provided by the NGO Practical Action stresses technologies that rely on outside inputs, which create an element of disempowerment. The focus on market access and linking farmers to various local marketplaces empowers farmers. Training Local Resource Persons as extension agents to bridge the gap between the weak state extension system and the poor communities is the right approach for empowering farming communities. In the US, it is troubling to see that the state extension service's resource, the land grand university, works closely with those companies who greatly profit financially from the high-input technologies, which have come to dominate the agricultural sector. Farmers are tied to these input technologies and they have become disempowered through the technology treadmill and the increasing global market, over which they have little control.

With the goal of empowerment of farmers in mind, policies and intervention can be created and instilled in the institutional structures of organizations that will promote a more holistic agriculture in the future.

Foreword

In the *Guidelines for the Master's Thesis* document we are encouraged to "include personal comments referring to the hardships of paper writing". The field semester and thesis writing has been a tough road, marked by various hardships. So, many thanks are in order to those who were there to help in different ways.

First and foremost, I must thank Kati and Jakub, who were with me at the frontlines and held down the fort long after I had given up. To Asha and Tilak, who showed me the beauty of Nepal through their own eyes. To the whole Practical Action family, who went out of their way to help. To Adrienne, who just gets it and coined the term "panic brain". To Chonyi who was there for me from afar. To Lisa who understood and accommodated me in the best way possible. To Elsa, the best supervisor in the history of the world. To the thesis group, with whom I shared the joys and sufferings of thesis writing. To Robina, who left me here in Scandinavia but was always there from Kiwi land, for, both, the academic and emotional stuff. And last but not least, my family, Dajo, Bojana (treba mi crveni krug), and especially Mama Bicanic, whose love fixes everything (Mama je zakon!); and to Tue, who believed in me throughout the whole process.

This study would not have come to fruition without the help of many who gave lots of their time and shared their knowledge with me – big thanks go especially to Prakash who always responded to my many questions and to all the farmers and extension agents who gave me their invaluable time. Everyone at Practical Action, thank you for providing logistical, translation, and gatekeeper help. Kiitos Kati and díky Jakub who saw to it that the data collection and evaluation document got completed. Thanks to the farmers and extension agents in the Hampton Roads community, who are truly great folks. I must also say "Tusind Tak!" to the Nordic Institute of Asian Studies, who provided me with a workplace during the thesis writing process. Thanks to my NIAS colleagues who contributed to the best working atmosphere in which to write a thesis. Per, thanks for being a great librarian and supplying me with all of the books and information I requested.

All these efforts by many have resulted in an insignificant document for applied international development that will soon be forgotten. But all these efforts by many have resulted in tremendous applied personal development. I hope that this personal development is going to help me work for the empowerment of farmers in the future. I dedicate this thesis to all the farmers of the world, who work very hard to feed us all.

List of Acronyms

ASC	Agriculture Service Center
CSA	Community Supported Agriculture
DADO	District Agriculture Development Office
DLS	Department of Livestock Services
DLSO	District Livestock Services Office
DWO	Dalit Welfare Organization
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
GDP	Gross Domestic Product
HELP	Helping Enhance Local Productivity for Food Security
ILISSCON	Improving livelihood security of socially excluded communities in Nepal
LRP	Local Resource Person
NGO	Non-Government Organization
PA	Practical Action
USAID	United States Agency for International Development
WFP	World Food Programme

Glossary of Key Terms

Commodity crops

Crops planted on large tracts of land in a monoculture style and sold as commodities, usually by volume on an x amount of dollars per bushel basis. It is the world market that determines the price of those crops. Farmers are price takers; they watch the market and often lock in a price through a contract at which they will sell their crop before it is even planted.

Genetically Modified (GM) seeds

GM seeds are seeds that are engineered and patented by agricultural companies and sold to farmers. When the farmers buy the seeds, they sign a contract that states the farmer will not resell or reuse the company's patented seeds. The GM seeds are typically gene manipulated to contain a toxic gene, so that they cannot be attacked and destroyed by insect pests such as the corn ear worm. Most known is Bt corn, which has a gene, coded with the bacillus thuringiensis toxin. Alternatively, the seeds are modified to be unaffected by herbicides, which can be sprayed to kill all other plants/weeds but leave the GM seed, such as soy beans, intact. Hybrids that contain the toxin gene and herbicide resistance have also been made.

Global Positioning System

GPS is a Space-based satellite navigation system.

RoundUp

It is the most widely distributed herbicide sold by the agricultural company Monsanto. It is part of the GM seed package. The seeds Monsanto sells are unaffected by the RoundUp herbicide. The farmers can plant the seeds and spray with RoundUp, which will control the unwanted weeds and grasses that negatively affect their crops.

1 Introduction

1.1 The Globalized Food System and Localized Food Producers

Technological advances that have given rise to industrial agriculture have managed to discredit Malthusian fears, as the linear increase of food production has kept pace with exponential population growth – at least on the global scale. However, in the context of unprecedented prosperity and our globalized food system, there are millions who still struggle to fulfill the elementary freedom of satisfying hunger, mainly in poor countries. On the flipside, overnourishment in rich nations is rising and there are today more people who are obese rather than undernourished.

This is a study about people, food, and agriculture, the basis of human society. It seeks to reflect on this global scenario of mass hunger and mass excess by finding out the realities on the ground from those involved in producing our food. The method of investigation is rooted in theoretical and methodological ambitions from development theory and qualitative inquiry. The choice of qualitative research is based on the belief that numbers only tell part of the story (e.g. production yields). This study seeks to complement the numbers with qualitative research that is concerned with the actual human experience and with creating "knowledge that can be used to enhance the human condition" (Kvale 1996:11).

Drawing on Amartya Sen's Development as Freedom concept, which argues that enhancing individual freedoms should be the means and ends of development, many analytical frameworks have been created in order to operationalize this idea. Academic literature motivated by Sen's approach to development has been focusing on the concepts of agency and empowerment, hypothesizing that they are instrumental to development outcomes such as increasing incomes and assets, more equitable social services, access to markets, and strengthening people's organizations (Ibrahim & Alkire 2007:30).

In my analytical framework, empowerment is defined as the ability to make effective choices, which is influenced by two sets of factors: agency and opportunity structure (Aslop and Heinsohn 2005:6). Agency is defined as "the ability to act on behalf of what you value and have reason to value" and opportunity structure is defined as formal and informal context within which people exert their agency (Aslop & Heinsohn 2005; Ibrahim & Alkire 2007:8-9).

This multiple case study investigates whether farmers in Nepal and in the United States (US) are empowered to exercise their agency within the structures of agricultural extension. The main

components of agricultural extension that will be investigated are technology choice and market access. In addition, other local, social structures that are developed by farmers independently of or in symbiosis with the official existing agricultural extension services are also analyzed. Finally, the politicization of agricultural development and policy making could not be ignored and is addressed. In Nepal, the NGO Practical Action's (PA) efforts to improve the food security of marginalized farming communities through training of local extension agents will be the empirical focus of the study. In the US, farmers and the state extension system in the Virginia will be the empirical focus. The two cases represent a developing and developed country because the concept of empowerment is relevant for both, farmers in rich and poor countries alike. Although the two cases are unique and not meant to be generalizable to other farming communities, they are meant to be critical representations of what is happening in farming communities against the backdrop of our globalized food system.

1.2 A noble, albeit difficult to measure new paradigm: Development as Freedom

A major paradigm shift in development theory was introduced by the economist Amartya Sen in his book *Development as Freedom* (1999). The concept has been lauded for challenging the conventional wisdom of global development. Sen argues that development should not be identified with only the growth of gross national product, technological advances, and social modernization, i.e. industrialization exemplified by high income countries. Rather, he urges us to take a broader perspective and view development in terms of its ability to either expand or shrink individual freedoms. What makes Sen's concept salient is that it is designed to analyze gaps in development and individual freedoms regardless if a country is considered rich or poor, developed or developing. This is the reason why this study presents two cases, one from a country that in the field of development would be described as developed and rich, the US, and one that would be considered a poor and developing country, Nepal.

Although there are no clear measurements and specific indicators for 'individual freedom', development as freedom is a fundamental concept that moves development thought towards the disassociation of development theory from economic policymaking. Basically, this means that economists and development practitioners have recognized that increased economic performance and increased social progress and well-being are correlated but the former does not necessarily cause the latter. The myriad attempts to design measurement tools for such slippery concepts as freedom and wellbeing is an ongoing process and its complexity can maybe explain why we might be drawn towards quantifiable data and clinging to GDP to measure development. As noted by Alkire (2007) Sen's theory "seems far richer and more compelling than the measurement companions thus crafted."

1.3 Research Problem: The *Means* and *Ends* of Development

The global food production graph plots as an upward trend (Sen 1999: 206) and today's agricultural output could feed the world population. In developed countries, the percentage of those working as farmers has been steadily decreasing into the single digits, while the production of food has been increasing dramatically. This abundance of food has given rise to the "Western Diet". Dominated by low-cost highly processed foods, this diet has contributed to a rise in non-communicable diseases. In fact, there are now 30% more people who are obese rather than undernourished in the world (Lustig et al. 2012: 27). For the first time in history, non-communicable diseases, such as diabetes, heart disease and cancer pose a greater worldwide health burden than do infectious diseases (ibid.).

If we now turn to look at developing nations, we coincidentally discover that the largest per capita food production has actually occurred there – in populous third world countries such as India and the rest of Asia (Sen 1999: 205). However, despite the conventional agriculture industry that has been the predominant *means* that has led to enormous increases in food production, 925 million people still suffer from hunger, mainly in poor countries (World Hunger 2012) . There, the majority of the people struggle as subsistence farmers who have not been able to benefit from the technologies promoted by the Green Revolution and the global markets. These agricultural development paradoxes have sparked a global assessment, encouraging local and global debate on the future of agricultural knowledge, science, and technology. It culminated in the Agriculture at a Cross Roads Report, which aimed "to assess agricultural knowledge, science and technology in order to use it more effectively to reduce hunger and poverty, improve rural livelihoods, and facilitate equitable, environmentally, socially and economically sustainable development" (IAASTD 2009: 1). Nobody would argue with such ambitious goals this neatly articulated in one sentence but how to get there is the real challenge.

To better understand what has shaped agricultural development, I will zoom in on the local level to look at a service that has played a major role in influencing the adoption of specific agricultural knowledge and technology: agricultural extension– "a mechanism by which information on new technologies, better farming practices, and better management can be transmitted to the farmers" (Owens et al. 2003:337). Traditionally, governments have been the principal service providers with the main goal of disseminating new technologies to farmers. Recently, the emphasis of extension has broadened and today includes providing non-formal education in various agricultural processes, including farm management, credit access, marketing, supplies and markets (Bhatta et al 2008:272). In addition, the private sector and

NGOs have increasingly become involved in various forms of extension provision (Hess 2007; Feder et al. 2010; Scoones & Thompson 2009; Bhatta et al. 2008).

1.4 Research Objective

By further zooming in on the farmers who are the receivers and seekers of agricultural extension services, this *research's objective* is to evaluate the agricultural development in terms of its effects on farmers' empowerment in two distinct communities, one in the US and one in Nepal. The *focus* of the study is on available agricultural extension services, particularly technology choice and market access as the tools for shaping agricultural development.

For the purpose of this study, the empowerment domain is the farmers' ability to make effective decisions about how to farm on his or her farm and whether the farmer is empowered by having access to the market.

1.4.1 Research Questions

The main research question is:

How are technology choice and market access, as components of agricultural extension services, contributing to the empowerment of farmers in western Nepal and eastern USA?

The following are sub-questions:

*What **types of extension services** are available to farmers in Nepal and USA?*
Which **technology choices** have been promoted to the farmers through the available extension services or alternative social structures?
What is the farmers' **market access** for selling their products?

1.4.2 Organization of Study

This study does not cover all the multifaceted aspects of agricultural policy and agricultural development interventions in both the US and Nepal. Rather, it focuses on agricultural extension services and other social structures available to farmers that were exposed during the research. Although the desired outcomes of agricultural interventions are social, economic, and environmental sustainability, this study is specifically focused on empowerment of farmers, which I argue is the basis for achieving the former three outcomes.

The thesis is organized as follows: The Introduction is followed by Section 2, which presents the context and area of study. Section 3 presents the methodology. The theoretical framework follows in Section 4. Section 5 consists of the analytical framework and serves as the model of analysis of the agricultural extension services as it relates to the empowerment of farmers in

Nepal and the US. Results and Analysis follow in Section 6. Section 7 is a cross-case discussion followed by Section 8, the conclusion.

2 The Context: Agriculture and Development

2.1 United States

The US occupies fourth place on the 2011 Human Development Index (UNDP 2011). Local subsistence farming in the USA has been transformed into commercial agriculture. Technology advances that lead to the mechanization of agricultural production have freed up a large number of the population to pursue livelihoods in many other sectors of the economy. In 1900, 41% of the US population was involved in farming and farming comprised 7.8% of GDP. In 2000, 1.9% of the employed labor force worked in agriculture, with agricultural GDP as a share of total GDP at 0.7% in 2002 (Dimitri et al. 2005:2). This mechanization of agriculture has also increased farm labor efficiency, from 27.5 acres per worker in 1890 to 740 acres per worker in 1990 (EPA 2012). Currently, the total number of farms in the US is two million, compared to 6.8 million in 1935 (ibid.).

The direction of farming throughout the past century has been away from small farms growing a diversity of crops with the primary aim to be self-sufficient to a commercial model focused on commodity monocultures that closer resemble an industrial operation and other commercial economic sectors. Rapid technology advancement has been very important in promoting the mechanization and modernization of farming. The development and dissemination of these large-scale agricultural technologies, in the forms of machinery, input fertilizers and pesticides, new crop varieties, and genetically modified seeds has been aided by the institutionalization of these practices through the Morrill Land Grant College Act 1862. This law funded agricultural universities and gave them the task to conduct scientific agricultural research, which was then disseminated to the farmers through the agricultural extension system established by the Smith Lever Act in 1914. Thus, the US extension system epitomizes an extension system that has aided in transforming US agriculture into a highly productive and efficient practice.

2.2 Nepal

Nepal, highly disaster-prone, is dominated by a largely subsistence agrarian economy (WHO 2006:3). Eighty percent of Nepal's population depends on subsistence agriculture for their livelihoods (Dulal et al 2010:623). The country ranks 157 on UNDP's 2011 Human Development Index, making it one of the materially poorest countries in the world (UNDP 2011). Rural poverty hovers around 35% (WHO 2006:4). Only 40% of rural households produce a sufficient amount of food to cover year-round needs (WHO 2006:5). An additional factor are climate-induced natural disasters, which have been steadily increasing, especially in the forms of floods and landslides,

pushing the number of the total rural population who suffer from food insecurity to 3,5 million people, over 15 percent of the total rural population (Dulal et al 2010:623; WFP 2011:3).

The Government of Nepal has recognized that the country's economic future is linked to the agricultural sector, which constitutes one-third of Nepal's gross domestic product (GDP), and that the agricultural stagnation is behind the high poverty rate in rural areas. Apart from productivity and rural poverty, the government also notes that this stagnation prevents it from achieving national food security. It stresses the importance of investing in "agricultural renewal - one that increases agricultural diversity, boosts productivity, and develops value-added post-harvest technology that bring about transformative change in food security, poverty, and competitiveness…"(NARC 2011).

2.3 Field Study Area

This study is focused on two empirical cases: 1) analyzing the efforts by the NGO, Practical Action (PA), to strengthen the state extension system in Nepal by using a community based approach to train local extension agents, called Local Resource Persons (LRPs) to bridge the gap between the weak state extension system and farmers, aiming to improve the livelihood opportunities of the marginalized farming communities in the Western region of Nepal; 2) analyzing the extension services available to farmers in the eastern region of Virginia, where agriculture is the number one industry in the state.

2.3.1 Case 1: Terai Region of Western Nepal

The Terai is the southernmost flatland area of Nepal that stretches west to east across the country, bordering India to the south and Nepal's hill physiographic region to the north. It is the agriculturally most productive area; more than 65% of the country's food grains are produced here (Isaacson 2001: np). In Banke District, located in western Terai, where data collection took place, agriculture is the main source of livelihood. PA's baseline survey revealed that 87% of the households surveyed had low access to improved agricultural technology and 93% did not have access to agricultural extension services (Kunvar 2007:36). PA implemented a 48 month-long food security project that targeted food insecure, socially and economically marginalized groups, particularly dalits (untouchables), women-headed households, ethnic minorities, and households who possessed less than 0.1 acres of land. The baseline data showed that in Banke, 88% of the socially excluded households did not have food sufficiency (ibid.).

The project focused on agricultural production, market access, and employment opportunities for improving the economic and social situation of the target population. One component of the project was to train community based extension workers, known as LRPs. Although the project was implemented in six districts in western Nepal and trained 74 LRPs, the empirical focus of

this study are the eight trained LRPs and the farming communities in Banke District. The LRPs were trained in new agricultural practices as well as in management, cost-benefit analysis, and marketing of products. The goal was that LRPs would pass on their new knowledge to their farming community. There was a strong emphasis on linking the LRPs to the District Agricultural Development Office, the local government body responsible for providing agricultural extension services located in Nepalgunj; learning sharing session were conducted for LRPs and government extension agents in order to build relationships and create conditions for knowledge sharing and transfer.

Banke District has two major urban centers, Nepalgunj, an old city of the area. The other is Kohalpur city, just 18 km north of Nepalgunj along the east-west highway. A big marketplace, Rupaidiha, is located just six kilometers south of Nepalgunj across the Indian boarder. Rupaidiha has a wholesale agriculture market, targeting Nepali customers. There are possibilities for Nepali farmers to export their produce to Rupaidiha. The other marketplaces are in Kohalpur, which has both wholesale and retail markets, so farmers have the opportunity to sell directly to customers as well as wholesalers. Farmers have to pay a nominal fee in order to be able to sell their products to customers. PA, along with other agencies, also established a small marketplace, Samjhana Bajar, about nine kilometers from Kohalpur along the east-west highway. All along the east-west highway there are also some small markets and opportunities to sell agricultural products. Banke boasts bustling urban centers that give good opportunities for farmers to market and sell their products.


MAP OF NEPAL
ADMINISTRATIVE DIVISION
75 Districts, 14 Zones, 5 Regions
International Boundry
Regional Boundry
Zonal Boundry
District Boundry
KTM - Kathmandu
B - Bhaktapur
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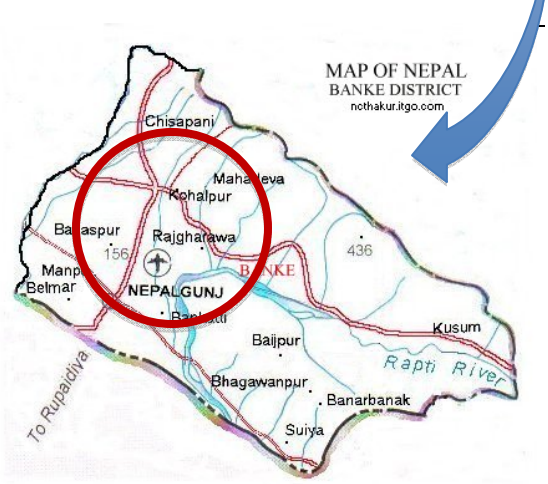
CHINA
INDIA
FAR WESTERN REGION
MID WESTERN REGION
WESTERN REGION
CENTRAL REGION
EASTERN REGION


MAP OF NEPAL
BANKE DISTRICT
nothakur.itgo.com
Chisapani
Kohalpur
Rajgharawa
NEPALGUNJ
BANKE
Kusum
Baijpur
Rapti River
Bhagawanpur
Banarbanak
Suiya
To Rupaidiya
156
436

2.3.2 Case 2: Eastern Virginia

The cities of Virginia Beach and Chesapeake located in the eastern part of Virginia represent the field study area of Eastern Virginia. The rural communities are located close to urban centers. This has several socio-economic advantages. First, farmers who grow vegetables have opportunities for selling their vegetables. Second, the close proximity to a city means that farming households can seek alternative livelihoods. Here, an interviewer sums up well the situation in the field study area:

> *"We are the No. 1 industry in the state. Agriculture and forestry can easily contribute 80 billion dollars to the economy and employ more than half a million people, which is over 10% of the jobs in Virginia. A lot of our farmers have diversified, by not just being grain farmers per se. They have done some of the pick your own fruits and vegetables and they have been very successful with that. And also now […] the new thing is doing more of the local food movement and lots of folks are taking advantage of that and that's good because we have connections with people now that we have not had before. Folks are relying more on the locally produced food than just going to the grocery store. And the farmers market is booming."* (FI a).

There are farmers who produce commodity crops, such as corn, soy, wheat, and cotton, to be sold on the world market. These farmers cultivate 1000 acres and up. They sell their products to local graineries. Other farmers only cultivate 5 to 50 acres of land and mostly specialize in vegetable and fruit production. They mainly sell their products at local farmers' markets, directly to community members who get a seasonal subscription for weekly vegetable delivery, or wholesale to small specialized grocery stores. Some also run pick your own fruits and vegetables operations.

VIRGINIA
POPULATED PLACES
100,000 – 499,999 • Norfolk
25,000 – 99,999 • Roanoke
24,999 and less • Monterey
State capital ★ Richmond
Urban areas
TRANSPORTATION
Interstate; limited access highway
Other principal highway
Railroad
Ferry
PHYSICAL FEATURES
Streams
Lakes
Highest elevation in state (feet) +5729
The lowest elevation in Virginia is sea level (Atlantic Ocean).
OHIO
PENNSYLVANIA
MARYLAND
NJ
DE
DC
WEST VIRGINIA
KENTUCKY
TENNESSEE
NORTH CAROLINA
SC
ATLANTIC OCEAN
Richmond
Norfolk
Virginia Beach
Chesapeake
Hampton
Newport News
Portsmouth
Suffolk
Arlington
Alexandria
Roanoke
Lynchburg
Charlottesville
Blacksburg
Danville
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MILES
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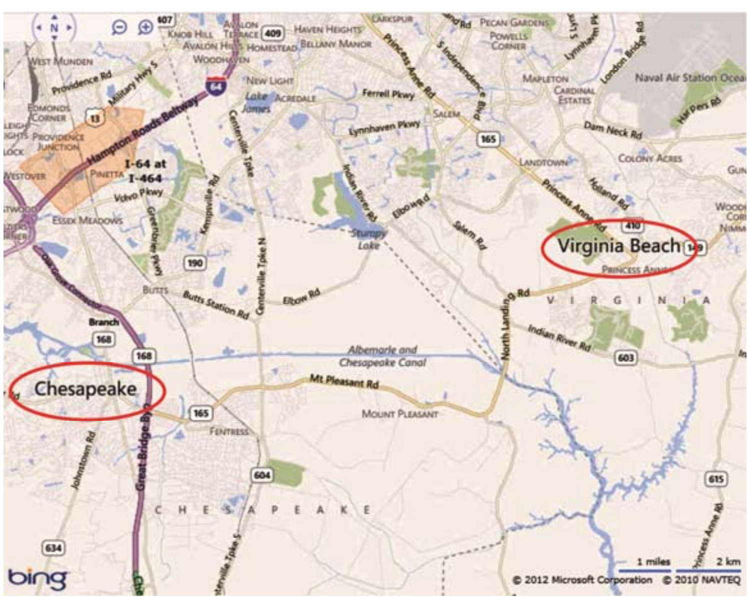
Albers equal area projection



Virginia Beach
Chesapeake
Hampton Roads Beltway
I-64 at I-464
Albemarle and Chesapeake Canal
Mt Pleasant Rd
bing
© 2012 Microsoft Corporation © 2010 NAVTEQ

3 Methodology

3.1 Case Study

This is a multiple case study, consisting of two holistic cases, from which I will draw "a single set of cross-case conclusions" (Yin 2009:20). In both cases the goal was to find out how the different extension services help empower farmers. These two cases will represent experiences of farmers and the services available to them and can be viewed as "embedded units of analysis" (ibid.:31). The choice of the two cases, one from a developed country, the USA, and one from a developing country, Nepal, will help with the analysis and critical reflection on the theory and practice of development and argue that empowerment of farmer should be at the root of agricultural interventions, whether they be in developed or developing countries. The two cases investigate a current phenomenon in great depth within a real-life context (ibid.: 18).

3.2 Research and Data Methods

For my case in Nepal, my study combined the following methods:

- Review of relevant academic literature;
- Direct observation and exposure visits;
- Survey for LRPs
- FGDs with farmer project beneficiaries; and
- Semi-structured interviews with project stakeholders

For my case in the United States, I used the following methods:

- Review of relevant academic literature;
- Direct observation and exposure visits;
- Semi-structured interviews with stakeholders

3.2.1 Sampling

I employed the purposeful selection of participants employing the strategy of criterion, theory based, snowball, and opportunistic types of sampling (Creswell, 1998:119). As I was interested in obtaining views about extension systems from extension workers, farmers, and key stakeholders, I wanted to focus on specific key characteristics (Bryman, 2008:414). These were the categories that emerged:

Nepal			
Key Respondents	**Rationale**	**Type of Interaction**	**Code**
Eight Local Resource Persons (NGO-trained extension workers) from Banke district that had been trained by Practical Action (out of the eight, only five where reached)	Find out LRPs' work as extension workers after the NGO program ended to see what sort of services they are providing to their farming communities	Questionnaire distributed through the Dalit Welfare Organization (DWO), the local partner NGO of Practical Action	LRP Survey

Farmers	Project beneficiaries of Practical Action Project to see how they are interacting with the extension services	Focus Group Discussions	FGD a-b
State Extension Workers; Government representatives	Find out interaction between state extension actors and Practical Action LRPs and what technology and market access strategy they are promoting.	Exposure visits and direct observation; semi-structured interviews.	KII a-f
Practical Action Staff responsible for implementing project	Key Informants to find out their experiences with local farmers and training of extension workers	Semi-structured interviews	KII a -f
NGO representatives	Key Informants responsible for implementing PA project who worked directly with the project beneficiaries	Semi-structured interviews	KII a-f

USA			
Key Respondents	**Rationale**	**Type of Interaction**	**Code**
State Extension Workers	To find out their role in promoting technologies and market access to farmers	Semi-structured interviews	SI a –e
Farmers	To find out what technologies they were using, what markets were available to them and if and how they are benefiting from the extension system	Semi-Structured Interviews	FI a – e

3.2.2 Data Collection

For the data collection in Banke, Nepal, I participated in the design of questionnaires, focus group discussion guides, and interview guides and in one farmer interview in Banke. The rest of the data was collected with the help of two LUMID colleagues. Part of the data analysis in Nepal draws on the joint document written by myself and my two colleagues with the title: *Participatory Performance Evaluation of Local Resource Persons*.

In the US, I developed interview guides that were based on the same themes as the questionnaires and interviews in Nepal. I interviewed farmers and extension agents and government stakeholders. Just as with case studies, a common critique of interview studies is that they cannot be generalized to the larger population (Kvale, 1996:102). However, by studying in depth interviews with few subjects allow for a detailed investigation of relationships in a specific context (ibid.: 103). Analyzing various extension systems will not result in formulae

on how to design universal extension services (Christoplos & Farrington, 2004:8). Thus, generalization is not the goal of this study.

3.3 Limitations

One major constraint of this research was my inability to speak the local language in Nepal. Another limitation was that I am foreigner and an urban dweller with a different cultural background. This limitation became even more apparent when I compare the research process in Nepal with the US, where I could position myself as an independent researcher and where I was familiar with the culture and language and felt I could really speak to my subjects and absorb many other clues during interviews. I was reliant on PA for their invaluable support, but this made positioning myself as an independent researcher difficult. We depended very much on PA's assistance with transport, access to the communities, and translation.

For a more detailed methodology, including my meta-science positions, please refer do Appendix 1.

4 Theoretical Framework

4.1 Understanding Development

Development

> *"a process of change through which an increasing proportion of a nation's citizens are able to enjoy a higher material standard of living, healthier and longer lives, more education, and greater control and choice over how they live"*(Barfield 1997:113).

The practice and scholastics of development can be traced to the reconstruction efforts in Europe following World War II. The World Bank was one of the institutions created to manage the rebuilding of post WWII Europe. Theories concerning the many poor countries in the world began to emerge in an effort to find a way to alleviate poverty and improve living conditions. From the onset, the concept of development was more or less synonymous with industrialization and the goal of development was quite clear: to raise incomes and prosperity (measured in U.S. dollars) of the poor so that they will have access to the types of goods and services found in developed societies, e.g. education, health care, etc. Industrialization was at the core of development theory (Rapley 2007). The concept of development arose in rich Western societies, who had a very specific worldview that was strongly shaped by the history and path taken by those countries. The assumption was that this path from an agrarian society to an industrial one was 'the way' and so began the business of development. A further assumption was that development was universally desirable and that it could be objectively verified by means of the Word Bank's economic indicators (ibid. 186).

Marked by failures in practice, these assumptions were challenged in postdevelopment thought, which questioned the very legitimacy of development. Development was described as a "concept rooted in meta-narrative that, in turn, reflects the interests of its practitioners" (ibid.). In the aftermath of the 2008 financial crisis, the former French President, Nicolas Sarkozy, commissioned a report titled: "Mis-measuring our lives: Why GDP does not add up" (Stiglitz et al 2008). It challenges the use of GDP, the measurement of economic activity, as the appropriate indicator of economic and social progress. It poses the question whether the global economy is capable of bringing long-lasting, equitable, and positive economic and social progress to societies. Sarkozy notes: "Above all, these indicators were a key component of our vision of the economy and society and of an ideology that has spread all over the world; calling them into question seemed so outrageous that no one would even seriously consider it" (ibid.:xi). It seems that for the first time, the wealthy nations – the traditional development practitioners – were questioning their own meta-narrative.

4.2 The Road from GDP to Development as Freedom

In the past two decades, a great amount and diversity of literature has emerged that calls for a more holistic approach to measure development that looks beyond GDP. It has been widely hypothesized that empowerment is "instrumentally important for achieving positive development outcomes" (Ibrahim and Alkire 2007: 30). Perhaps the most famous, although certainly not first, to point to the limitations of GDP was the economist Amartya Sen. He stresses that income and material wealth were merely means to development but not the ultimate end of development (Sen 1999).

In Sen's most famous work, *Development as Freedom* (1999), he explains that "greater freedom enhances the ability of people to help themselves, and also to influence the world, and these matters are central to the process of development" (Sen 1999: 18). His work has paved the way towards including the concept of freedom in poverty reduction development projects. The World Bank's 2000 World Development Report, *Attacking Poverty*, cites Sen's freedom concept and notes that poverty reduction entailed empowerment of the poor (World Bank 2000).

Beyond the rhetoric, we are faced with the reality that freedom is an "irreducibly plural concept" (Sen 2002: 585), not very conducive to prescriptive definition and too slippery to be squeezed neatly into a framework for measurement. Nonetheless, social scientists are required to put on their authoritative white lab coats, come up with a master methodology, including a detailed theoretical and analytical framework that will assist one in reigning in the multitude of uncontrollable, ever-changing, unknown, and manifold variables found in the 'field laboratory'. Although there is no fancy "methodological side-car" (Alkire 2007:94) for measuring individual

freedom in development, many measurement approaches have been designed, although most of them "almost always fail to compass the depth of the idea they accompany" (Alkire 2007:96).

As Sen explains, to see development in terms of individual, substantive freedoms has great implications for how and by what means development is promoted (Sen 199:33). Focusing on freedom will help broaden the view of development to include the evaluation of things that really matter (Sen 199:33). He acknowledges that the heterogeneous nature of freedom as well as individual people's diverse freedoms will lead to contradictory arguments and there will be no precise "criterion" of evaluating development in terms of freedoms (ibid.)

Sen's framework focuses on two key concepts: agency and capabilities. Agency is defined as the ability "of persons to lead the kind of lives they value – and have reason to value" (Sen 1999: 18). The term "agency" is based on the term "agent", i.e. the person "who acts and brings about change" (ibid.:19). By focusing on agency, it is essential to see people not as 'patients' who need help, but as 'agents' who can act in a way to bring about positive societal change (Ibrahim & Alkire 2009: 10). Capabilities refer to combinations of functionings a person can achieve; here, functionings are understood as "various things a person may value doing or being" (Sen 1999: 75). Thus, capabilities are substantive freedoms to achieve various lifestyles, i.e. to "choose a life one has reason to value" (ibid. 74).

In my understanding, agency and capabilities are thus two interconnected and interdependent concepts, where agency refers to a person's ability to act as a responsible agent for change. However, this ability cannot be separated from capabilities, which is in a way the context which provides the foundation to be able to choose and act upon one's agency. This two-way relationship is mutually reinforcing and central to Sen's development as freedom concept. Distinguishing between these two parts of freedom is fine, but this dualism is misleading because those two things are actually inseparable. The inseparability is central to understanding my definition of empowerment.

4.2.1 From Development as Freedom to Measuring Empowerment in Practice

Empowerment

1. *"Expansion of agency – the ability to act on behalf of what you value and have reason to value" (Ibrahim and Alkire 2007:8) and*
2. *"Opportunity structure – provides what might be considered preconditions for effective agency" (ibid.:9)*

Inspired by Sen's agency and capabilities approach, Oxford University has introduced the Oxford Poverty and Human Development Initiative (OPHI), which focuses on agency. According to OPHI, agency is "the ability to advance goals that one values and has reason to value, and

empowerment is its expansion…an increasing ability of individuals and groups to bring about change" (OPHI 2012). Ibrahim and Alkire (2007) provide a list of 32 different definitions of empowerment, all related to such concepts as "agency, autonomy, self-direction, self-determination, liberation, participation, mobilization, and self-confidence" (Ibrahim and Alkire 2007:6).

In this study, two components of empowerment are used. First, empowerment as the expansion of a person's agency: the ability to act on behalf of what you value and have reason to value (ibid.:8); and second, opportunity structure, the preconditions to exert agency, which focus on the "concrete material, social, and institutional preconditions required to exert agency" (ibid.:11). For this study, the focus will be on agricultural extension services, other social structures, technology choice, market access, and politics as the opportunity structure within which the farmer is exerting his or her agency.

Thus, while the context of the two different communities, in the US and in Nepal, will be the central consideration as the opportunity structure for exertion of agency, this study presumes the universality of the importance of empowerment among all farmer communities to be able to make informed choices. The choices they make will then again be reflected upon to evaluate whether the opportunity structure is enabling or disabling empowerment. Based on Ibrahim and Alkire's proposal for indicators to measure empowerment, this study will focus on control, change, and communal belonging as empowerment measurements (ibid.:19). The indicators are tailored to my study as follows:

1. Empowerment as control means having power over personal decisions.
2. Empowerment as change means having power and ability to change one's life.
3. Empowerment as communal belonging means having power to make changes collectively in the community.

4.3 The Curious Disregard of Agriculture in Development Practice

Agriculture

"the human practice of cultivating the land and domesticating animals to produced food, fiber and energy. In a narrow sense, agriculture refers simply to production of these essential human commodities; in a wider sense, it refers to a human activity system that connects social and natural systems such that it is practically impossible to isolate changes in agriculture from changes in socio-economic and cultural conditions." (Porter and Rasmussen 2009:285)

Despite the fact that one of the major issues in development is the pervasiveness of low agricultural productivity, illustrated by the fact that 70% of the population in poor countries lives

in rural area but only 21.5% of GDP comes from agricultural production, the urban bias that emphasizes industrialization as the way towards development and prosperity prevails (Cypher and Dietz 2009:342). One of the leading structural transformation models, advocated by Lewis (1954), has influenced the idea to view agricultural labor as having low and marginal productivity and as providing cheap labor to the service, government, and industry sector (Cypher and Dietz 2009:342). However, even if one wanted to promote the traditional development theory of industrialization, empirical evidence has shown that it is necessary to first invest in agricultural development and that agricultural growth is an integral part of structural transformation (Bezemer and Headey 2006:15). But, Bezemer & Headey (2006) point out that over the past three decades, there has been a clear bias against the agriculture sector in developmental assistance allocation. Looking at the development industry, through the 1980s 23% of all loans and grants from the World Bank were for agriculture (Cypher and Dietz 2009: 354). This figure dwindled to less than 10% in 1999, and down to 4% in 2001 (ibid.). The global volume of aid in the agriculture sector fell from 17% of the total share in 1982 to 3,7% in 2002 (Bezemer and Headey 2006:21). Recently, this trend has begun to reverse, signaled by the World Bank's 2008 report that is dedicated to agriculture. There is a growing body of research that shows that the urban bias has perpetuated poverty and that agriculture-led development is essential if the goal of development is to eradicate poverty and improve the lives of the rural communities (Bezemer and Headey 2006; Cypher and Dietz 2009).

Another reason to focus on agricultural development relates to the issue of food security. The problem of food security, will remain critical for the agrarian poor (Cypher and Dietz 2009:343). In Nepal, the population growth is already surpassing the growth in agricultural production (FSMTF 2010).

In addition, agriculture has a significant impact on the environment. Several alternative forms of agricultural practices are being practiced by those who contest the modern input-based farming approach, which has had a negative impact on the environment (Hazell 2009:17). Efforts in the Green Revolution areas as well as the United States are being undertaken, in the forms of nutrient management in the soil, low tillage, and improved water and pest control management, in order to mitigate the environmental impact of conventional agriculture (ibid.:17-18). Research and development in agricultural practices need to continue, with the goal of decreasing the negative impacts of agriculture (in the form of greenhouse gas emissions and environmental depletion), and increasing the positive impacts of agriculture, through carbon sequestration and enriching biodiversity, for example.

4.4 The Tool for Agricultural Development: Agricultural Extension

Ample empirical evidence suggests that development interventions and continuous research in the agricultural sector have great potential to decrease poverty and improve the environment; additionally, there are strong arguments for public-sector involvement in agricultural development (Bezemer and Headey 2006; Cypher and Dietz 2009). The US Congress passed a law in 1862 that created a nationwide system of agricultural research, education, and extension. The subsequent Smith Lever Act of 1914 described agricultural extension work as the goal to diffuse "among the people of the US useful and practical information on subjects relating to agriculture…and to encourage the application of the same…carried on in cooperation with the United States Department of Agriculture" (US Congress 1914 quoted in Cash 2001: 433).

The government wanted to ensure that their population, at the time predominantly agrarian, would have access to agricultural education in order to aid self-sufficiency and to strengthen rural communication in a time when such communication was costly and slow (Cash 2001:433). Over the last century, this government service has managed to institutionalize agricultural technologies and practices, which have helped farmers go well beyond ensuring self-sufficiency, and have led to a highly productive food system. Today, only 1.9% of the labor force works in agriculture, but US farmers are "the most productive in the history of the world" (Dimitri et al. 2005; EPA 2012a).

While benefits have been brought by the governmental institutionalization of the industrial agricultural system in the US, it has not been without problems. First, despite this steady surplus aided by more efficient production, the 2008-2010 average of food insecure households in the US was 14.6% and 17.8% of the rural population lived in poverty (USDA 2012). Commercial agriculture brought with it the sale of products off the farm and this made farmers dependent on fluctuating market prices over which they do not have control (Keeney & Kemp 2002:7). The globalization of the market additionally aided in the downward trend of prices for commodities, while farming machinery, has become more and more expensive. A farmer in Montana illustrates this point by explaining that a farmer fifty years ago could buy a new truck by trading two of his cows, but today, a price for a truck is $15,000 and a cow still only sells for $600 so today he would have to trade 25 cows to pay for a truck (Diamond 2003:59). With increased prices for inputs and decreasing prices for farm products, farmers are moved to expand their operations (Keeney & Kemp 2002:7). This has led to a major consolidation of the number of farms in the US. The third major criticism is that of environmental degradation caused by industrial farming reflected in soil erosion, soil degradation, decrease of water quality from pesticides, nutrients, and sediments, food safety, and loss of biodiversity (ibid.). Lastly, some have raised arguments that the overproduction of food, particularly commodity crops such as

corn and soy, has had a negative effect on nutrition and health in the US. Marion Nestle (2010) explains that the food supply in the US could feed its population twice over and that the food industry has to sell their products regardless of their nutritional value and possible health effects. Over-nutrition and obesity have become the flip side of malnutrition and hunger.

The US' involvement in agricultural development is a good example where the technical problem of producing enough food has been solved successfully. However, it is agricultural politics that has shaped agricultural development and given rise to the current food system without asking the question about what this means for farmers' empowerment, the environmental impact of industrial farming, and the communities on the ground. These considerations must be central for the future of agricultural development.

4.5 Agricultural Extension within the Development Conceptual Framework

Extension that aided in the formation of a highly productive agriculture in the US can be starkly juxtaposed against the situation in Nepal, where 80% of the population is engaged in subsistence agriculture. Following suit, as many other developing countries, Nepal adopted the 'statist' extension model, with development assistance from the US and India (Christopolos & Farrington 2004; Manandhar 2003). Its current extension service reflects the public extension service of many developing countries, i.e. it is composed of a hierarchical and bureaucratic administration with permanent staff and is plagued by extremely limited resources (Christoplos & Farrington 2004). Unlike the US, low levels of productivity characterize the agricultural sector in Nepal. The public agricultural extension system has had limited impact on improving even the self-sufficiency of its farming households. It is predicted that with current agricultural production growth rates and with a continual growing population, Nepal will become consistently food deficient even when there is a 'normal harvest' (Food Security Monitoring Task Force 2010:13).

The poor track record of state extension services in Nepal has led to a reevaluation of government-led extension provision. It has given rise to several changes and new trends in the arena of agricultural extension, i.e. the decrease in public extension service has been accompanied by decentralization, privatization, new extension players from various sectors, and various forms of cooperation between and among the private, state, and non-government providers (Christoplos & Farrington 2004:8). With agriculture back on top of the development agenda, there has also been a growing interest in agricultural extension among donors and governments (ibid.: 177). One example that shows the commitment of development partners towards agricultural extension is the Neuchatel Initiative, an informal partnership, which promotes the idea that agricultural extension should play a central role for social and economic

development (Christoplos & Farrington 2004:1).

Whether national, non-governmental, or private, there is a wide range of possibilities to organize extension and one is warned not to look for a formulaic, blueprint approach (Christoplos & Farrington 2004:8). Not only is there a wide range of approaches for agricultural extension, there is also the consideration of what the ultimate goal of extension should be. We are faced with the challenge of reflecting on the current system of extension and current reforms in the sector in order to be able to implement changes that will benefit farmers and consumers. As I argue in my study, the role of extension should be to empower farmers and give them the necessary tools to be able to make decisions and have choices. Some of the means that might contribute to this type of individual empowerment is to create conditions so that farmers can participate in the market, have available useful agricultural information, enjoy freedom of movement, and have access to the institutional infrastructure (Christoplos & Farrington, 2004: 30). Agricultural production happens in a globalized context where our food system is highly interconnected and interdependent.

4.6 Local Relationships and Local Structures

Social Structure

"Social structure is here considered to refer to recurring patterns of social interaction, where the patterning is in regards to concrete individuals…. Indeed, there is in sociology one extremely general, and extremely satisfying, answer along these lines, and this is that structures "come from" the crystallization of relationships." (Martin 2009:9).

As I was conducting my investigation, it became apparent that certain farmers and actors had formed specific relationships and were engaged in specific, recurring, and patterned actions that had resulted in some sort of 'unofficial' structure that was parallel to the 'official' recognized institutions of extension services and markets. These local social structures emerged through forming relationships between individuals and served the purpose of exchanging information about alternative forms of farming, alternative technologies, the creation of alternative markets, and getting access to land. For the purpose of this study, I am drawing on the concept of social structure as defined in Martin's (2009) book *Social Structures,* who focuses on individuals and their relations and "depicts structure as emerging out of ongoing relationships (DiMaggio 2011:1668). My goal is not to delve into structural theory but rather to use one specific definition in order to describe specific local relationships and structures, which I would like to call non-formal agricultural extension, that I observed in the field that emerged because the individuals from the official channels did not have the adequate knowledge and information for certain farmers in the community. These local structures will form part of the analysis.

4.7 Technology Choice

Technology for Agriculture

"Technology, understood as the use of farming tools and techniques, is an indispensable component in agriculture. In the most general sense, technology permits humans to increase the capture and efficient utilization of solar radiation that drives primary plant production that is the basis of the human food and fiber chain" (Porter and Rasmussen 2009*:485).*

The significance of technology in agricultural practice is illustrated by the fact that technological developments in domestication of animals, irrigation of land, and storage of food enabled the transition from hunter/gatherer life-styles to permanents settlements which set the stage for the establishment of social practices for permanent large-scale civilizations, which all began about 10,000 years ago (Kaplan 2009: 384).

The importance of a strong agricultural sector and agriculture-led development has been presented above. This strategy, however, leaves us with the challenging scenario of picking the right type of agricultural technology that will not only aid in higher productivity, but also to the empowerment of farmers. Furthermore, the environmental consequences of the technologies employed must also be considered. It is only in the last 250 years that farmers have been able to utilize inputs of fossil fuel energy, in the forms of fossil fuel fertilizers, herbicides, and pesticides and machinery in place of human sweat and drudgery (Porter and Rasmussen 2009:286). What is today known as 'conventional agriculture' began when agriculture was influenced by scientific progress and confidence in human reasoning and rationality rooted in the Enlightenment period (ibid.:287).

The conventional agriculture technologies which are able to produce dramatically high crop yields have been far-reaching and awe-inspiring because they have been the basis for achieving great advancements in human culture, health, and education. The major agricultural changes brought about by these technologies formed the underpinnings for other major societal changes such as industrialization and metropolitan lifestyles (ibid.).

The Green Revolution that began in the 1960s, is the cultural export to the developing countries, of the agricultural practices that had developed in the energy-rich industrialized West (ibid.:288). Through the use of intensive irrigation, fertilizers, pesticides, and particularly improved high-yield varieties of cereal crops (rice and wheat), farmers were able to increase their crop production. The excitement for the Green Revolution as the solution to the world's food problem was followed by skepticism and controversy as the intended results of eliminating hunger and poverty did not materialize. Among the many studies conducted, the aggregate impact of the Green Revolution has been mixed (Dunn 1978:68; Hazell 2009:15). Salinization

and poisoning of well water through fertilizers and pesticides have been the negative environmental effects (Cypher and Dietz 2009:365). It is very clear today that the Green Revolution technologies are not the solution for the food production problem and that it is not the appropriate technology for small, marginal farmers (Dunn 1978:69).

More recently, the quest to improve agricultural technologies in the spirit of conventional agriculture and Green Revolution breakthroughs have resulted in biotechnological research aimed at altering food plants' genetic make-up. This has given rise to questions about intellectual property rights as companies who have managed to manipulate the genes of plants have patented the modified seeds. The great increases in productivity in the developed and developing world brought about by conventional agricultural methods raises several important issues regarding the appropriateness of this technology and important questions of moral nature; i.e. health and environmental degradation, topsoil erosion, mono-crops, global trade, and genetically modified organisms (Kaplan 2009:384).

4.8 Market Access

Markets

"Market is an arena in which buyers (demand) and sellers (supply) come together for the purpose of engaging in exchange. The extent of the market may vary widely: from a specific locality to a region to a country to the entire globe" (Barfield 1997:303).

The concept of "the market" and what role it plays and should play in society and for people is multitudinous. Benediktsson (2002) addresses the "polysemic quality" of the market concept. In this study, three concepts of market are considered:

- The *market economy* born out of neoclassical economics, where the universal, self-regulating principle is emphasized (Benediktsson 2002:27).
- The *"specific constellations of commodities, regions, and economic actors"(ibid)* of the market. Here, the notions of the universality of the neoclassical market economy and the invisible hand are set against the various cultural, political, and institutional contexts, which diminish this mathematical, rational universality.
- The *marketplace* concept as the "geographical manifestation of market exchange" (ibid.) As Benediktsson (2002) notes, this third concept of *marketplace* was what the word market referred to originally (ibid.).

Developed nations such as the USA have attained great wealth through the market economy, where the basic rule of the game is that demand and supply dictate what is to be produced. Today, most farmers in the US are tied to the market economy where the commodities they produce are being sold and traded on the global market. The participation, therefore, in the

market economy, has been the goal of traditional development theory, i.e. modernization and industrialization. Today, the global commodity markets have replaced many other forms of exchanging goods. The argument goes that increasing access to the market economy is a good means of bringing well-being and development to those who have been left behind.

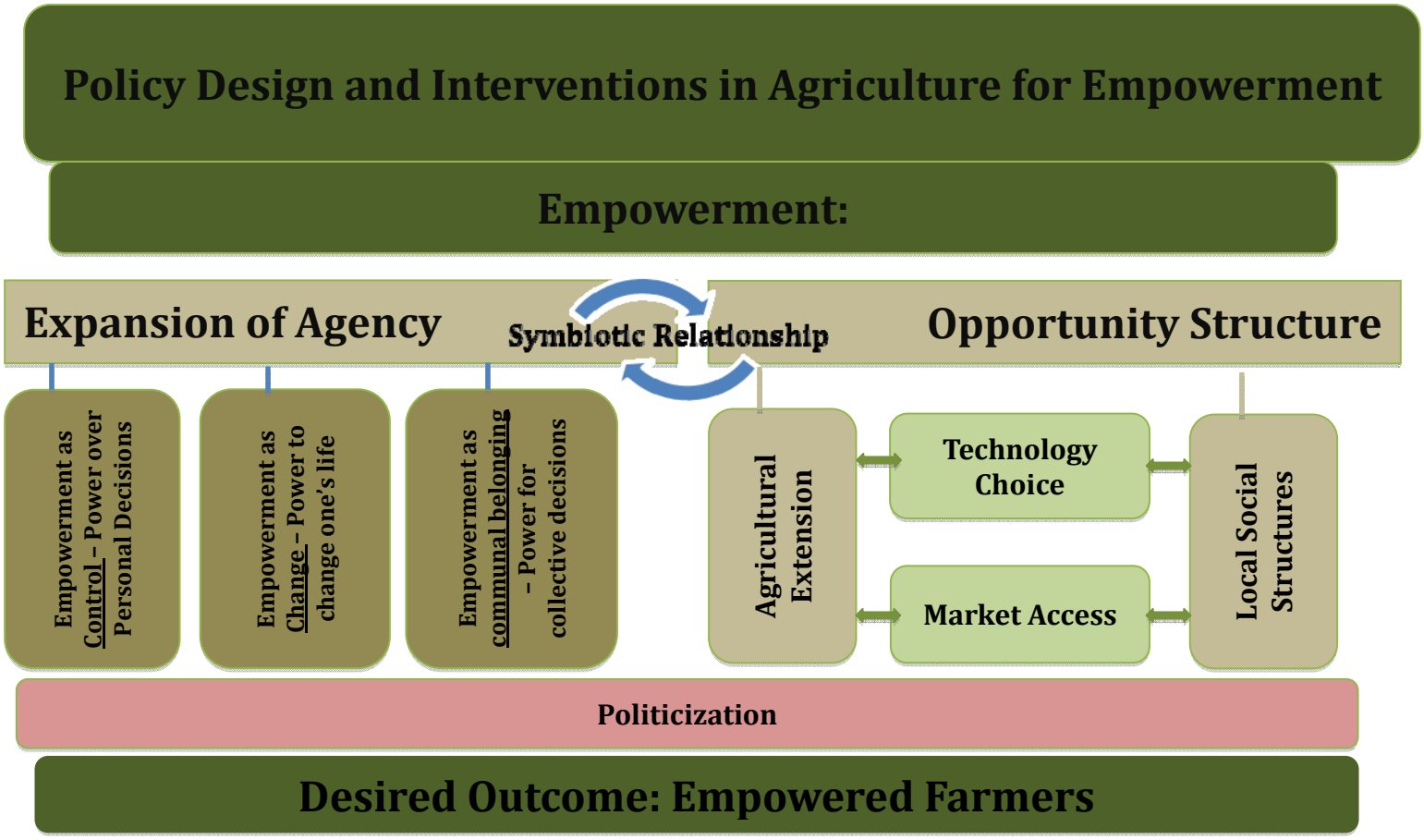
While the debate often rages between in favor or against the market mechanism, the market is a basic arrangement where people can interact with each other in order to conduct "mutually advantageous activities" (Sen 1999:142). In this study, the available markets will be evaluated in the light of whether the access to a particular type of market contributes to the empowerment of farmers.

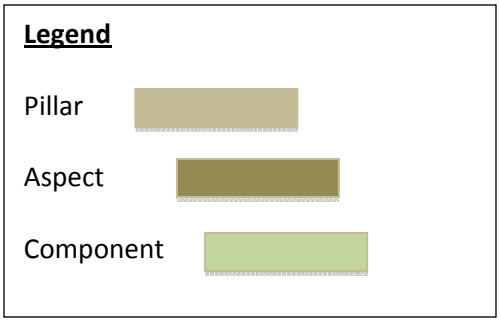
4.9 Last but not Least: Politics and Politicization in Agricultural Development

Political factors have been important drivers in shaping agricultural policy and agricultural development. Politically marginalized segments of society do not have much influence over the politics of institutions who implement agricultural policies. In my investigation, I have found that the local political institutions have power and can influence to whom they will provide agricultural assistance. Recently, the debate over genetically modified seeds is an example of the politicization of food and how it should be produced. Technology is by no means apolitical and can be used as a strategic tool to shape policies that would lead to economic success and prosperity. For example, a government can implement policies to incentivize the growing of cash crops for the world market rather than support diversified small holder agriculture. Alternatively, government farming subsidies in developed countries are a good example of how politicized the agricultural sector is, where the government spends large amounts of money to support farmers who would otherwise not be competitive on the world market.

5 Analytical Framework

5.1 Model of Analysis





5.2 Explication of the Model of Analysis

In the Theoretical Framework Section above, I have presented concepts and theories that comprise my Model of Analysis, which I will use to analyse my empirical data. I argue that central to the articulation of agricultural policies and development interventions in agriculture is the concept of empowerment.

In the Model of Analysis, empowerment is represented as two interrelated and interdependent concepts that form a symbiotic relationship: expansion of agency (Pillar 1) and opportunity structure (Pillar 2). Here, I draw on the empowerment concepts articulated by Ibrahim and Alkire (2007). The expansion of agency is comprised of three aspects – power over personal decisions (Aspect 1), power to change one's life (Aspect 2), and power for collective decisions (Aspect 3). It is against these three aspects that the expansion of agency of farmers will be analyzed. The other pillar of empowerment is represented as opportunity structure, specifically the structure provided by agricultural extension services and other local social structures. The components of Pillar 2 in my study are technology choice (Component 1) and market access (Component 2). It will be analyzed how these opportunity structures influence the expansion of agency (Aspect 1,2,3). Lastly, I address the point of politics and politicization in agriculture and food production and how it influences empowerment. Although empowerment is represented as consisting of two separate pillars, the agency of farmers and the larger structures within which farmers operate, this dual representation is only there for the purpose of an academic analysis. In reality, the two pillars are interdependent.

6 Results and Analysis

6.1 Results and Analysis Nepal

6.1.1 Assessing Technology Choice for Empowerment

Through the PA project, physical agricultural inputs such as seeds, fertilizers, and pesticides as well as technical know-how delivered through the trainings of agricultural LRPs brought new more conventional farming practices to the LRPs. Off-seasonal vegetable production, integrated insect pest management, and marketing skills became the official content of LRP trainings in Banke after consultation with beneficiaries, market players, stakeholders, and a feasibility study. The main farming practice improvement, commercial, off-season, vegetable growing has brought increased production to the LRPs. The other main technology has been the access to improved seeds. The new training and free inputs and materials that they received motivated LRPs to practice their new knowledge and technologies. Today, the LRPs in question make most of their profit by selling agricultural products grown through the new technology of agricultural-input and off-season farming. Additionally, they also keep livestock, sell agricultural inputs to

farmers, and give technical extension services to other farmers (LRP Survey). Thus, on one hand, the LRPs access to the new technologies empowered them to make decisions regarding new farming practices that improved their production and along with that improved their financial situation and decreased their poverty. On the other hand, they have become dependent on outside inputs for the new methods of farming. This means that, if the inputs become unavailable or too expensive, the benefits from these products might also disappear. Now, the farmers have learned: take the improved seeds, apply the fertilizer, and follow the instructions from the booklet. They have surely gained benefits from this method. For example, they have the power to make the choice not to seasonally migrate to India to be laborers and can practice farming full time (LRP Survey). But they also have noted that they still need more help with figuring out which of the seeds they can buy are good seeds. Overall, they have not had the opportunity to learn how these outside inputs interact with their soil and how the application of different fertilizers and pesticides can affect their soil and in a few years' time the same cookie-cutter formula that is working now might not work because of the changing natural conditions. Therefore, there is an element of disempowerment and limitation to being trained in and becoming dependent on outside input agriculture without having full understanding that can be gained through trial and error experimentation that makes the farmer empowered to be flexible and knowledgeable to make decisions about how, what, and when to plant from season to season.

Other project beneficiaries, farmers from the same communities as the LRPs, have said that after the project implementation in Banke, they have been able to modernize their farming methods and improve their production (FGD a&b). Farmers have also said that the LRPs and the project played a great role in shifting their farming practices from traditional to commercial, from small to middle size, from seasonal to also off-seasonal. They also learned how to farm in a more systematic way, to employ planting methods for crops and vegetables and also to get better control over plant pests and diseases (FGD a&b). In the focus group discussions, it was revealed that farmers wanted more training on new technologies, livestock management, and that they still lack improved irrigation facilities (ibid.).

The situation for the community before the LRPs were trained and before the project was implemented was that there were no government agricultural extension services for the communities and it is clear that some farmers who became part of farmers groups and were active project beneficiaries gained new skills and technologies for farming. But as noted by a key interviewer:

> *"Some of the technologies are sophisticated in nature and in many cases not user friendly. They require intensive care and a soft hand to handle these types of*

technologies. Farmers need information beforehand to avoid any bad result. Even though these technologies can bring positive changes, farmers are still reluctant to adopt because of initial cost it requires. In many cases poor farmers lack capital and knowledge required for new technologies." (KII f)

Thus, as the LRPs, other farmers have been empowered to change their lives to the better and to improve their income through new farming practices to a certain extent. However, the farmers still have limited opportunities to access information and capital and to have continued available services that would allow them to make better decision about their farming practices.

6.1.2 Assessing Market Access for Empowerment

Apart from teaching LRPs and farmers groups new technologies, the project also provided training on marketing skills, cost-benefit analysis, and establishing networks and contacts with wholesalers, recognizing the importance of linking farmers to a local marketplace. PA also collaborated with other agencies to build a market center in Samjhana Bajar and hold an agricultural fair in the Kohalpur municipality. The LRPs income from the sale of agricultural products at the market increased markedly, doubling in some cases (LRP Survey 2011). By gaining the LRP skills, the farmers became empowered to make new decisions about farming methods and to change their lives by becoming active agents in their communities. In the farmer group discussion it was noted that LRPs provide information related to market access such as price rates and good market locations and they help transport products to the market (Bicanic et al. 2011:12). Through the project, farmers gained power to make their own decisions to sell their products at the local markets, both to wholesalers and directly to consumers, as well as directly to hotels. As one interviewee noted:

"As the production of vegetables increased after the introduction of the project, they [farmers] are now regular actors of the market. They know whom to contact for better price and when to produce to gain more income among others. Through contacts, they have now better information on market, including prices." (KII f)

The farmers who were part of farmers groups noted that the group helped them make collective group decisions to organize transport of goods to the market. Collective decision making lead to empowerment of certain members of the community who were part of the farmers groups. The LRPs became small agro-product distributors to the farmers in their communities, creating an opportunity for their communities to buy agricultural inputs and to earn a bit of income for themselves.

6.1.3 Assessing Agricultural Extension Services for Empowerment

"I am 22 year old. I have ten members in my family. I could not go to schools due to poor economic condition. I looked after cattle, children, and elders. But, when I got a chance to attain training as a LRP, I felt empowered" (PA Beneficiary Case Study 2011).

The idea of PA's community based extension worker, i.e. LRP, is designed to empower individuals and communities to have access to information, new knowledge, and initial materials and input support as a sort of start-up capital. The state extension system is extremely weak and inadequate, with recent reductions in local area service centers and technical staff on the ground. The state extension agents have too large an area to cover, they are not very eager to go out into the field, and they often lack experience and skills to help farmers (Sharma 2011:19). PA's approach is to go directly to the communities and have the communities select individuals who would qualify to be a good LRP. Furthermore, the LRPs are linked to the existing government system through registration, with the idea that the LRPs can access government resources. However, one and a half years after the project implementation, only four out of the eight trained LRPs in Banke District were still active in their role as community based extension workers. But the road of empowerment is long and it takes time to make communities who were marginalized, very poor, and food insecure to be educated farmers, surplus producers, and active marketplace players. More and long-term involvement of PA's approach is required to have higher success in empowering farmers.

6.1.4 Assessing Local Social Structure for Empowerment

The leaseholder farming approach used in the PA project can be seen as a basic prerequisite in assisting landless and land-limited farmers to gain access to productive farm resources. By implementing a system where landless community members can lease land with capital provided by the project, beneficiaries have been able to improve their income through selling vegetables grown on leased land. However, there have been problems with this land leasing approach because of political instability and confusion related to tenancy rights once the project ended (KII f). After project completion, the social structure that was established with the help of the project disappeared and the community did not manage to establish ways to go around each other so that the leasing of land could go smoothly. There was mistrust between farmers and the land-owner in the absence of the project, which was also seen as collateral (KII f).

Since the completion of the project, the LRPs are in a situation where they do not have a strong opportunity structure from the government extension system or other social structures to update their knowledge and skills. Three of the five LRPs have said that there are no available opportunities for skill improvement. Two have noted that they were able to get additional training on new technologies through another agricultural project implemented by USAID. Another LRP mentioned the state Agricultural Service Center as a source for updating his

knowledge. All LRPs have noted that they need and want additional training. Thus, even though the LRPs have gained new skills and are using new technologies, they do not have many opportunities available to keep upgrading their knowledge about new agricultural technologies. In practice, those who benefited most from the project intervention are the LRPs and farmer groups who are geographically closest to the Area Service Center (KII a, b, c & d). The reality is that many farmers do not have the awareness about what services are available to them from the government and how they can be accessed. On the other hand, the government services are extremely limited due to an insufficient budget, low number of staff, and low motivation of the field staff (KII a & d). PA's idea of using the LRPs to link communities to the weak state extension service is the right approach because it attempts to strengthen the extension system from the bottom up. Nonetheless, it is apparent that the state extension system does not have the knowledge and skills to bring empowerment to farmers to be able to learn actively, solve problems, and increase their agency by having access to information and materials that would allow them to experiment on their land.

6.1.5 Assessing Politicization for Empowerment

Nepal has been in transition since the end of the decade long civil war, which ended in 2006. Since then, the constituent assembly, elected by the people and tasked with authoring the national constitution, has been struggling to find common ground and political instability dominates people's daily lives. As noted by a key interviewee, during the LRP training project, there were no elected bodies and the national government had no directive for the local and district governments (KII f). The opposition United Communist Party and other political parties ware and are still extremely politically active and it is not uncommon that they call strikes, which prohibit the free movement of people and often close down schools and other government offices. As reported by an interviewee:

"The bitter reality was (in fact still is) that political parties knowingly or unknowingly didn't prioritize agriculture development in their agenda. They were all concentrated on settling long-lasting political issues after Maoists came into political arena. This hampers effective engagement of project with them." (KII f)

It was noted by a key informant that personal relations and political affiliation have an influence on farmers' ability to receive government services (KII e). Proximity also plays a role, and the farmers who live far from government offices have not received any type of support while those living close to the district or area headquarter offices have received some support. It was also reported that political influence played a role in selecting areas for market development, which depends on the minister of the central Department of Agriculture (KII f).

6.2 Results and Analysis United States

6.2.1 Assessing Technology Choice for Empowerment

For commodity crop farmers, there is a huge emphasis on keeping up with modern technologies, which are represented by: genetically modified seeds; heavy-duty machinery, in the form of tractors of different horsepower, seed planters, tillers, combine harvesters, etc; and information technology. Satellite computers and smart phones allow farmers to monitor the market prices for the commodities they are selling. GPS monitors are found in tractors and can be put to use to map the farmer's fields, to determine amounts of pesticide or herbicide to be sprayed, and to automatically steer the tractor to aid in precision planting or spraying. The reality faced by farmers is: keep up with the technological advances or get left behind and lose your competitiveness, which means lose your farming business. According to one farmer and an extension worker, all the commodity farmers in the Hampton Roads community utilize some RoundUp ready seed technology today. The trend started in the mid-nineties where the first farmers started to use GM seeds (SI a & FI a). The others quickly followed suit in order to stay economically competitive at the time.

When the new seed technology first was introduced farmers were not very fond of the idea. As noted by one extension agent:

> *"There was huge resistance. Because the company required that the farmer sign a contract which basically stated that […] the patents would not allow them to sell that seed, which is a complete departure from what they have always known. And they were resistant to that […] some decided I am not going to buy that seed […] they lasted maybe 4-5 years, they completely went to the technology because they were being left behind. Because they produced less. They had more weed problems. They understood that the technology was so much more efficient. There was resistance but they observed other farmers following that and they followed suit" (SI a).*

The costs for GM patented seeds are high:

> *"A bag of corn seeds, it is over 200 dollars a bag, but hopefully it will plant an acre or two. But it is just crazy, what these things cost." (FI a)*

But the hope is that it will pay out because the high cost for pesticide and herbicide application are kept in check and crop yields are anticipated to be high. One farmer expressed concern about plants' resistance to RoundUp and noted that it is good to rotate crops to break the cycles in the soil.

The cost of machinery is also very high and the different machines have to be replaced quite frequently in order to stay current and competitive. As noted by one interviewer:

> *"Who would have thought a combine could get you a very nice house, for the cost of that, it is just crazy what things cost anymore […] trying to keep up with your machinery cost, I mean that is a huge thing there cause as things advance if you get left behind, then you have a harder time buying parts and you know being more efficient compared to somebody else…I guess trying to stay you know in line with all of that. It is a challenge but it is a good thing for your business too. For us, we are trying to learn more, we just got smart phones last week, everybody has had one […] those are the challenges, technology challenges, I guess to overcome if you are not as familiar with them." (FI a)*

Commodity crop farmers that I had the chance to interview were all college educated, mainly at Virginia Tech, the agricultural university of the state (see Section 2.1). They came from multi-generational farming families. Farming to them was as much of a way of life as it was a business and livelihood. As several interviewers explained, the most valuable thing they learned at university was business classes that have empowered them to make better decisions for their farming operation. They were extremely hardworking and innovative in making an effort to keep up with new technologies and to maximize their farming operation. They make use of the internet, smart phones, and farm magazines to stay on top of the new information and knowledge about new technologies. They also were empowered to make decisions to diversify their livelihoods when they felt that the risk of farming became too high. One farmer turned extension worker explains:

> *"There are quite a number of people like myself, who are part time farmers, and we reduce some of that risk factor that comes with large businesses by having a secure job and only looking for a modest income from the farming" (SI a).*

It is clear that the farmers have become part of the "technology treadmill, where many quickly adopt innovations" and which "quickly [eliminates] any advantage to adopters and instead increased input costs" (Keeney and Kemp 2003:7). Unless one is savvy, there is an easy way to get extended beyond one's means and to be part of this kind of technology treadmill is disempowering because it is a march in the direction where choices to opt out of expanding and innovating are eliminated and taking on large sums of debt can result in the loss of the farm and bankruptcy. As on interviewer explained:

"So it seems, yes, you might be getting paid more, but your margin of profit can still be about the same as it was 10 years ago but you are just rolling more money in and out of your accounts. So yeah, it looks good when you get paid, but once you do all the expenses, like I might be down to what I had a few years ago, so is it really better? I don't know […] but yeah, trying to afford those things are […] to keep up […]." (FI a)

Farmers who do not own large tracts of land but practice alternative methods of agriculture and grow mainly vegetables and fruits have usually come into farming later in life after having had a different profession and attaining a certain level of financial security and education. The farmers that I interviewed have alternative income sources, either from another member of the household being in a different profession and/or from a second job as carpenter, construction worker, or landscape architect. These farmers are self-taught and are reliant on local networks, the internet, and books for information on new technologies and farming methods. While they all have different approaches to cultivating their land the essence of their practice is to take care of the soil and to give back to the soil more than you take from it (FI b&c&d). One farmer, for example, uses the technology of composting and planting cover crops (FI b). On the internet, he learned about an Austrian farming household who have developed a composting machine that produces compost very efficiently and on his farm he produces enough organic matter to make sufficient amount of compost for his farm and also to sell some off for extra income (ibid.). The compost eliminates fertilizer input costs and actually generates extra income.

The alternative technologies and farming methods have allowed the farmers to make the decision to keep and make a living on a small-scale farm of 5 to 20 acres, which would have had to expand greatly or gone out of business a long time ago if it had been using conventional methods of industrial agriculture. Because of their alternative income sources and education in other professions they are able to keep this small operation that sells to local consumers and appeals to them by selling local and organic produce. Another farm who has managed to keep a small operation but use industrial agriculture methods has figured out how to market specialty products (pumpkins & strawberries) to schools and consumers by giving educational classes and giving city dwellers the opportunity to come to the farm to pick their own fruits, therefore increasing income through educational classes and decreasing labor costs by having the consumers pick their own fruits (FI e). Having access to knowledge about different technologies and having the ability to earn alternative forms of livelihoods in order to be able to implement these alternative technologies have contributed to the empowerment of farmers to practice small-scale agriculture and to grow vegetables for personal consumption and sale.

6.2.2 Assessing Market Access for Empowerment

Most of the commodity farmers are glued to their computers or, most recently, smart phones, always checking the market price for the crops they are growing. It is not up to them to determine the price so they have to monitor the market and make the calculations when to sell their products and to whom. The weather is also not up to them, so they have to make calculations of the percentage of the total crops planted they want to commit to selling. Once you are locked into a contract to sell a certain amount of bushels at a certain value, any bushel not delivered is compensated for by the dollar value. This statement echoed most commodity farmers' views on being a commodity farmer:

> *"You can't control the weather. Some folks, and my husband likes to say it's just like gambling in Las Vegas but it just takes longer to know if you're going to win or lose. It's a big gamble and it's hard work."* (FI a)

The increasingly global agricultural commodities market disempowers commodity farmers because it makes them completely dependent on a large market structure over which they have no control and which has contributed to the downward trend of commodity prices. Farmers become price takers and in order to make a livelihood, they have had to keep expanding their farming operation and cultivating larger tracts of land in order to make enough money as the value of their agricultural products decreases. The commodity farming practice makes it difficult for the farmer to be independent and disempowers farmers because they have to purchase inputs, which are costly, and the returns of farming efforts depend on pre-arranged contracts, where they are in a position of price taker with little empowerment or clout.

For the small vegetable and specialty growers, they have had to more or less create their own channels to market their produce. Mainly, the channels that they have created are community supported agriculture subscriptions (CSA), pick your own fruits and vegetables, and delivering wholesale products to specialized family-owned grocery stores who want to support local organic producers. Other farmers have land virtually inside the city of Virginia Beach and therefore are able to sell to customers straight off the farm. Otherwise, the area of Chesapeake and Virginia Beach boast various farmer's markets where farmers can go to sell their produce. The farmers have over several years established personal relationships with grocery owners and community members to whom they can market their products. The physical marketplaces, which are possible due to the farmer's proximity to a large urban population and which are supported by the city government, along with the personal connections that farmers have established give farmers opportunities and empower them to keep their farming business and earn a livelihood. Living close to a large urban population allows for various forms of local sale

and marketing of produce and the local physical marketplaces are places that contribute to the empowerment to make a decent livelihood. One farmer who has a large pick your own strawberries operation and also has an agreement with the local schools where school children take field trips to his farm says about his farming business: “We are in a very specialized niche. If you are on the urban fringe like we are, there is a place for that (FI e).”

6.2.3 Assessing Agricultural Extension Services for Empowerment

The state agricultural extension system in Virginia is playing a major role for the farmers who practice conventional agriculture, cultivate land in the 500 acres and above range, and plant mainly commodity crops such as soy beans, corn, wheat, cotton or peanuts. There are many overlaps between the extension agents and farmers in the sense that farmers give up farming and become extension agents or extension agents are part-time farmers. Those involved in farming represent a very tightly knit community in the area. The land-grant university, Virginia Tech, is an important resource both for the extension agents and farmers in the area. A government extension agent, who farms part-time, is very active in responding to farmer’s needs and informing them about new developments and technologies, recruiting farmers to participate in test plots, sending newsletters, and organizing meetings, etc. Farmers have many tools and resources and are empowered to access information for their farming business.

The extension service very much reflects the government policies that aided in the conversion of small-scale self-sufficient farmers to large scale row-crop farming business through technological development and dissemination of these technologies. The model of extension has been focused on the linear transfer of technology. One retired extension agent turned farmer describes the job of an extension agent fifteen years ago as the source of knowledge: “We would go to the university and we would get trainings as agents and then we would come home and take that information to the farm” (FI e). Today, since there are so many new sources of information, through the internet, private companies, and many other channels, the extension agent has taken on a role of facilitator of knowledge. One extension agent who saw a demand for a local farmers’ market coordinated with the local government and with extremely limited resources designated a shady road to turn into a farmers’ market on the weekend, where only actual local producers are allowed to sell their products to customers (SI a). Alternatively, an organic farmer has been invited to speak at a conference organized by the extension office about alternative ways to combat pests (FI b). While there are pioneering efforts, the agricultural extension structure still very much supports the conventional ways of large scale row crop farming.

The main criticism of the state research and extension service is that it is very much connected to the interests of corporate seed and agricultural companies, whose main interest is financial and capitalistic. As one responded explained:

> *"A lot of the things that are developed on campus are fully implemented by companies. […] But, all of these companies like Monsanto, ADM those people in the companies that are researchers, scientist, they are all educated by extension, by the universities, like Virginia Tech, so I don't ever feel like there is any type of competitiveness between universities and private industry. I see it more as a collaborative effort." (SI a)*

Since the policy of U.S. agriculture in the last century has been to increase production through scientific methods, this meant that the universities developed the scientific answers, the extension agents were delivering those answers, and the farmers were expected to adopt the scientifically proven ways of agricultural production. This one-way knowledge transfer did not take into consideration farmers' views and demands and it does not empower farmers to experiment and make their own scientific conclusions. The system of extension very much saw the farmer as a passive receiver of knowledge. What is interesting is that the US model has institutionalized this linear transfer of technology method; this same method, however, is often raised as a criticism in development literature when listing the failures of developing countries' agricultural extension services, including Nepal (Scoones & Thompson 2009; Zhou 2008, Sharma 2011; Hess 2007).

6.2.4 Assessing Local Structures for Empowerment

Smaller farmers who noted that they needed different or additional knowledge and resources beyond what the state extension services could provide, have developed their own ways to organize and exchange information. For example, the farmers specializing in strawberries organized a strawberry school every year where information on management, varieties, pest management, etc. is shared among and between growers and extension agents and other stakeholders. There are also expos farmers travel to in order to gain new information. There are several associations, such as the North Carolina Strawberry Association and the Virginia Association for Biological Farming, which were all organizations formed from the bottom up by farmers and interested stakeholders who wanted to learn and disseminate alternative forms of knowledge. Many of the farmers are college educated and this undoubtedly helps them to act as empowered agents to form their own organizations and seek out resources to improve their farms. There are vast amounts of opportunities for non-formal agricultural education and to access information and knowledge, which empowers farmers.

6.2.5 Assessing Politicization for Empowerment

The area of agricultural development and policy is highly politicized. The Farm Bill, the major agricultural policy that is reviewed, revised, and passed every five years in US Congress has been largely focused on increased production by means of scientific methods. Today, agricultural corporations' lobbying power exerts major influence in the shaping of the farm bill and they are interested in maintaining the industrial agricultural model where only a few companies control the processing and marketing over the majority of agricultural commodities. In the industrial agriculture model, the U.S. Food Dollar is divided so that 20% of retail cost of a food item is returned to the farmers, the other 80% goes for labor, advertising, packaging and other value added activities (Marion 2003:17). Furthermore, the major input suppliers (e.g. farm equipment) and seed companies also want to keep the current agricultural structure. The farmers and their empowerment come last and they do not have the same clout and influence over political decisions as the agricultural industry lobby.

There have been efforts to switch U.S. farm policy focus from maximizing crop production to conservation and rewarding farmers financially for conserving land, water, and biodiversity(CIS 2011). These programs, however, receive much less funding, and the 2012 farm bill which is in the discussion process as of this writing, has cut conservation programs by over $3 billion, that is more than 10%, with a recent net additional cut of $2,5 billion (NSAC 2012).

7 Cross-Case Discussion

Above, I have assessed technology choice and market access promoted by agricultural extension services in two very different farming communities from two very different countries with the focus on empowering farmers. The central finding is that increasing production, which has been the primary policy goal in the US and is also the primary goal of the Nepali government as well as agricultural intervention by NGOs and other aid organizations, is not a sufficient goal and that policies that only focus on increased production can lead to making farmers dependent on technologies and disempowering them.

In the US, industrialized agriculture technologies have made farmers the most efficient in the world. But they also have become disempowered in the sense that they are running on the "technology treadmill" and depend on expensive inputs in the form of seeds, fertilizer, pesticides, and machinery. The global market for agricultural commodities disempowers farmers as it makes them dependent on a structure that is beyond their control and the farmers have become the price takers and seen the prices for their commodities decrease with the increase in global trade. The state agricultural extension has played a major role in perpetuating the technology treadmill and in assisting farmers in producing commodities for the world market.

However, in the case study area of Virginia, farmers have room for alternative forms of agriculture, producing vegetable and fruits that they market to local consumers. They have managed to learn technologies that do not depend as highly on outside inputs and to sell to less volatile local markets. This form of farming has contributed to the farmers' independence and empowerment. However, many of them have been able to seek out and maintain this lifestyle because of alternative livelihood options. Additionally, the close proximity to an urban center creates local demand and local marketing opportunities.

In Nepal, farmers are inefficient and government policy has fallen short of delivering assistance to farmers so that they can become self-sufficient. The agricultural extension system's organizational structure is modeled after a developed country model. PA has designed a program component of LRPs with the idea of empowering farmers and communities by educating local members in agricultural practices. They have a strong emphasis on improving production through input agriculture and making available markets to those marginalized farming communities. They have managed to increase production of farming communities, but there is an element of disempowerment as farmers have become dependent on outside inputs and much more educational work and access to resources for learning and experimenting is needed. The project has managed to empower farmers by linking them to local markets, which also exist because of the nearness of urban areas.

Overall, there is a limitation to training farmers with out of the box technologies and with policies directed at increasing production only and not taking into account farmer's empowerment. The industrial agriculture model that was exported with the Green Revolution in Asia is still hailed as the model that will solve the world's hunger problems. As of this writing, the Nepali government and USAID have signed an agreement that will partner the Nepali government with the agricultural company and major hybrid seed distributor, Monsanto, to begin pilot projects to boost the local maize production (Sewell 2012). Making farmers dependent on such an expensive technology, which involves seasonal purchases of inputs disempowers farmers because they become financially indebted and they also do not learn about their own soils and about improved cultivation practices. They are just given instructions: plant this spray this and your production will increase. This technology might increase production yields but it does not empower farmers. As noted by a key stakeholder:

> *"It isn't necessary to bring new crops or new varieties (such as hybrids) in the expense of good quality improved seeds of local crops, information on cultivation practices, and access to markets." (KII f)*

Thus, empowerment of farmers means that those who are involved in agriculture have tools and continued access to education in order to become independent actors and educated cultivators who can make their own decisions and have control over their lives.

But the politics and politicization of agricultural development still plays are major factor, in individual countries as well as on a global scale. Currently, the corporate industrial model of agriculture dominates, which does very little to empower farmers but rather creates dependence on inputs and on markets. Much work is to be done to promote alternative ways of farming, which focuses on alternative low-input technologies, promoting diversification of crops and creating local marketplaces. In the IAASTD ESAP Report, NGOs advocated several alternative farming methods, including new potential of rain-fed agriculture and organic agriculture (IAASTD ESAP 2009:23&35). Nepal boasts a rich biodiversity and there are efforts to promote the wider use of underutilized plant species, which include thousands indigenous varieties of cereals, fruits, and vegetables – all which have been neglected by the state extension system, which has been promoting improved exotic varieties of major crops (ABTRACO 2006 1-3).

8 Conclusion

Liberty Hyde Bailey was a Cornell University professor, who was a pioneer of extension in the state of New York back in the late 1890s and early 1900s. He is quoted as saying: “Every farmer should be awakened” (Bailey quoted in Peters 2006:190). I think by this, he meant, every farmer should be empowered. He thought the purpose of extension went beyond the remedying of disease and increase of yield and profit to include a broader vision where extension was a means of education, which was directed towards human and not just material development (ibid.:192). He said that the purpose of extension was to “improve the farmer, not the farm” (ibid.).

In the US, it is troubling to see that the state extension service’s resource, the land grand university, works so closely with those companies who greatly profit financially from the high-input technologies, which have come to dominate the agricultural sector. Farmers are tied to these input technologies and because of the high capital investment needed for farming large areas of commodity crops, they have become disempowered through the technology treadmill as well as the increasing global market. Smaller farmers who would not be competitive by growing commodity crops have managed to find niche local markets for selling vegetables and fruits to the local community through the market place or personal marketing networks. The local state extension played a key role in enabling the creating of a local farmers’ market in the City of Chesapeake.

In Nepal, it is apparent that the state extension system is a kind of colossal institutional skeleton, which misses the meat, i.e. the people who will dedicate themselves to agricultural development and to improving the living conditions of smallholder farmers. An NGO like PA can have a small, localized impact on farming communities but their resources are limited and they are also tied to funding and demands from foreign donors. The project stresses technologies that rely on outside inputs which creates an element of disempowerment. The focus on market access and linking farmers to various local markets is an empowering factor of the program. Of course, the farmers do need resources and materials and improved local seeds in order to better their lives. But future policies and interventions need to adapt to farmers' needs and need to ask the important question of what the central purpose of agricultural development should be. This element of empowerment needs to be included, which means that farmers should be given the chance to learn for themselves and then be able to make informed decisions. This is a long process that will not deliver hard results in the form of yield increases in the instantaneous manner that planting GM seeds and using herbicides and fertilizers will.

It is very hard to see how the US support of promoting Monsanto seeds is in the interest of empowering smallholder resource-poor uneducated farmers to improve their livelihood. These seeds will certainly manage to improve yields for farmers who become part of the pilot project. But it will also make them dependent on expensive outside input technologies.

With the goal of empowerment of farmers in mind, policies and intervention can be created and instilled in the institutional structures of organizations that will promote a more holistic agriculture. One that supports diversification of crops, which is so important for the future of the soils on which crops are grown. There are many crop alternatives; Nepal boasts rich local diversity and there is a need for looking at local underutilized species native to the varied geographic and climatic locations, where formulaic ways of planting expensive GM crops might not be the best solution. There are many technologies besides the fossil-fuel dependent inputs, which need to be exploited. While the world market is an extremely dominant force, there is room to start creating more local marketplaces for local consumers. Programs for small farms who need to develop alternative technologies for growing diversified crops and supporting local marketing of products need to become part of agricultural extension both in the US and Nepal. Ultimately, the market will demand all of these changes, when fossil fuels become too expensive. But, if we have empowerment as the ultimate end of agricultural development, we can begin to implement changes today.

Word Count: 15,000

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10 Appendices

Appendix 1: Detailed Methodology

Meta-Science Position

Ontology and epistemology are important philosophical contemplations, which inform a researcher's methods. The paradigm shift represented by Sen's development as freedom concept challenged the quantitative methods of measuring development with GDP. It is the same with the quantitative analysis of food production. It only tells part of the story. This study seeks to supplement the numbers with qualitative analysis, which emphasizes interpretative epistemological assumptions and is designed to tell the story of individual farmers and their communities. Further, by choosing two cases, of a country that produces an excess of food, and a country that does not produce enough, I wanted to investigate the constructed realities on the ground among farming communities by becoming part of the environment. Thus, the interpretive and constructivist stance helped me design my methodology, which emphasized individual cases, which are not meant to be generalizable, qualitative interviewing, and direct observation.

Interviewing

Qualitative interviews help to conceptualize knowledge and meaning, from a perspective where one does not view the research subjects as quantified objective data but rather where the researcher builds meaningful relations to be interpreted (Kvale 1998:11). The closeness built through immersing oneself into the lived world of the research subjects "can lead to knowledge that can be used to enhance the human condition." (ibid.). Again, qualitative interview signifies the move from the positivist philosophical perspective, where social sciences were viewed as natural sciences, which were grounded in quantifiable and objective data, to a more constructivist philosophical approach, where knowledge is 'constructed' through the interaction of researcher and subject in the qualitative interview (ibid.).

Ethical Considerations

Between the two positions that see the code of ethics as an absolutist rule book to be strictly adhered to and the relativist stance to be steered by adaptable guidelines, the importance is that the research will not have a harmful impact but would also try to bring something positive for the research subjects (Scheyvens & Storey, 2003: 142 - 151). I made sure to gain informed consent from all my subjects and to fully explain the purpose of my research (ibid.).

Quality and Verification

Once again, in an attempt not to hold qualitative research against the standards of quantitative research, Bryman (2008) suggests reflecting upon different concepts when considering quality in qualitative research, stressing that reliability and validity are less relevant and pointing to credibility, transferability, dependability, and confirmablity. By considering these aspects, I am forced to make sure that I have used the right methods and understood the context of the research (ibid.:375). By attempting to show multiple perceptions and interview subjects from various perspectives in the natural context, I can crosscheck between what the different actors said and triangulate my findings (Bryman, 2008:380).

Appendix 2: Questionnaire for Local Resource Persons (LRPs) Banke District CODE: LRP Survey

1. Date (मिति): ……
2. Name of the Interviewer(अन्तवार्ता लिनेको नाम): ……

SOCIO-ECONOMIC INFORMATION FOR LRP (LRP को सामाजीक तथा आर्थिक जानकारी)

3. District (जिल्ला): ……
4. VDC (गा.वि.स.): ……
5. Village/Wards(टोलको नाम / बार्ड न.):……
6. Name (नाम): ……
7. Sex (लिङ्ग): 1) Male (पुरुष) …… / 2) Female (महिला) ……
8. Age (उमेर): ……
9. Ethnic/Caste Group (नाम): ……
10. Number of farmer groups or other groups you are involved with (तपाई आवद्ध रहेको कृषक समुहको संख्या): ……
11. Education Level (शैक्षिक योग्यता): ……..
12. Number of People in Household (परिवार संख्या):…….. जना (no)
13. Seasonal Migration of Male family members (तपाईको घरवाट रोजगारीका लागी कुनै देशमा जानुभएको?
    1) Yes (छ)…… 2) No (छैन) ……
14. If yes (यदि छ भने):
    a. Where (कहाँ)?……
    b. When(कहिले)?……
15. Agriculture or Vet Services LRP (LRP को प्रकार : तपाइ कुन सेवा संग आवद्ध हुनुहुन्छ):
    1) Agriculture LRP कृषि LRP ……
    2) Vet Services LRP पशु स्वास्थ्य कार्यकर्ता ……
16. What is your main occupations on the basis of income (तपाइको मुख्य पेशा कुन हा - आय आर्जनको हिसावमा)? (List according most 1 to least important 4) तपाइको मूख्य पेशाहरुको वर्गिकरण गर्नुहोला ।
    1) ……
    2) ……
    3) ……
    4) ……

Description of Farming Activities (कृषि सम्वन्धि जानकारी)

17. Size of the Plot (तपाई संग भएको जग्गाको क्षेत्रफल)

Types of Land (जग्गाको किसिम)	Size (क्षेत्रफल)	Unit (मापन)	In / out (लिएको / दिएको)
Owned (आफ्नै जग्गा)			
Rented (भाडाको जग्गा)			
Shared cropping (अधिया)			
Total			

18. Irrigation (सिचाई सुविधा): 1) Yes (छ)……2) No (छैन):……

If **Yes** (यदि छ भने): How much land is irrigated (कति जग्गामा सिचाई सुविधा पुग्छ).....(Size) क्षेत्रफल:

19. Use of Fertilizers (तपाईले मलखादको प्रयोग गर्नुहुन्छ): 1) Yes (छ).....2) No (छैन):.....
    If **Yes** (यदि छ भने): Type of Fertilizer (ति मलखादका नाम के के हुन).....

20. Type of Livestock (तपाईसंग कुन किसिमका घरपालुवा जनावरहरु छन) .....

21. Access to Market (बजारको लागी कस्तो सुविधा छ)
    a) Very good (धेरै राम्रो)
    b) Good(राम्रो)
    c) Bad(राम्रो छैन)
    d) No access(बजारको सुविधा छैन)

    यदि सुविधा छैन भने, Comments (अन्य अरु जानकारी) : .....

22. Food security level of household (परिवारमा खाद्य सुरक्षाको अवस्था):

before becoming LRP (LRP हुनु भन्दा पहिले)	Sufficiency of food ..... month/year (खाद्य सुरक्षाको अवस्था).....महिना
after becoming LRP (LRP भए पछि)	Sufficiency of food ..... month/year (खाद्य सुरक्षाको अवस्था).....महिना

A. SERVICE PROVISION (LRP को सेवा संग सम्वन्धित) :

23. Are you still providing LRP services (तपाई अहिले LRP को सेवा अरुलाई दिनु हुन्छ) ?:
    1. Yes (छ)..... 2. No (छैन) .....

    If **No**, why (यदि छैन भने, के कारण ले).....

24. Who are your clients (तपाईको सेवाग्राहि हरु)?
    a) Farmers (कृषक)
    b) Private retailers/whole sellers (प्राइभेट खुद्रा व्यापारी र ठुला व्यापारी)
    c) Training providers (तालिम दिने संस्था)
    d) Agro-vet (एग्रोभेट)
    e) Others (अन्य) .....

25. Is it only technical advice clients seek from you (प्राविधिक ज्ञान मात्र सिक्छन)?
    1. Yes (हो) ..... 2. No (हैन) .....
    If No (यदि हैन भने), what other (अरु के को लागी सेवा लिन्छन्)

    .....

26. What kind of common problems do farmers normally have (कस्ता समस्याहरु लिएर कृषकहरु आउछन्)?
    a) Pest (बालिमा लाग्ने किराहरुको वारेमा बुझ्न)
    b) Disease (रोग हरुको वारेमा)

c) Seeds (विउहरुको वारेमा)
d) Fertilizers (मलखाधको वारेमा)
e) Other (अन्य).....

27. What are the major crops they request or you provide service (कस्ता खाले बालिका लागी तपाई सेवा दिनु हुन्छ)
    a) Vegetable (तरकारी बाली)
    b) Cereal (अन्न वाली)
    c) Oil-seed (तेल वाली)
    d) Others(अन्य).....

28. Who is usually making the initiative to give/receive services - LRPs or farmers (तपाइ आफै सबै कृषकको घरमा जानु हुन्छ वा उनिहरु आउछन)?
    1) LRP goes to farmer's home (म आफै जान्छु)
    2) Farmer comes to me (उनिहरु आउछन)
29. To how many farmers you provide services in peak months (monthly)? ……
    What are those peak months? ……
30. To how many farmers you provide services in non - peak months (monthly)? ……
31. Do you feel that your skills and services provided match with the requests of the farmers (तपाईलाइ कस्तो लाग्छ : तपाईले दिएको सेवा उनिहरुको समस्या संग मेल खान्छ)?
    1) Always (सधै मेल खान्छ)
    2) Most of the time (धेरै जसो मेल खान्छ)
    3) Sometimes(कहिले काही मेल खान्छ)
    4) Never(मेल खादैन)

    How and why do they not match (यदिमेल खादैन भने के कारणले):.....

32. If you could not solve their problem, where do you seek further information (यदि तपाइले उनिहरुको सवै खाले समस्या समाधान गर्न सक्नुभएन भने तपाई के गर्नुहुन्छ)?
    a) Area Service Center (नजिकै को सेवा केन्द्रमा जान्छु)
    b) Training Provider (तपाईले तालिम लिनु भएको संस्थामा जान्छु)
    c) NGO (गैर सरकारी संस्थामा जान्छु)
    d) Agro-Vet (एग्रोभेट पसलमा जान्छु)
    e) Other place (अन्य ठाँउ).....

33. Rate the improvement of the community's farming practices and production since you have become LRP (तपाई LRP भएर आए पछि समुदायमा कृषि पेशामा कस्तो सुधार आएको छ)?
    1) Big improvement (धेरै सुधार आएको)
    2) Some improvement (केहि सुधार आएको)
    3) No improvement (केहि पनि सुधार आएको छैन)
    4) Worse (झन खराव भएको छ)

Can you specify how they have improved (सुधार आउनुका कारणहरु के होलान)

१)

२)

३)

If gotten worse (यदि झन खराव भएको भए त्यसका कारणहरु के होलान)? .....

१)

२)

३)

TRAINING / CAPACTITY DEVELOPMENT (तालिम सम्वन्धि):

34. What would you say were the most useful skills you gained from the training? (तपाईले तालिम बाट सिक्नु भएको प्रमुख कुरा के हो ?)

.....

35. Were there topics covered that you found irrelevant? Please specify. (तपाईमा सिकेका कुन कुराहरु तपाइको लागी मिल्दो जुल्दो थिएन ?)

.....

36. How relevant were the skills you received through the training to your needs and the needs of the farmers in your community (तपाईले लिनु भएको तालिम तपाइ र तपाइको समुदायको लागी मिल्ने थियो)?
    1) Very relevant (सवै मिल्ने थियो)
    2) Somewhat relevant (केहि केहि मिल्ने खाले थियो)
    3) Not relevant (मिल्ने थिएन)

37. Did you have a chance to express your concerns or suggest additional trainings/materials you wanted (तालिममा तपाइले आफनो समस्या, आफनो सुझाव तथा सल्लाह पनि राख्न पाउनु भयो)?

    1) Yes (पाए) ..... 2) No (पाइएन).....

    If **Yes**, specify (यदि पाउनु भएको भए कस्ता सुभाव, सल्लाह हरु राख्नु भयो):

    .....

38. Did you have any refresher training (तपाइले पुर्नताजगी तालिमपनि पाउनु भयो)?

    1) Yes (पाए) ..... 2) No (पाइएन).....

    If **Yes**, who provided the training? .....

39. What new skills did you gain from the refresher training?

40. Would some additional training have been beneficial (तपाइलाई अरु तालिमको आवश्यकता छ) ?

    1) Yes (छ) ..... 2) No (छैन).....

    If yes, please specify (यदि आवश्यक छ भने, कस्ता तालिमको आवश्यकता छ नाम दिनुहोला) : .....

Other Sources of Capacity Development

41. Are you updating your knowledge and skills related to providing LRP services (तपाइले आफनो सिप तथा ज्ञानलाई समयानुकुल परिवर्तन गरि राख्नु भएको छ)? 1. Yes (छ) ..... 2. No (छैन).....

    If **Yes**, how (यदि छ भने कसरी)?

    ……

42. Which organizations are available for your skill improvement (अहिले कुन संस्थाहरु ले तपाइको ज्ञान, सिप बढाउनका लागी सहयोग गरेका छन)?

    …….

43. From where can you get the necessary inputs that the farmers need (pesticides/insecticides, seeds, fertilizers) (कृषकलाई आवश्यम पर्ने कृषि सामाग्री लगायत विउ विजन, औषधि कहाँ वाट ल्याउनु हुन्छ)
    a) Area Service Center (सरकारी निकाय: सेवा केन्द्र)
    b) NGO (NGO : गैरसरकारी संस्था)
    c) Agro Vet (एग्रोभेट पसल)
    d) other Farmers(अन्य कृषक)
    e) others (अन्य).....

44. Have you received and do you currently receive assistance from the Local Area Service Centers (तपाइले नजिकैको कृषि सेवा केन्द्र वाट सेवा लिनु हुन्छ)?
    1) Yes (छ) ..... 2) No (छैन).....

    If **Yes**, What type of assistance do you receive (यदि छ भने कस्ता सेवाहरु लिनु भएको छ)?

    …….

45. Have you supported and do you currently give assistance to the Local Area Service Centers (तपाइले नजिकैको कृषि सेवा केन्द्रलाइ कुनै सहयोग गर्न भएको छ)?
    1) Yes (छ) ..... 2) No (छैन).....
    If **Yes**, What type of assistance do you give (यदि छ भने कस्ता सेवाहरु दिनु भएको छ)?

    ……

46. How do you describe your relationship to the Area Service Centers (तपाइ र नजिकै को कृषि सेवा केन्द्र विचको सम्वन्ध कस्तो छ)?
    1) Good (राम्रो)
    2) Neutral (ठिकै)
    3) Not good (राम्रो छैन)

Please explain why. (तपाइ र नजिकै को कृषि सेवा केन्द्र विचको सम्वन्धको वारेमा केहि भन्नु छ?) ……

47. Do you have networks to exchange information with other LRPs (अन्य LRP हरु संग सम्वन्ध विस्तार गर्न तपाईहरुको कुनै आफनै संस्था छ)?

    1) Yes (छ) ……. 2) No (छैन)…….

    If **Yes** (यदि छ भने):

    a) Formal (औपचारीक)

    b) Informal (अनौपचारीक)

Income Generation and Government Linkages (आय आर्जन तथा सरकारी निकाय संगको सम्वन्ध)

48. From which services that you provide are you receiving income (कस्तो सेवा दिए वापत तपाई कृषकहरु संग पैसा लिनु हुन्छ)?
    a) Technical advice (प्राविधिक ज्ञान)
    b) Sell Inputs (कृषि सामाग्रीहरु वेचेर)
    c) Market Linkage (वजारको पहुँच पुर्याएर)
    d) Others (अन्य)……
49. What kind of inputs do you sell to farmers (कस्तो सेवाहरु तपाई कृषकलाई विकि गर्नुहुन्छ)
    a) Seeds (विउ विजन)
    b) Fertilizers (मलखाध)
    c) Pesticides (किटनाषक औषधि)
    d) Others(अन्य)……
50. How much do you earn in the peak months (त्यस वेला तपाईको आम्दानी कति हुन्छ)? ……
51. How much do you earn in the non-peak months (अरु वेला तपाईको सरदर आम्दानी प्रति महिना कति हुन्छ)?……
52. What was your occupation before you were LRP (LRP हुनु भन्दा पहिले तपाइको पेशा के थियो)? ……
53. What was the income from that occupation (त्यो पेशा बाट कति आम्दानी गर्नु हुन्थ्यो)……
54. What are the things you like most about being and LRP? (यो पेशा LRP मा तपाइलाई सवभन्दा मन परेको कुरा के हो?
55. What are the obstacles you are facing as an LRP (तपाइ LRP भएर कस्ता अपठयारा सामना गर्नु परेकोछ)?
56. How do they see the future, planning to keep providing services or not (भविष्यमा पनि LRP को सेवा कृषकहरुलाई दिइरहने विचार छ)? 1) Yes (छ) ……. 2)No (छैन)…….

    Comments (किन): ……

57. Are you registered with any government agencies (तपाईले आफुलाई जिल्ला कृषि कार्यालय वा अन्य कुनै सरकारी निकायमा दर्ता हुनु भएको छ)? 1) Yes (छ) ..... 2) No (छैन).....

58. Do you have any knowledge of what the benefits are for being registered with the government?
(तपाईलाई थाहा छ, जिल्ला कृषि कार्यालय वा अन्य कुनै सरकारी निकायमा दर्ता भए पछि कस्तो फाइदाहरु पउनु हुन्छ ?)

.....

59. List the persons and institutions related to your work. List from strong to weak.
(तपाई संग सम्वन्धित संस्था तथा व्यक्तिहरुको वारेमा नामाकंन गर्नुहोला र उनिहरु मध्यवाट सवैभन्दा महत्वपुर्ण लाई १ नम्वर, अलि कम लाई २, ३, ४..... दिनुहोला ?)

Name of person / institutions	**Ranking**

Thank you (धन्यवाद)

Appendix 3: Guide to Focus Group Discussion CODE: FGD a-b

Introduction: We are here because we would like to get information about what kind of services Local Resource Persons are providing for you and what is your opinion about them. Thank you for coming!
We have some question we would like to ask…

1. **Production level and farming practices**

a) What is your opinion: Have the farming practices and production level of the community improved during the last 3 years?
b) If yes, do you think that the LRPs played any role in this improvement? Please describe.

2. **Services provided by LRP**

a) Could you describe what is the role of the LRP in the community at the moment?
b) What kind of services you need related to your farming activities or livestock? Which are the persons or institutions you seek them from?
c) What was the previous practice: how did you receive agriculture related technical assistance in past? (before 2006)
d) What kind of experiences have you got from group farming activities? Has LRP supported the group farming?
e) Could you please tell what kind of services you have received in the past and are currently receiving from the LRP?
f) Is LRP helping you with market access? If yes, can you describe how?
g) Has LRP provided you a linkage to Agricultural Service Center?

3. **Satisfaction**

a) Has the LRP always been able to help you when you have asked for help? If not, can you say why?
b) Are you satisfied with the services you have received from LRP?
c) Do you have ideas how the LRP of your community could improve in his work? (For example, should he get more training?) What do you think are the obstacles for the improvement?

Appendix 4: Key Informant Interview Guides Nepal CODE: KII a-f

Date:
Name:
Position in the ILISSCON project:

1. In your opinion, what are the most essential skills and appropriate technologies needed by rural communities to improve their agriculture and livestock practices?
2. What kinds of services are delivered to rural farmers by government (DADO)?
3. Who is the major key person from government to provide technical services for the farmers? Who are the most frequent clients of the governmental extension services?
4. Do you think the services provided by DADO are sufficient for the rural farmers? What are the gaps in delivery of agriculture services to rural farmers by the government?
5. What do you consider as biggest strengths of the Local Resource Person (LRP) concept?
6. What do you consider as challenges or shortcomings of the LRP concept?
7. In your opinion, how effective are the LRP services in improving rural farming practices and food security?
8. Do you know if and in which ways LRPs are updating their skills and knowledge?
9. How do you think the LRPs fit into the existing agricultural extension services? What are the benefits and challenges of LRPs inclusion into the state agriculture extension services?
10. How can linkages between government and LRPs be strengthened?
11. Please share your ideas on how the following could be improved in the future:
    a. extension services
    b. the LRP concept
12. Other comments:

Date:
Name:
Position in the ILISSCON project:

13. In your opinion, what are the most essential skills and appropriate technologies needed by rural communities to improve their agriculture and livestock practices?
14. What kinds of services are delivered to rural farmers by government (DADO)?
15. Who is the major key person from government to provide technical services for the farmers? Who are the most frequent clients of the governmental extension services?
16. What are the problems and challenges the government faces when trying to deliver extension services?
17. What do you consider as biggest strengths of the Local Resource Person (LRP) concept?
18. What do you consider as challenges or shortcomings of the LRP concept?
19. In your opinion, how effective are the LRP services in improving rural farming practices and food security?
20. How do you think the LRPs fit into the existing agricultural extension services? What are the benefits and challenges of LRPs inclusion into the state agriculture extension services?

21. How often do LRPs contact you in a month and can you describe what sort of services the LRPs seek from you?
22. Are you able to provide them with the required solutions when they seek your services?
23. Can you describe the different ways you work together with LRPs and other extension providers?
24. How are DADO office or Local Service Center supporting LPRs for their capacity development? Are you aware of other institutions providing capacity development to LRP?
25. Are there any regulations or policies developed by government (DADO) to support sustainability of LRPs services?
26. Please share your ideas on how the following could be improved in the future:
    a. extension services
    b. the LRP concept
27. Other comments:

Appendix 5: Farmers Interview Guide Virginia CODE: FI a-e

Date:
Name of Interviewer:
Farm Name:
Briefing and Introduction
Interview
The recorder is on. Would you please say your name and position?

General Information
Can you describe your farm and your farming practice?
-How long have you been a farmer?
-How long have you had this farm?
-How large is the farm?
-What do you produce?
-Do you have livestock?

Is it your only source of **income/can you support yourself** with the farm or do you have to support yourself by other means?
Are you **subsidized by the government**?
Do you use organic methods? Have you always used organic methods?
Why do you use organic methods? Which organic methods do you use?
What sort of fertilizer and/or pesticides do you use?
CSA? If yes, since when. PYO? If yes, what?

Agricultural Extension Services
Are you receiving any extension services from the government or other sources? Do you have to pay for them?
What is your relationship with the agricultural extension office in Virginia Beach or another city in Hampton Roads?
How often do you communicate with them? What is the means of communication?
In what ways do the extension services help you with your farming, if at all?

Do the local agricultural extension services possess the relevant knowledge and skills so that they can provide help to local farmers like yourself?
Do extension services ever recommend alternative ways of doing things? For example, giving you seeds or fertilizers and promoting different things than what you are used to?
Do agricultural agents only come out when you call or do they have ea program for regular visits or provide information on a regular basis – some sort of training?
Do you have information about their range of services – for different farmers…organic, permaculture, industrial…
What sort of farmers does agricultural extension serve the most?
How important are extension services for you?

Buy Fresh Buy Local
Have you heard of Buy Fresh Buy Local?
What is your relationship with the organization?
Are you involved in any way with the organization?
Can you describe any changes to your farming business since BFBL has been introduced to Hampton Roads?

Access to Market
Since the opening of your farm, can you describe what your methods have been to bring your products to consumers?
What is the main market channel to reach consumers to sell your products?
What do you know about informal distribution networks – farmers helping farmers?
Since the introduction of BFBL (2009), have there been any changes to the demand of your products?

What do you see as the biggest challenges for farmers like yourself?
Where do you see the future of farming, as far as new methods and technologies are concerned?

Appendix 6: Stakeholder Interview Guide Virginia CODE: SI a-e

Semi-Structured Interview Guide: Extension Workers in Hampton Roads Area

Date:
Name of Interviewer:

Briefing and Introduction
Interview Topics to be covered and suggested questions
The recorder is on. Would you please say your name and position?

General Information
Could you tell me about your experience and educational background and how you came to be an extension worker?
Can you tell me about how your typical day looks like at work?
Could you tell me what area, how many farms, you are responsible for?

Government Agricultural Extension Services

What is your relationship with the rural community and farmers in Hampton Roads?

In your opinion, what are the most essential skills and technologies needed by rural communities for successful agricultural and livestock practices?

What kinds of services are delivered to rural farmers by the Virginia Cooperative Extension office? Do you feel you possess the relevant knowledge and skills to provide help to local farmers?

Who is the major key person from government to provide technical services for the farmers?

Who are the most frequent clients of the governmental extension services?

What are the problems and challenges the government faces when trying to deliver extension services?

Do you think that agricultural extension is an important resource for the local farmers?

Buy Fresh Buy Local

Have you heard of Buy Fresh Buy Local?

What is your relationship with the organization?

Are you involved in any way with the organization?

Can you describe any changes to your work since BFBL has been introduced to Hampton Roads?

Access to Market

Do you assist farmers with market access where they can sell their products?

Since the introduction of BFBL, have there been any changes to how farmers gain access to markets?

Over the years that you have been involved with agricultural extension, can you describe any changes as far as farming in this area (number of farms increased or decreased, changes in farm sizes, supply and demand of locally produced agricultural products).

Any other comments?